

Contextual Preferences and Network-Based Knowledge Sharing in China

Completed Research Paper

Carol XJ Ou
Tilburg University
carol.ou@wt.nl

Robert M Davison
City University of Hong Kong
isrobert@cityu.edu.hk

Louie HM Wong
City University of Hong Kong
louiehmwong@gmail.com

Abstract

Based on theories about guanxi (relationships) and the communication context in China, we investigate the moderating effects of individual preference for communication context on network-based knowledge sharing (NBKS) behaviour, its determinants and outcomes. Drawing on survey data from employees at multiple hotel properties in the same chain, we explore how elements of guanxi drive knowledge sharing (KS) behaviour and thus enhance KS outcomes. Our data confirm that a preference for a high-context style of communication significantly moderates the effect that NBKS has on KS outcomes. However, we also find that the preference for a high-context style of communication has a direct and negative impact on KS outcomes. We explain these seemingly contradictory findings and examine their implications for both research and practice.

Keywords:

Guanxi Elements, Communication Context, Network-Based Knowledge Sharing, Knowledge Sharing Outcomes

Introduction

Knowledge Management (KM) is widely-accepted as being crucial for organisations that wish to promote best practices and reduce redundant reinvention efforts (McDermott and O'Dell, 2001). Effective competition in a knowledge intensive industry, it has been suggested, depends on employees not guarding or hoarding knowledge as personal secrets (Lu et al., 2005). To date, the vast majority of KM research has focused on organisational-level contexts characterised by the IT-supported codification of explicit knowledge: this is perhaps not surprising as codifiable knowledge has long been recognised as a source of strategic and competitive advantage (Kogut and Zander, 1992), with IT enabling “collaboration among different units and individuals unconstrained by the boundaries of geography and time” (Lu et al., 2005). However, individual employees may also choose to engage in knowledge exchange for their own reasons, irrespective of corporate norms or expectations. This is notably the case in China. Unfortunately most prior knowledge-focused research in China has not examined indigenous cultural practices but instead has focused either on comparisons with other countries (Chow et al., 2000) and/or on the inward transfer of knowledge (Li and Scullion, 2006). Such studies are commonly informed by Western theories, assumptions and priorities, and thus look into China through an externally informed lens, rather than studying China from the inside.

While such comparative research is valuable for cross-cultural purposes, it typically does not permit the identification of the full richness of knowledge exchange behaviour in the Chinese context. Key components of the Chinese environment that have received less attention in the research literature, and yet which are central to the way Chinese employees share knowledge, are guanxi and context. Davison et al. (2013) explore the role of indigenous Chinese variables in a qualitative study of knowledge exchange behaviour in two Public Relations firms in China, but we have not seen any evidence of a larger-scale survey of employee attitudes towards knowledge sharing in China that explicitly considers indigenous

Chinese variables (cf. Tsui, 2006). As we explain in more detail later, *guanxi* refers to the reciprocally obligatory relationships that Chinese employees maintain with selected others – relationships that they leverage as they communicate, solve problems and help others. Context refers to the preference for communications to be implicit or explicit (Hall, 1976). In a high-context culture, much of the meaning in communications can be inferred from the context itself. In a low-context culture, it is necessary to write or speak the meaning explicitly in words. In this study we explore the IT-based knowledge sharing (KS) behaviour of Chinese employees at a major international hotel chain (code-named Ravine). We focus on the influence of *guanxi* elements on employees' KS behaviour with their network members, and the moderating effects of context (high or low) on both *guanxi* elements and the ultimate outcomes of KS: individual work performance and collective network efficacy.

This research design enables us to answer the following question: What is the moderating effect of communication context on the IT-based knowledge sharing behaviour of professional employees and the consequential work-related KS outcomes? Following this introduction, we review the relevant literature before proceeding to the theoretical development and hypotheses. We then explain the research context and introduce our data collection and analytical techniques. The results of the study follow, together with a discussion of the findings. Finally we conclude the paper with contributions and suggestions for future research.

Literature Review

There are several areas of literature that are relevant to this research. These include: *guanxi*, context and network-based knowledge sharing (NBKS). We briefly review each of them in turn, providing sufficient detail to permit the development of hypotheses in the following section.

Guanxi

Guanxi is a Chinese concept that can be loosely defined as “a close and pervasive interpersonal relationship [that] is based on high quality social interactions and the reciprocal exchange of mutual benefits” (Ou et al., 2014). *Guanxi* elements include interpersonal trust, face and reciprocal obligation (Lee and Dawes, 2005). Over the last twenty years, *guanxi* has been operationalized in a wide variety of different ways depending on the context wherein it appears. For our purposes, *guanxi* can be seen as involving a network of social ties (Luo et al., 2008) that emphasizes the reciprocally obligatory nature of interpersonal favours (Lee and Dawes, 2005) in a long-term relationship (Leung et al., 2005). *Guanxi* is both ubiquitous and critical in Chinese society (Fu et al., 2006): all Chinese seek to develop and maintain *guanxi* throughout their working lives (Xin and Pearce, 1996). In the present context, *guanxi* is important because its presence facilitates the access by individuals to knowledge held by others who belong to the same relationship network.

Context

The notion of context was first introduced by the anthropologist, Edward T. Hall (1976) who made special references to cultures being high-context or low-context. Hall (1976) defines context as the “information that surrounds an event” arguing that context is critical to meaning. High context cultures are characterised by communication styles in which individuals prefer to draw inferences from implicit information. Many things are left unsaid – the culture explains the meaning. In contrast, individuals in low context cultures prefer information to be stated explicitly. They also exhibit a preference for quantifiable detail. As Hall and Hall (1990) note: “In low-context communication, the listener knows very little and must be told practically everything. In high-context communication, the listener is already ‘contextualised’ and so does not need to be given much background information”. Hall (1976) suggested that all cultures occupy spaces along the low-high context continuum, with no culture exclusively occupying a single space. Instead, different contextual points on the spectrum will be appropriate in different circumstances – of people, topic and sub-cultures. However, although high-context and low-context communication takes place in every society and culture, cultures differ in the degree of context considered normal and necessary in every kind of discourse. In this respect, it is notable that Chinese society is traditionally considered to be one where high context communication predominates (Gudykunst, 1983). However, China’s recent economic growth has been paralleled by social and cultural

changes that may have exerted an impact on both a propensity for high context communication and indeed guanxi-based interactions (cf. Inglehart and Baker, 2000). Given that each individual person will evaluate context differently, communication context (high or low) needs to be measured at the individual level, not the society level.

Network-Based Knowledge Sharing

As already noted, knowledge sharing in the Chinese context tends to take place between people who share guanxi. These closely connected people form networks. An individual employee might easily have several hundred or more guanxi-linked partners: between two and twelve (typically) form a single network. Knowledge networks are a feature of Transactive Memory Systems (Wegner, 1987): these networks exist when individuals “disclose information to each other concerning their specialised knowledge” (Davison et al., 2013). These networks have the potential to create a dynamic capability for problem solving (Newell and Edelman, 2008). Engaging in knowledge exchange within a knowledge network is psychologically less stressful (Triandis, 1989) because one’s face and personal reputation can be enhanced (Peng and Heath, 1996), with individual network members loath to cause others to lose face (Young et al., 2012). Finally, we note that this form of knowledge sharing usually involves informal IT applications not formal corporate systems (Davison et al., 2013).

Theoretical Model and Hypotheses Development

As explained in the Introduction, we follow Davison et al.’s (2013) call to focus on informal KS via interactive tools and refer to our key construct as network-based knowledge sharing (NBKS). Specifically, NBKS in this study refers to an employee’s actual behaviour when engaging in knowledge sharing activities with his/her network members using interactive systems at work. These interactive systems include: instant messengers, wikis, blogs, microblogs, discussion forums, collaborative editing tools, etc. Following the above literature review, we develop a set of formal hypotheses around NBKS based on an integrated theoretical lens of guanxi, the communication context, KS outcomes and the KS activities in which employees engage.

Antecedents of NBKS

Consistent with Lee and Dawes (2005), we propose that guanxi elements include interpersonal trust, face and reciprocal obligation. Researchers (e.g., Huang et al., 2012; Davison et al., 2013) have suggested the importance of guanxi for KS. We argue that employees who share interpersonal trust with each other, know how to develop and maintain their own and guanxi-linked others’ faces, and appreciate the value of obligatory reciprocity are more willing to share knowledge in general. When an employee believes in the good intent, competence and reliability of other people with respect to contributing and reusing knowledge, it is more likely that this employee would like to make use of interactive tools to contact other people in order to effectively seek and share knowledge. It is also likely that the same employee will attempt to create lasting and binding ties that help to guarantee the future exchange of knowledge. In today’s working environment, IT applications that facilitate interactive communication between people are readily available. The need to develop and maintain guanxi can increase an employee’s involvement in using networks to seek and share knowledge. In addition to trust and reciprocal obligations, face may also play a role in determining whether an employee engages in NBKS or not. Employees who value their guanxi-based KS relationships will very likely do their best to help others if they request knowledge. Meanwhile, by demonstrating their skills, expertise and helpfulness, these employees will benefit by virtue of the opportunity to burnish their reputation and so earn the respect of others in the professional network. Integrating the above arguments, we propose:

H1: An employee’s appreciation of guanxi elements, including reciprocal obligation, trust and face maintenance, positively affects his/her network-based knowledge sharing behaviour.

Outcomes of NBKS

Although the literature has demonstrated that the outcomes of knowledge sharing are diverse (e.g., Newell et al., 2009; Scarborough & Swan, 2001), we argue that the effective use of a network for sharing

can bring positive effects to both individual work performance and also collective network efficacy. In this study, *work performance* refers to an employee's self-evaluation of his/her work performance in terms of confidence, productivity, decision making, and work quality, following Rice (1992). Meanwhile, *collective network efficacy* is defined as the individual network member's confidence that his/her work-related network can produce desirable outcomes (Hirschfeld and Bernerth, 2008). This is particularly apparent in contemporary work environments, where different domains of knowledge are involved and employees are distributed across time and space (Maznevski and Chudoba, 2000). Employees who share knowledge in near real-time with their network members via interactive tools are able to locate answers to questions and solutions to problems. For instance, Voelpel and Han (2005) demonstrate how knowledge contributed by Chinese employees in an online forum was leveraged by Italian employees to achieve a successful project outcome for the organization (Siemens) as a whole. Using interactive systems to exchange knowledge means that employees can bounce back quickly from adverse experiences, help other network members, locate appropriate network resources and finally leverage them effectively. From a network perspective, the effective use of interactive systems for exchanging knowledge can help ensure the realisation of desirable outcomes. Accordingly we propose:

H2: An employee's network-based knowledge sharing behaviour can produce positive outcomes including improving his/her work performance and collective network efficacy.

The Moderating Effects of Individual Preference of Communication Context

According to Hall (1976), communication context describes the cultural rules that relate to information exchange and, in particular, the degree to which information in a culture is explicit or implicated. Specifically, a preference for a low context culture suggests that information is vested in words or precise and unambiguous meanings; on the other hand, a preference for a high context culture suggests that information is communicated in a rather implicit way, vested in shared experiences and assumptions and conveyed through both verbal and non-verbal codes. When employees exchange knowledge with colleagues or team members who share inter-personal trust, reciprocal obligation and a responsibility to maintain each other's faces, it is more likely that they can understand the implicit meanings hidden in information and knowledge. That means, it is easier for people in a guanxi network to pick up the actual or hidden meaning of information when exchanging experiences and knowledge. Furthermore, Hall (1976) also highlights how high-context persons are guided by relationships that are stable and persistent over an extended period of time. Following this logic, guanxi elements, including trust, obligations and face, significantly determine a high-context person's sharing behaviour. We therefore hypothesize:

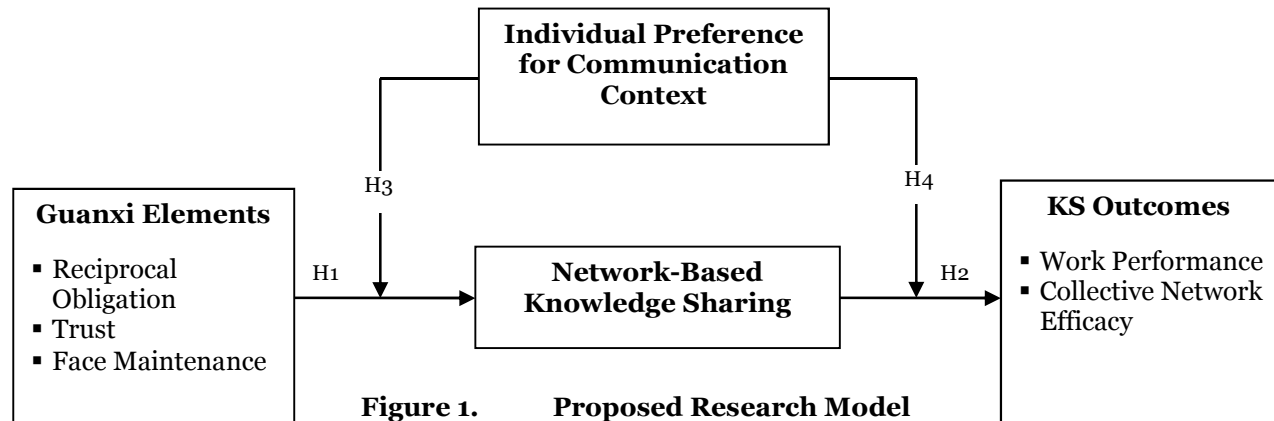
H3: An employee's preference for communication context has a positive moderating effect on the path between guanxi elements and network-based knowledge sharing behaviour, where the guanxi elements have a stronger effect on increasing his/her network-based knowledge sharing behaviour when the employee prefers high context communication.

The existence of interactive knowledge sharing systems, also known as conversational knowledge management systems (Wagner and Bolloju, 2005), reflects how much of the knowledge creation and sharing in these systems is undertaken through a process of discussion with questions and answers (discussion forum), collaborative editing (wikis), or through a process of storytelling (weblogs), (Wagner and Bolloju, 2005). Researchers (Brown, 2001) value storytelling for the sharing of otherwise implicit knowledge. Furthermore, it has been coined that "conversational knowledge management systems usually forego formal knowledge representation, as end users usually do not formally structure their knowledge as rules or similar constructs" (Wagner and Bolloju, 2005). Consequently, we argue that knowledge sharing via interactive systems is more effective for those people who prefer a high-context communication style: these systems can facilitate the sharing of implicit knowledge at work via story telling. Furthermore, sharing via interactive knowledge systems can pair with a high-context person's desire to build relationships with network members. Therefore we propose:

H4: An employee's preference for communication context has a positive moderating effect on the path between knowledge network sharing behaviour and its outcome variables including work performance and collective network efficacy, where network-based knowledge sharing behaviour has a stronger

effect on work performance and collective network efficiency when the employee prefers high context communication.

We summarize the above hypotheses in Figure 1.



Methodology

We established our measures based on the literature. Specifically, we followed the concept of guanxi elements from Lee and Dawes (2005) by covering three dimensions: trust, reciprocal obligations and face maintenance, in which we adapted the existing measures in the context of knowledge sharing from Bock et al. (2005) for reciprocal obligation, Kankanhalli et al. (2005) for trust and Huang et al. (2011) for face maintenance. In order to achieve a parsimonious model, we operationalize guanxi elements as a second level construct, following Petter et al. (2007). Grounded on the work of Morris et al. (2009), we established new items about network-based knowledge sharing. The moderator, individual preference of communication context, is based on the conceptualization and scales from Hall (1976) and Kim et al. (1998) from low to high. The dependent variable, KS outcomes, is operationalized as a second-order construct covering individual work performance and collective network efficacy. Work performance is measured by the scales from Rice (1992) and collective network efficacy is measured by the scales from Hirschfeld and Bernerth (2008). We summarize the measures in the Appendix.

We used the survey method to collect the data. This survey instrument was initially developed and face validated in English. Later it was translated into Chinese and back translated to English to ensure equivalence of meaning across the two language versions. The survey instrument was operationalized on web-based survey software (Qualtrics: Version 0.749s). The context for this research is the China-based operations of a global hotel chain, which we code name Ravine. Ravine operates hotel properties at all levels from simple to luxury. Ravine does not operate formal KM systems internally. However, employees are free to contact external parties for knowledge exchange activities, so long as they do not disclose corporate secrets. The second author gained access to Ravine as a result of his frequent stays at and personal connections with the General Manager (GM) of one property. This GM introduced him to a Vice-President for China who agreed to support the data collection effort.

We emailed a link to the GMs of 54 Ravine hotels in China asking them to ask their employees to complete the survey. 19 of these GMs replied to confirm they would ask their colleagues to complete the survey. It is hard to estimate how many employees received the invitation because the GMs may have decided only to invite certain employees. Nevertheless, a total of 301 valid responses were received over a ten-week period, from hotels located in 15 cities. Although 5 respondents did not indicate the demographic details and 71 respondents refused to disclose their job titles, we still include them in the data analysis considering the validity of their responses to the survey questions about the research model. We summarize the demographics in Table 1.

Gender	Number	Working Location	Number
Male	96	Beijing	35
Female	200	Chengdu	13
Missing Data	5	Chongqing	44
Education level	Number	Dongguan	13
Secondary School	23	Hangzhou	5
College	154	Hong Kong	15
Bachelor Degree	107	Jinan	8
Master Degree or above	12	Nanjing	4
Missing Data	5	Sanya	9
Age	Number	Shanghai	50
21-25	77	Shenzhen	72
25-30	104	Taipei	10
31-35	47	Wuhan	6
36-40	36	Xian	11
41-45	20	Zhengzhou	1
46-50	10	Missing Data	5
50-60	2		
Missing Data	5		
Job level	Number	Duration in current position	Number
Staff	50	Less than 6 months	43
Junior Management	34	6 months - 2 years	86
Middle Management	126	2 - 5 years	96
Senior Management	20	Above 5 years	71
Undisclosed	71	Missing Data	5

Table 1. Demographics Summary (n=301)

Data Analysis

We used SPSS and Smart Partial Least Squares (SPLS) to calculate construct validity and reliability. We first examined the convergent and discriminant validity with factor analysis. The factor loading scores on their expected factors are all above 0.6, with the factor loading scores much higher on their expected factors than on other factors. Meanwhile all eigenvalues of the constructs exceed 1.0. The communality scores all exceed 0.61. These results confirmed adequate reliability of the measures.

Second, since 'KS outcomes' is an endogenous second-order construct represented in the research model, we validated this construct with two steps. For its two first-level constructs – work performance and collective network efficacy – the reliability of the measures were both above 0.90. For the second-level construct of KS outcomes, the factor scores of two first-level constructs were taken as the composite dimensions of KS outcomes in the SPLS analysis, following the method of handling second-order constructs in SPLS suggested by Petter et al. (2007). Using the same procedures, we also confirmed the validity and reliability of the other second-order construct, guanxi elements, in this study.

Furthermore, construct reliability for all principal constructs was assessed by identifying the composite reliability scores, all of which are above 0.80 (Table 2), suggesting acceptable internal consistency. The square roots of the Average Variance Extracted (AVE) are all above 0.78, which is greater than all other cross correlations. This shows that all constructs capture more construct-related variance than error variance.

Principal Constructs	Mean (STD)	Composite Reliability	GE	NBKS	IPCC
Guanxi Elements (GE) – Second-Order Construct	-	0.81	0.79		
Network-Based Knowledge Sharing (NBKS)	4.93 (1.24)	0.96	0.55	0.93	
Individual Preference for Communication Context (IPCC)	2.53 (0.96)	0.83	0.52	0.30	0.79
Knowledge Sharing Outcomes (KSO) – Second-Order Construct	-	-	0.68	0.50	-0.61

Table 2. Descriptive Statistics, Correlation Matrix, and Average Variance Extracted
(Diagonal elements are the square root of the AVE from their indicators.
Off-diagonal elements are correlations between constructs.)

We followed Chin et al. (2003) to model the two formatively measured second-order constructs in this study, including guanxi elements and knowledge sharing outcomes. We first modelled the paths from the lower-to the higher-order construct in Smart PLS. Then we used the scores of the latent variables from the SmartPLS analysis as the formative measures for the second-order constructs. Meanwhile, we used the guidelines from Jarvis et al. (2003) to validate the reliability and validity of these two formative constructs. First, the indicators of guanxi elements, viz., reciprocal obligation, trust and face maintenance, are not interchangeable. Second, the literature on guanxi (Ou et al., 2014) has also informed us via empirics that guanxi can be considered as a formatively measured construct. In the same vein, these criteria for the formative measures are also applicable to the other formative construct, knowledge sharing outcomes. We also examined the multicollinearity in the formative constructs and our correlation tests indicate our formative indicators do not suffer from high correlations.

The structural model was examined using Smart PLS. The results shown in Figure 2 indicate that the hypotheses were largely supported by the data, except H3. Guanxi elements have a significant impact on NBKS ($b=0.54$, $p<0.01$), supporting H1. NBKS is found to significantly influence KS outcomes ($b=0.37$, $p<0.01$), validating H2. Individual preference for communication context has no direct influence on NBKS ($b=0.01$, $p>0.10$) nor a significant moderating effect on the path between guanxi elements and NBKS ($b=0.05$, $p>0.10$), rejecting H3. However, individual preference for communication context was found a significant negative direct impact on KS outcomes ($b=-0.47$, $p<0.01$), as well as significant positive moderating effect on the path between NBKS and KS outcomes ($b=0.19$, $0.01<p<0.05$), confirming H4. We discuss the findings below.

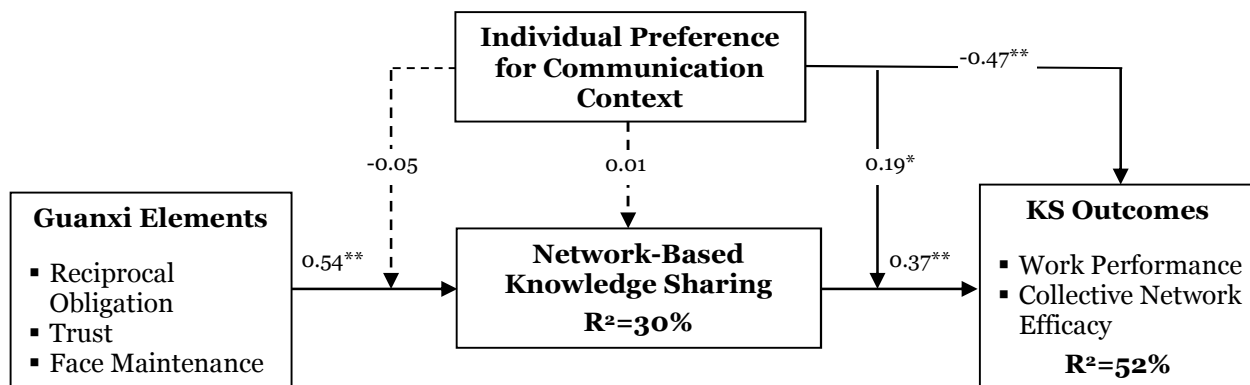


Figure 2. PLS Analysis Results

Legend: * $0.01<p<0.05$; ** $p<0.01$;
Solid lines represent paths with significant levels;
Dotted lines represent paths with insignificant levels

Discussion and Implications

The findings from this research present two broad areas of contributions to scholarly and practical knowledge. Firstly, the strongly significant link from 'guanxi elements', which includes reciprocal obligation, trust and face maintenance, to NBKS and then the equally strong link from NBKS to KS outcomes are remarkable for their consistency as well as the extent of variance explained. Clearly when knowledge is shared in the Chinese workplace, guanxi elements play a key motivating role. Equally, the NBKS process leads to enhanced work performance and collective network efficacy, suggesting a confirming effect since by enhancing the efficacy of the network, so that same network will facilitate better knowledge sharing in future. Whether the same findings will hold outside the Chinese workspace remains to be investigated, but it is plausible to assume that in other societies where guanxi-type structures are common, a similar set of relationships is likely to prevail.

The second major contribution relates to the interesting findings about the preference for communication context. Contradicting the perception that the Chinese culture is high context (Hall, 1976), our data suggests that the respondents in this study prefer direct and explicit communication (Mean=2.53 on a scale from 1=lowest to 7=highest; STD =0.96), which is normally indicative of a low context culture. This possible shift towards a low context culture can be explained in two ways. Our sample consisted of employees at a global (non-Chinese) hotel group. Although all the respondents are themselves Chinese, it is very likely that they have been influenced by Western communication styles and work norms. However, this is not as unusual as it sounds: a considerable portion of the younger generation of Chinese have received a Western-style education and have adopted a Western philosophy of life in their thinking and working. These people are more likely to adopt a communication style that is direct, specific and explicit. This may explain the negative direct effect of individual preference of high communication context on KS outcomes ($b=-0.47$, $p<0.01$) and suggests that the current work environment in China may be becoming more characterised by precision and a corresponding reduction in ambiguity.

Furthermore, our data confirmed the significant positive moderating effect of high-context communication preference on the path between NBKS and KS outcomes ($b=0.19$, $0.01<b<0.05$). This suggests that for high-context people, NBKS can yield a much better effect on both work performance and collective network efficacy. Interactive social media applications (such as instant messengers, wikis, microblogs, knowledge forums and other collaborative tools) can be made available to these people in order to optimize the benefits of NBKS. For instance, in many firms, social media applications are routinely blocked out of a fear that they will be abused or will be used for unproductive social chatting. However, in high context cultures like China, interactive communication in short bursts using social media tools is very common and significantly adds to the quality of work (Davison et al., 2013).

Interestingly, our data indicate the insignificant moderating effect of communication preference on the path from guanxi elements to NBKS. This may be due to the overwhelming effect of guanxi elements in Chinese people's lives in general, regardless of communication preference. This reasoning implies that trust, reciprocal obligation and face are still the most important elements for knowledge sharing behaviour, at least in China, and are applicable to all people irrespective of their preference for high or low context communication.

Conclusion

The significant influence of guanxi elements on knowledge sharing practices, identified in prior work, is confirmed in this study of hotel employees. However, the preference for a specific communication context emerges as a new and significant moderator of why network-based knowledge sharing makes a difference at work. While guanxi is embedded in the social consciousness of all Chinese employees, we detect changes in the way some employees view communication, with an intriguing preference for a direct and explicit style that is more akin to low context communication. This is remarkable for its juxtaposition to the more usual view of China as a high context society. Although our findings are restricted to the Chinese context, they may be extended to cultures with similar cultural makeup. We encourage researchers to explore the issue of context more carefully especially when dealing with transitional economies shaken by major social and cultural change.

References

- Bock, G., Zmud, R., Kim, Y., and Lee, J. 2005. "Behavioral Intention Formation in Knowledge Sharing: Examining the Roles of Extrinsic Motivators, Social-Psychological Forces and Organizational Climate", *MIS Quarterly* (29:1), pp. 87-111.
- Chin, W.W., Marcolin, B.L., and Newsted, P.N. 2003. "A Partial Least Squares Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic Mail Emotion/Adoption Study", *Information Systems Research* (14:2), pp. 189-217.
- Chow, C.W., Deng, F.J., and Ho, J.L. 2000. "The Openness of Knowledge Sharing within Organizations: A Comparative Study of the United States and the People's Republic of China", *Journal of Management Accounting Research* (12), pp. 65-95.
- Davison, R.M., Ou, C.X.J. and Martinsons, M.G. 2013. "Information Technology to Support Informal Knowledge Sharing", *Information Systems Journal* (23:1), pp. 89-109.
- Fu, P.P., Tsui, A.S. and Dess, G. 2006. "Dynamics of Guanxi in Chinese High-Tech Firms: Implications for Knowledge Management and Decision Making", *Management International Review* (46:3), pp. 277-305.
- Gudykunst, W.B. 1983. "Uncertainty Reduction and Predictability of Behavior in Low and High Context Cultures: An Exploratory Study", *Communication Quarterly* (31:1), pp. 49-55.
- Hall, E. T. 1976. *Beyond Culture*, Garden City, CA: Anchor.
- Hall, E.T., and Hall, M. R. 1990. *Understanding Cultural Differences*, Yarmouth, ME: Intercultural Press.
- Inglehart, R. and Baker, W.E. 2000. "Modernization, Cultural Change and the Persistence of Traditional Values", *American Sociological Review* (65:1), pp. 19-51.
- Hirschfeld, R.R., and Bernerth, J.B. 2008. "Mental Efficacy and Physical Efficacy at the Team Level: Inputs and Outcomes among Newly Formed Action Teams", *Journal of Applied Psychology* (93:6), pp. 1429-1437.
- Huang, Q.V., Davison, R.M., and Gu, J.B. 2011. "The Impact of Trust, Guanxi Orientation and Face on the Intention of Chinese Employees and Managers to Engage in Peer-to-Peer Tacit and Explicit Knowledge Sharing", *Information Systems Journal* (21:6), pp. 557-577.
- Jarvis, C.B., MacKenzie, S.B., and Podsakoff, P.M. 2003. "Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research", *Journal of Consumer Research* (30:2), pp.199-218.
- Kankanhalli, A., Tan, B.C.Y., and Wei, K.K. 2005. "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation", *MIS Quarterly* (29:1), pp. 113-143.
- Kim, D., Pan, Y., and Park, H. 1998. "High- Versus Low-Context Culture: A Comparison of Chinese, Korean, and American cultures", *Psychology & Marketing* (15:6), pp. 507-521.
- Kogut, B., and Zander, U. 1992. "Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology", *Organization Science* (3:3), pp. 383-397.
- Lee, D.Y., and Dawes, P. 2005. "Guanxi, Trust, and Long-Term Orientation in Chinese Business Markets", *Journal of International Marketing* (13:1), pp. 28-56.
- Leung, T. K. P., Lai, K. H., Chan, R. Y. K., and Wong, Y. H. 2005. "The Roles of Xinyong and Guanxi in Chinese Relationship Marketing", *European Journal of Marketing* (39:5/6), pp.528-559.
- Li, S.X., and Scullion, H. 2006. "Bridging the Distance: Managing Cross-Border Knowledge Holders", *Asia Pacific Journal of Management* (23:1), pp. 71-92.
- Lu, L., Leung, K., and Koch, P.T. 2005. "Managerial Knowledge Sharing: The Role of Individual, Interpersonal, and Organizational Factors", *Management and Organization Review* (2:1), pp. 15-41.
- Luo, M., Hsu, M., and Liu, S.S. 2008. "The Moderating Role of Institutional Networking in the Customer Orientation–Trust/Commitment–Performance Causal Chain in China", *Journal of the Academy Marketing Science* (36:2), pp. 202-214.
- Maznevski, M.L., and Chudoba, K.M. 2000. "Bridging Space over Time: Global Virtual Team Dynamics and Effectiveness", *Organization Science* (11:5), pp. 473-492.
- McDermott, R., and O'Dell, C. 2001 "Overcoming Cultural Barriers to Sharing Knowledge", *Journal of Knowledge Management* (5:1), pp. 76-85.

- Morris, S.S., Wright, P., Trevor, J., Stiles, P., Stahl, G., Paauwe, J., and Farndale, E. 2009. "Global Challenges to Replicating HR: The Role of People", *Human Resource Management* (48:6), pp. 973-995.
- Newell, S., and Edelman, L.F. 2008. "Developing a Dynamic Project Learning and Cross-project Learning Capability: Synthesising Two Perspectives", *Information Systems Journal* (18:6), pp. 567-591.
- Newell, S., Robertson, M., Scarborough, H., and Swan, J. 2009. *Managing Knowledge Work and Innovation*, New York: Palgrave-Macmillan.
- Ou, C.X.J., Pavlou, P.A., and Davison, R.M. 2014. "Swift Guanxi in Online Marketplaces: The Role of Computer-Mediated-Communication Technologies", *Management Information Systems Quarterly* (38:1), pp. 209-230 + A1-A24.
- Peng, M.W., and Heath, P.S. 1996. "The Growth of the Firm in Planned Economies in Transition: Institutions, Organizations, and Strategic Choice", *The Academy of Management Review* (21:2), pp. 492-528.
- Petter, S., Straub, D.W., and Rai, A. 2007. "Specifying Formative Constructs in Information Systems Research", *MIS Quarterly* (31:4), pp. 623-656.
- Rice, R.E. 1992. "Task Analyzability, Use of New Media, and Effectiveness: A Multi-Site Exploration of Media Richness", *Organization Science* (3:4), pp. 475-500.
- Scarborough, H., and Swan, J. 2001. "Explaining the Diffusion of Knowledge Management: The Role of Fashion", *British Journal of Management* (12:1), pp. 3-12.
- Triandis, H.C. 1989. "The Self and Social Behavior in Differing Cultural Contexts", *Psychological Review* (93:3), pp. 506-520.
- Tsui, A. 2006. "Contextualization in Chinese Management Research", *Management and Organization Review* (2:1), pp. 1-13.
- Voelpel, S.C., and Han, Z. 2005. "Managing Knowledge Sharing in China: The Case of Siemens ShareNet", *Journal of Knowledge Management* (9:3), pp. 51-63.
- Wagner, C., and Bolloju, N. 2005. "Knowledge Management with Conversational Technologies: Discussion Forums, Weblogs, and Wikis", *Journal of Database Management* (16:2), pp. i-viii.
- Wegner, D.M. 1987. "Transactive Memory: A Contemporary Analysis of the Group Mind", in *Theories of Group Behavior*, B. Mullen and G.R. Goethals (Eds.), New York: Springer, pp. 185-208.
- Xin, K.R., and Pearce, J.L. 1996. "Guanxi: Connections as Substitutes for Formal Institutional Support", *Academy of Management Journal* (39:6), pp. 1641-1658.
- Young, M.L., Kuo, F.Y., and Myers, M.D. 2012. "To Share or Not to Share: A Critical Research Perspective on Knowledge Management Systems", *European Journal of Information Systems* (21:5), pp. 496-511.

Appendix: Measures Used in the Study

Construct	Measure	Reference
Guanxi Elements (Second-level construct)	<ol style="list-style-type: none"> 1. Reciprocal Obligation 2. Trust 3. Face Maintenance 	Lee and Dawes, 2005
Reciprocal Obligation	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. My acts of knowledge sharing and seeking within my network strengthen the ties of obligation between existing members in my network and myself. 2. My acts of knowledge sharing and seeking create the obligations with other members in my network. 3. My acts of knowledge sharing and seeking expand the scope of my association with other members in my network. 4. My acts of knowledge sharing and seeking will encourage cooperation among my network members in the future. 5. My acts of knowledge sharing and seeking create strong relationships with members who have common interests in my network. 	Bock et al., 2005
Trust	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. I believe that people in my network give credit for each other's knowledge where it is due. 2. I believe that people in my network respond when I am in need. 3. I believe that people in my network use each other's knowledge appropriately. 4. I believe that my requests for knowledge will be answered. 5. I believe that people in my network share the best knowledge that they have. 6. I believe that people in my network seek the best possible knowledge. 	Kankanhalli et al., 2005
Face Maintenance	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. Seeking knowledge will cause others in my network to look down on me. 2. I feel a loss of face when others in my network don't answer my requests for knowledge. 3. Sharing knowledge with my network members will help me to gain face. 4. I want to share my knowledge with my network members, because it will help me to gain face. 	Huang et al., 2011
Network-Based Knowledge Sharing	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. I use interactive systems extensively for codifying and storing knowledge. 2. I retrieve the knowledge from interactive systems and apply it in my work. 	Newly established; grounded on Morris et al. (2009)

	<ol style="list-style-type: none"> 3. I communicate with my network members extensively using interactive systems. 4. I benefit from my use of interactive systems. <p>Scales: not at all (1) to a very great extent (7)</p> <ol style="list-style-type: none"> 5. To what extent do you feel that you should have the right to access these interactive systems at work? 6. To what extent are these interactive systems critical to your ability to work? 	
Individual Preference for Communication Context	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. My word is my bond and I will behave as I promise. 2. I cannot think unless I can put my thoughts into words. 3. I should say exactly what I mean even though it may be uncomfortable to my interlocutors. 4. I should contextualize what I say. 5. I prefer information that is stated directly or quantified (using numbers)". 6. I prefer to draw inferences from information that is not explicit. (R) 	Hall, 1976; Kim et al., 1998
KS Outcomes (Second-level construct)	<ol style="list-style-type: none"> 1. Work Performance 2. Collective Network Efficacy 	Newly established
Work Performance	<p>Scales: strongly disagree (1) to strongly agree (7)</p> <ol style="list-style-type: none"> 1. I am confident when undertaking my work. 2. I am a productive worker. 3. I am an effective decision maker. 4. My work quality is high. 	Rice, 1992
Collective Network Efficacy	<p>Scale: not at all confident (1) to very confident (7)</p> <p>How well, working together as a whole, can my network members:</p> <ol style="list-style-type: none"> 1. Bounce back quickly from adverse experiences 2. Build trust in each other 3. Support each other when needed 4. Help each other with work demands 5. Get each other to share responsibilities 6. Build respect for each other's particular interests 7. Help other network members to achieve their personal goals 8. Agree to decisions that require giving up personal interests 9. Resolve conflicts when other network members feel they are not being treated fairly 10. Prevent disagreements from turning into heated arguments 11. Promote harmony for the network 12. Find network resources and make good use of them for the benefit of the network 13. Serve as good examples for the network. 	Hirschfeld and Bernerth, 2008