Examining the Influence of Cultural Values on the Routine Post-Adoptive Use of Knowledge Management Systems

Stefan Tams  
*Clemson University*, stefan.tams@hec.ca

Jason Thatcher  
*Clemson University*, jthatch@clemson.edu

Mark Srite  
*University of Wisconsin - Milwaukee*, msrite@uwm.edu

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Stefan Tams  
Clemson University  
stams@clemson.edu

Jason Thatcher  
Clemson University  
jthatch71@gmail.com

Mark Srite  
University of Wisconsin-Milwaukee  
msrite@uwm.edu

ABSTRACT
This work-in-progress examines culture’s consequences on routine knowledge sharing behavior. It employs two complementary cross-cultural theories to develop an integrative model of culture and habitual system use in the context of knowledge management. More specifically, using the Theory of Basic Human Values and the Theory of IT-Culture Conflict, we posit that such cultural values as an emphasis on the legitimacy of an unequal distribution of resources, an emphasis on active mastery and change of the environment, and an emphasis on voluntary commitment to the welfare of others may, under certain conditions, lead to habitual knowledge management system use for contributing knowledge. In carefully selecting and integrating these two theories, this study overcomes major methodological problems inherent in much prior cross-cultural IS scholarship. We propose a quantitative methodology to test the model and discuss why structural equation modeling is the best-fitting data-analytic technique for quantitative cross-cultural IS research.

Keywords
Knowledge Management, Culture, Habit, Post-adoption, Theory of IT-Culture Conflict, Theory of Basic Human Values

INTRODUCTION
Knowledge sharing among organizational members has become increasingly important for firm success (Sambamurthy and Sumramani, 2005). Yet, despite the wide diffusion of knowledge management systems (KMS) as a means to facilitate this sharing, organizations are still struggling in their attempts to generate such contributions as their members often refrain from contributing routinely to such systems (Bock, Zmud, Young-Gul and Jae-Nam, 2005). Instead, employees often evaluate the anticipated costs and rewards of distinct contributions on a case-by-case basis (e.g., Bock et al., 2005; Kankanhalli, Tan and Kwok-Kee, 2003), implying that each knowledge contribution is evaluated individually. Such individual evaluations of knowledge contributions are associated with significant mental effort (Wood and Neal, 2007) and may often result in the decision not to contribute (Bock et al. 2005; Kankanhalli et al. 2003). Hence, enterprises may benefit substantially from an understanding of how routine contributions can be generated.

Routine contributions to knowledge management systems represent a form of post-adoptive use, meaning that these occur after knowledge contributors have initially accepted the KMS (Cooper and Zmud, 1990). Central to this routine system use is the concept of habit (Jasperson, Carter and Zmud, 2005). Habitual KMS use by knowledge contributors signifies that individuals contribute unconsciously and automatically whenever the contextual stimuli associated with the contribution behavior are present (Limayem, Hirt and Cheung, 2007). As such, habitual use may be a richer form of the use concept than, for example, simple usage intentions (Burton-Jones and Straub, 2006). However, research on habitual KMS use as well as on the role of habit as a primary outcome variable in the post-adoption context is limited. Prior KM research has focused on intentional contributions associated with initial rather than habitual KMS use (Bock et al. 2005; Kankanhalli et al. 2003; Kim, Malhotra and Narasimhan, 2005; Wasko and Faraj, 2005). Past habit research has focused on the limits the habit construct can impose on the predictive power of intentions (Kim et al., 2005; Limayem et al., 2007), rather than on the role of habitual system usage as a primary outcome variable in the post-adoption context. Hence, more work is needed in these areas.

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One influence on the formation of habitual KMS use by knowledge contributors may be such cultural values as helpfulness and social power (Alavi and Leidner, 2001; Davenport and Prusak, 2000; Garud and Kumaraswamy, 2005). Such values may impact an individual’s interest in knowledge sharing as well as the person’s willingness to use a KMS. The resulting goal-directed and intentional KMS use may eventually become unintentional and triggered by associated contextual stimuli once the behavior has become a habit through its repetition in a stable context (Oulette and Wood, 1998; Wood, Tam and Witt, 2005; Wood and Neal, 2007). Similar to the concept of habit, culture may be more relevant in the post-adoption context than in the more rational context of initial-acceptance (Cooper and Zmud, 1990), since cultural influence on system use does not involve the formation of rational beliefs about such consequences as system usefulness or ease of use (Leidner and Kayworth, 2006; Myers and Tan, 2002). However, while knowledge management (KM) research recognizes the importance of culture in determining KMS use by knowledge contributors (Alavi and Leidner, 2001; Davenport and Prusak, 2000; Garud and Kumaraswamy, 2005), it has yet to fully explain this cultural impact. Further, much prior cross-cultural IS research focuses on culture’s influence on initial acceptance behavior in the context of the technology acceptance model (TAM) rather than on post-adoptive behavior.

In light of the criticality of knowledge contributions for organizational success in tandem with the struggle associated with generating such contributions, especially since the globalization of business requires individuals from diverse cultural backgrounds to work together, we examine the following research question: How does culture shape habitual knowledge management system use by an individual for making a knowledge contribution?

By investigating culture’s influence on habitual KMS use for knowledge sharing, this study integrates knowledge sharing behavior with the concepts of habit as a form of post-adoptive use and culture as a factor impacting the post-adoptive use of IT. In contrast to much prior cross-cultural IS-scholarship, this research goes beyond TAM and uses a broad theoretical base consisting of two cross-cultural theories. This paper further contributes to the literature on habit by examining this concept as a primary outcome variable associated with system use. Additionally, while prior KM scholarship has focused on intentional, and hence initial and irregular, contributions, this research examines habitual, post-adoptive KMS use by knowledge contributors. This issue of post-adoptive use and its relationship to the central themes of the study are explored in the paragraphs that follow.

The paper is structured as follows. The next section introduces the Theory of Basic Human Values (Schwartz, 1992; 1994), the Theory of IT Culture Conflict (Leidner and Kayworth, 2006), and the concept of habit (Wood and Neal, 2007) as a means to frame a model of culturally-determined habitual knowledge sharing in organizations. The third section develops a series of research hypotheses suggesting that certain cultural values impact the frequency of KMS use for contributing knowledge, which in turn leads to habitual KMS use for contributing knowledge under the condition of contextual stability. The fourth section discusses why a quantitative methodology is appropriate to test the model and why structural equation modeling is the best-fitting data analytic technique. The paper concludes with an overview of its contributions.

THEORETICAL BACKGROUND

The literature on habit and a complementary set of two cross-cultural theories will guide model development in the knowledge management context. The two cross-cultural theoretical lenses are the Theory of Basic Human Values and the Theory of IT Culture Conflict.

Schwartz’s (1992; 1994) Theory of Basic Human Values proposes several specific cultural values that concern the relationship between an individual and a group. Similar to Hofstede’s (1980) work, which indicates that such values as power distance, individualism/collectivism, masculinity/femininity, and uncertainty avoidance differ across cultures on the country level, the Theory of Basic Human Values can thus serve to identify specific cultural values that have the potential of influencing knowledge sharing. Three basic human values are relevant to the study context. These are hierarchy, which refers to the extent to which a culture emphasizes the legitimacy of an unequal distribution of resources, mastery, which refers to the extent to which a culture emphasizes active mastery and change of its environment, and egalitarian commitment, which refers to the extent to which a culture emphasizes voluntary commitment to the welfare of others over selfish interests (see table 1). These three basic human values constitute exogenous variables in our model. Schwartz’s framework is superior to Hofstede’s work as it combines a stronger theoretical foundation with more recent data (Okazaki and Mueller, 2007). The relationship between Schwartz’s basic human values and knowledge contributions to KMS can be examined through The Theory of IT Culture Conflict.

The Theory of IT Culture Conflict (Leidner and Kayworth, 2006) explicitly theorizes about the IT artifact. It posits that individuals are more likely to use an IT when its inherent values are in agreement with the cultural values held by the individuals. For example, individuals who identify with a culture that tends to avoid uncertainty might experience conflict regarding the use of a KMS because any IT is inherently risky (Leidner and Kayworth, 2006). As a result of this conflict,
they may be less likely to contribute their knowledge to a KMS – even if they also identify with a culture that values egalitarian commitment. By explicitly theorizing about the IT artifact, the Theory of IT Culture Conflict complements the generic concepts advanced by the Theory of Basic Human Values.

The two theories are complementary and of great potential value if integrated. The Theory of Basic Human Values contributes three exogenous variables to the model: hierarchy, mastery, and egalitarian commitment. On the basis of these three basic human values, the Theory of IT Culture Conflict explicitly indicates the extent to which individuals might use a KMS in the facilitation of their knowledge sharing behavior. Accordingly, these two theories together allow us to examine the relationship between cultural values and the frequency of KMS use by knowledge contributors. Finally, the literature on habit informs the examination of how the three cultural values might influence the formation of unconscious and automatic KMS use by individuals for contributing knowledge.

HYPOTHESES

Based on our theoretical framing for this study, the following paragraphs develop hypotheses that probe our research topic. The research model is shown in Figure 1, with construct definitions presented in Table 1.

![Figure 1. Research Model](image)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td>Extent to which a culture emphasizes the legitimacy of an unequal distribution of resources (Schwartz, 1992; 1994).</td>
</tr>
<tr>
<td>Mastery</td>
<td>Extent to which a culture emphasizes active mastery and change of its environment.</td>
</tr>
<tr>
<td>Egalitarian commitment</td>
<td>Extent to which a culture emphasizes voluntary commitment to the welfare of others over selfish interests.</td>
</tr>
<tr>
<td>Frequency of intranet use for knowledge contribution</td>
<td>Extent to which an individual uses the intranet for contributing knowledge.</td>
</tr>
<tr>
<td>Contextual stability</td>
<td>Extent to which intranet use for knowledge contribution occurs under a stable physical and temporal context.</td>
</tr>
<tr>
<td>Habitual intranet use for knowledge contribution</td>
<td>Extent to which an individual’s intranet use for contributing knowledge is automatic because of learning.</td>
</tr>
</tbody>
</table>

Definition based on: 1 = Schwartz (1992; 1994); 2 = Limayem et al. (2007); 3 = Wood et al. (2005)

Table 1. Construct definitions

Hierarchy is defined as the extent to which a culture emphasizes the legitimacy of an unequal distribution of resources (Schwartz, 1992; 1994). One such resource is the knowledge residing in individuals. While knowledge as a resource has primarily been studied at the organizational level (Conner and Prahalad, 1996), it can only manifest itself through the individual (Alavi and Leidner, 2001). Hence, the study of knowledge as an individual level resource appears appropriate. This rational is analogous to, yet even more appealing than, Straub et al.’s (2002) logic that culture must be studied at the individual level even though it is a group level phenomenon – because it can only manifest itself through individuals.

To the extent that individuals identify with a culture that emphasizes the legitimacy of an unequal distribution of resources, they might be less inclined to work towards a more equal distribution of knowledge. In this case, individuals may be less
likely to use a KMS for contributing knowledge since such use would counteract the legitimacy of an unequal distribution of knowledge (Leidner and Kayworth, 2006). Conversely, to the extent to which individuals identify with a culture that values an equal distribution of resources, they might be more inclined to deliberately share their knowledge by using a KMS. Thus, we propose:

**H1: Hierarchy is negatively associated with the frequency of KMS use for contributing knowledge.**

Mastery is defined as the extent to which a culture emphasizes active adaptation to and change of its environment (Schwartz, 1992; 1994). The general tendency to value environmental change may be associated with the general tendency to share knowledge. Specifically, the more an individual values change in general, the more change initiatives the person will support. Such support involves collaboration, which in turn involves knowledge sharing. Changing an environment towards some desired end may involve active collaboration because combined efforts tend to produce greater changes than individual efforts, particularly in organizations whose members often work together towards common goals (Schein 1996). Collaboration involves knowledge sharing so that knowledge of the desired end state and the process involved in achieving it can spread across individuals; thus facilitating a combined effort (Alavi and Leidner, 2001; Davenport and Prusak, 2000).

Hence, to the extent to which individuals identify with a culture that emphasizes environmental change, they might be more prone to work towards disseminating knowledge. Such individuals may be more likely to use a KMS for contributing knowledge since such use would conform to their value of change (Leidner and Kayworth, 2006). For example, to the extent to which individuals identify with a firm’s goal of leaving its traditional market and entering a new one, they may be more likely to disseminate their knowledge regarding major players in the new market. The more an individual values change in general, the more such initiatives the individual will support. Thus, we propose:

**H2: Mastery is positively associated with the frequency of KMS use for contributing knowledge.**

Egalitarian commitment is defined here as the extent to which a culture emphasizes voluntary commitment to the welfare of others over selfish interests (Schwartz, 1992; 1994). Egalitarian commitment may be associated with the tendency to share knowledge since contributions to any kind of knowledge repository tend to be voluntary, altruistic, and are directed towards the welfare of others (Wasko and Faraj, 2005). Conversely, knowledge hoarding has been related to protecting one’s own interests (Bock et al., 2005; Wasko and Faraj, 2005).

Consequently, to the extent that individuals identify with a culture that emphasizes voluntary commitment to the welfare of others over selfish interests, they may be more likely to share their knowledge. Conversely, to the extent to which individuals identify with a culture that values commitment to selfish interests over other’s welfare, they might be more inclined to hoard their knowledge. In this case, persons may be less likely to use a KMS for contributing knowledge since such use would violate their shared value of serving selfish interests first (Leidner and Kayworth, 2006). It should be noted that we are referring to the volitional use of KMS and that egalitarian commitment does not take into account mandatory factors such as incentives for contributions and required use of the KMS. Therefore:

**H3: Egalitarian commitment is positively associated with the frequency of KMS use for contributing knowledge.**

Research on habit indicates that the frequency of past behavior performance is an important prerequisite to habit formation. Only when the focal behavior is performed repetitively will the cognitive processes involved in initiating the behavior become automatic and unconscious. In other words, strong habits develop over time. Monthly performance of a focal behavior will generally promote weaker habit formation than daily performance of the same behavior (Limayem et al., 2007; Oullette and Wood, 1998). Thus:

**H4: The frequency of KMS use for contributing knowledge is positively associated with habitual KMS use for contributing knowledge.**

As habits are initiated by specific contextual stimuli such as physical location or time, the physical and temporal context have to be stable. Only then can strong associations between contextual stimuli and behavior performance form. In contrast, frequent repetitions of the focal behavior under contextual instability may only result in weak habits since no association can develop between the behavior and a specific contextual stimulus (Wood et al., 2005; Wood and Neal, 2007). In general, we believe contextual stimuli to be an important component in the overall explanation of the habit construct. Thus:

**H5: This relationship is moderated by contextual stability so that the relationship is stronger for higher levels of contextual stability.**
**PROPOSED RESEARCH METHOD**

The relatively strong theory-base for our research model renders a quantitative approach more than adequate by reducing many of the methodological and definitional problems inherent in much prior quantitative cross-cultural IS scholarship (Karahanna, Evaristo and Srite, 2002). Consistent with prior quantitative research (e.g., Chattopadhyay and George, 2001), this study will employ a large-scale survey to increase research relevance. A random sample of individuals with KMS access will be queried. To ensure that KMS use is important to these individuals, we will survey knowledge workers from a large multinational consulting firm. Consultants heavily rely on knowledge to perform their jobs and often receive outcome-based compensation, implying that knowledge transfer is important to them.

This research will measure culture by querying individuals regarding their cultural values. By keeping the analysis at the level of the individual it is not necessary to segment the sample into subgroups with certain characteristics. The individuals in the sample will vary according to their preference for hierarchy, mastery, and egalitarian commitment. The approach will thereby ensure high internal validity compared to past studies that most often have not employed actual measurements of relevant cultural values (Straub, Loch, Evaristo, Karahanna and Srite, 2002), but rather drawn conclusions on the basis of potentially outdated country scores (i.e., operationalizing a cultural value as, say, U.S. citizens). To further increase the internal validity of this study, we will control for individual differences and continuous intention.

Other measures will be adapted from existing literature where available. For example, habit-related constructs have regularly been evaluated through explanatory questionnaires (e.g., Kim et al., 2005; Limayem et al., 2007). To ensure adequate adaptation of measures to the cross-cultural context, this study will follow the guidelines advanced by Karahanna et al. (2002). These guidelines aim at enhancing multi-group equivalence, a key methodological concern in cross-cultural IS research. Enhanced multi-group equivalence will result in reduced measurement error. While most measures will be perceptual, the study will triangulate the measurement of the frequency of KMS use by employing an objective measure in addition.

Covariance-based structural equation modeling (SEM) will be used for analyzing both the measurement and structural models since SEM accounts for the latent nature of the culture construct. Indeed, culture is not directly observable, and in contrast to more traditional techniques such as multiple regression analysis, constructs that are not directly observable can be explicitly included in structural equation models. Culture, however, might be even more complex. Some scholars indicate that culture should be modeled as a second-order factor, thus further supporting the superior adequacy of SEM over more traditional tools (Kline, 1998).

The data that will be collected for this study will be examined for the extent of between-culture variance using the intra-class correlation (Cohen, Cohen, West and Aiken, 2003). In case that substantial between-group variance will be present, the data will be analyzed through multilevel SEM (MLSEM) (Cheung, Leung and Au, 2006). This technique combines the strengths of hierarchical linear modeling and SEM. Thus, MLSEM accounts for the multilevel nature of much cross-cultural data without sacrificing the researcher’s ability to address the special analytical concerns inherent in cross-cultural IS research. More specifically, the tool enables the researcher to examine factor structures and structural relationships at the levels of the individual and the culture (see Cheung et al., 2006, for a detailed discussion).

**CONCLUSION**

Results from the proposed study will impact our understanding of the interdependencies among culture and habit in the KM context. By explaining culture’s influence on habitual KMS use for knowledge sharing, we integrate knowledge sharing behavior with the concepts of habit as a form of post-adoptive use and culture as a factor impacting the post-adoptive use of IT. In combining these concepts, we also contribute to the three literature streams individually by overcoming some of their major limitations. In contrast to much prior cross-cultural IS scholarship, we go beyond TAM and Hofstede’s (1980) criticized work (see, e.g., Myers and Tan, 2002, for a comprehensive review) and use a stronger theoretical base consisting of two cross-cultural theories. In so doing, we reflected on past cross-cultural IS research to open the gateway for strong cross-cultural scholarship in the future of IT adoption research. Furthermore, to the best of our knowledge, this study is among the first to examine culture’s consequences in the post-adoption context rather than the domain of initial acceptance of IT.

We further contribute to the literature on habit by examining the concept as a primary outcome variable and incorporating contextual stability as a crucial component of the concept’s nomological network into the model. In so doing, we believe that this study is among the first to incorporate the environmental context into a variance model concerned with habit formation. Finally, while prior KM scholarship has focused on intentional and hence initial and irregular contributions, we seek to...
explain how organizations can encourage habitual, post-adoptive KMS use by knowledge contributors. This may help managers in charge of cross-cultural (e.g., cross-regional, cross-national, or cross-religious) teams or divisions enhance the knowledge flow throughout their units. Our results will provide managers with a better understanding of what cultural values foster KMS use for knowledge sharing, and it will allow them to better evaluate the payoffs resulting from cultural change management in terms of the individual impacts of IT.

REFERENCES


