The Mediating Role of Guanxi Network and Communication Performance in Transforming Web 2.0 Technologies Usage to Work Performance: An Empirical Study in China

Louie H.M. Wong
Department of Information Systems
City University of Hong Kong
Hong Kong
Email: louie.wong@my.cityu.edu.hk

Robert M. Davison
Department of Information Systems
City University of Hong Kong
Hong Kong
Email: isrobert@cityu.edu.hk

Carol X.J. Ou
Department of Management
Tilburg University
The Netherlands
Email: carol.ou@uvt.nl

Zhang Cheng
Department of Information Management and Information Systems
Fudan University
Shanghai, China
Email: zhangche@fudan.edu.cn

Abstract

Motivated by both the increasing popularity of Web 2.0 technologies and the lack of empirical studies to conceptualize and validate their roles in the work place, in this research we aim to establish a research model to capture how Web 2.0 technologies can enhance individual work performance. Grounded on the Media Synchronicity Theory, we introduce an indigenous Chinese concept, guanxi network (which refers to the web of inter-personal connections), and suggest its mediating role with respect to the use of Web 2.0 technologies in enhancing communication and work performance. The survey data from 179 work professionals in China supported the proposed model. Key findings, implications and future research are discussed.

Keywords

Web 2.0, Media Synchronicity Theory (MST), Communication Performance, Guanxi Network, Work Performance

INTRODUCTION

The pervasive use of social media in both personal and work lives is fast becoming ubiquitous in China. It is now common to see employees in China using Web 2.0 technologies such as instant messaging (e.g. WeChat, QQ), social networking sites (e.g. Renren, LinkedIn) and microblogs (e.g. Sina Weibo and Tencent Weibo) to interact with colleagues, business partners and customers for various business purposes including internal and external communication, supply chain integration, customer relationship management, product marketing, and problem solving (Bughin et al. 2009; Ou et al. 2010; Ou and Davison 2011; Davison et al. 2013a; Davison et al. 2013b). However, there is still some doubt (Davison and Ou 2013) about whether this pervasive use of Web 2.0 technologies will bring positive performance impacts to the workplace, at individual, team or organizational levels. Given these uncertainties, in this paper we aim to investigate how the use of Web 2.0 technologies at work affects performance in the workplace in China.

In this study, we define Web 2.0 as technologies and applications that allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community, in

contrast to traditional websites where people are limited to the passive viewing of content. In exploring the influence of the use of Web 2.0 technologies at work on Chinese employees' work performance, we ask the following research question: What is the impact of the use of Web 2.0 technologies at work on communication performance and work performance at the individual level? To answer this question, we adapt the media synchronicity theory (MST) (Dennis et al. 2008) and incorporate the indigenous guanxi network concept, creating a new theoretical model to examine how Web 2.0 technologies exert an impact on communication performance and work performance.

Guanxi, referring to mutually reciprocal interpersonal connections or relationships, is one of the most important indigenous factors to consider when investigating social phenomena in the Chinese context. Guanxi has long been considered as the key to business success because it lubricates the work, business and interpersonal relationship. Although guanxi has been well recognized in management and marketing domains, its conceptualization and application has only recently been researched in the discipline of information systems (IS) (Davison et al. 2013; Ou et al. 2014). Specifically, we consider how guanxi networks may play a key role in transforming socially-focused use of Web 2.0 into positive performance outcomes in the workplace. We argue that an individual's guanxi network with both internal colleagues and external business partners or other stakeholders plays a mediating role between the use of Web 2.0 technologies and communication performance.

In addition to the guanxi network, we also contend the communication performance is one of the two mediators through which Web 2.0 technologies usage exert influence on the work performance, considering the direct outcomes of using Web 2.0 technologies is primarily to facilitate communication and following the Media Synchronicity Theory (MST) (Dennis et al. 2008).

Following this introduction, we elucidate the theoretical development. We then describe the research context and data collection process with a survey in China. After presenting the analysis of the measurement model and research model, we conclude the paper with discussion of findings, implications, contributions, limitations and suggestions for future research.

THEORETICAL DEVELOPMENT

Use of Web 2.0

O'Reilly Media (O'Reilly 2005) officially used the term "Web 2.0" as a conference name in 2004 to refer to the newer generation of web-based technologies and applications. Over the years, the term Web 2.0 was adopted to refer to a portfolio of Internet-based technologies and applications that allow individuals to communicate, collaborate, interact and share with specific individuals, groups or social communities (Levy 2009; Pachler and Daly 2009; Wilson et al. 2011). Web 2.0 technologies include Internet-based technologies and applications such as blogs/microblogs, instant messaging, social networking sites and wikis.

From a communication media perspective, Web 2.0 technologies can be viewed as a portfolio of Internet-based communication media with different degree of interactivity and responsiveness. In considering the use of Web 2.0, contrary to previous research on Web 2.0, which has rarely focused on examining multiple technologies/media being used together (Wilson et al. 2011), we do not restrict the individual to use only a specific type of communication medium. Furthermore, MST (Dennis et al. 2008) also highlighted that the combination of different media in the communication process facilitates both the conveyance and the convergence processes of the conversation. Following the same logic, we argue that a portfolio of different Web 2.0 tools may offer a more comprehensive view on enhancing work-related communication. As a result, we emphasize in our study that the use of Web 2.0 is the use of a portfolio of Internet-based communication media.

Influence of Use of Web 2.0 on Work Performance via Communication Performance

The majority of IS theories focus on the adoption, use and diffusion of IT artifacts. Examples of these theories include: the technology acceptance model, unified theory of acceptance and use of technology model and information systems success model. In addition, a few IS theories extend the consideration of impacts to the performance consequences of the use of IT artifacts. Media Synchronicity Theory (MST) is one of the few such IS theories. Dennis et al. (2008) define synchronicity as "a state in which individuals are working together at the same time with a common focus." According to MST, people would choose a portfolio of communication media according to "the extent to which the capabilities of a communication medium enable individuals to achieve synchronicity", which influence communication performance which in turn influence work performance.

Unlike prior media theories, Dennis et al. (2008) posit in MST that in order to achieve better communication performance, it is crucial that one selects the media that provide the most synchronized fit with the work context. A key assumption of MST is the notion that there is no medium inherently the best for any given task as most tasks are composed of steps that have different synchronicity requirements. Therefore, the freedom to choose

from a combination of various media to fulfil different needs in various situations may enhance communication performance.

We argue that Web 2.0 technologies consist of an array of different interactive technologies which can be used as media to facilitate communication. For this reason, MST is an appropriate theory to apply to an investigation of the use of Web 2.0 at work. It is quite often the case that employees are free to select whichever Web 2.0 tool they like in order to accomplish a particular task. Since the focus of our research is on the performance consequences of the media usage, applying the MST as a theoretical framework enlightens us to propose that the use of Web 2.0 technologies at work will lead to improved communication performance which in turn will lead to enhancement of work performance.

Web 2.0 technologies can be used to search and share information/knowledge, contact and maintain the members of personal relationship network virtually, facilitate the instant interaction for negotiation, clarification and discussion. The interactive nature of Web 2.0 technologies allows the users to collaborate with each other by easy communication and dialogues and thus create value for work. These arguments lead to the following two hypotheses:

> H1: The use of Web 2.0 technologies at work enhances an employee's communication performance.

> H2: An employee's communication performance has a positive effect on his/her work performance.

The Influence of Use of Web 2.0 on Guanxi Network

Guanxi is a fundamental indigenous concept in the Chinese context referring to mutually reciprocal interpersonal connections or relationships. Ou et al. (2014) provide a comprehensive review of the various definitions and operationalization of guanxi in the literature. The following is an extracted list of the various definitions of guanxi.

- "Personal dependence and informal relationship" (Xin and Pearce 1996).

- "The existence of direct particularistic ties between an individual and others" (Farh et al. 1998).

- "Guanxi is defined as interpersonal connections. From a resource dependence perspective, guanxi is viewed as long-term cooperation among business partners that contributes to organizational efficiency and sustained competitive advantage" (Su et al. 2003).

- "Guanxi refers to a particularistic tie or relationship bases" (Chou et al. 2004).

- "The concept of guanxi refers to interpersonal relationships and can be applied not only to kinship and friendship but also to social connections, such as dyadic relationships" (Lee and Dawes 2005).

By synthesizing the above list of definitions, guanxi can be identified as a relationship network which is "personal dependent" and "among individuals". In the organizational setting, a guanxi network is the web of interpersonal relationship that covers social connections and friendship in the work environment, and therefore a resource at the individual level and can be regarded as intangible assets of the employees in an organization. It is recognized as an importance resource for Chinese business management (Fu et al. 2006; Xin and Pearce 1996). Arias (1998) also remarked that "the network of relationships is built among individuals, not among organizations. If an individual moves to a different organization or department, the connections move with him or her."

Using Web 2.0 technologies at work, employees can choose from a portfolio of media for different levels of synchronicity requirements to interact with internal and external parties such as co-workers, business partners and customers. The use of Web 2.0 technologies at work also facilitates convenient and efficient ways to employees for social interaction with existing and new acquaintances regardless of social, space and time boundaries. We argue that, when compared to the traditional ways (such as the face-to-face meetings and social gatherings) to maintain the guanxi network, Web 2.0 technologies can facilitate the interactivity and rapid retrieval of information without the restriction of locations, and meanwhile can help reach the network members across the organizational boundary instantly. Therefore we hypothesize that:

> H3: The use of Web 2.0 technologies at work has a positive effect on an employee's guanxi network.

The Influence of Guanxi Network on Communication and Work Performance

We argue that an employee's guanxi network plays an important role in supporting the individual to perform his/her work especially for those in China. Extending Chow and Chan's (2008) argument that employees' attitude towards knowledge sharing is positively influenced by the relative extensiveness of the social network among employees. We argue that the more extensive the guanxi network the employee possesses, the better the

chance to solicit quality and timely communication and feedback from internal and external parties. As a result, employees' communication performance at work can be enhanced. On the other hand, employees may be reluctant to engage in sharing valuable knowledge beyond their guanxi networks despite a strong corporate cultural expectation that they are expected to do so, like the case of Chinese employees in Siemens (Voelpel and Han 2005).

Furthermore, in today's business world, most work involves some degree of information seeking, sharing and interaction, which are fundamental activities for the accomplishment of individual and team work. Considering that trust, mutual obligation and face maintenance is embedded in guanxi networks, such interpersonal relationships can lubricate work discussion, problem solving and business negotiation (cf. Ou et al. 2014). As a result, the guanxi network has become an important resource for employees to leverage for better work performance. These arguments lead to the following two hypotheses:

H4: An employee's guanxi network has a positive effect on his/her communication performance.

H5: An employee's guanxi network has a positive effect on his/her work performance.

In summary, by adapting the MST and incorporating guanxi network as an indigenous factor in studying the impacts of the use of Web 2.0 technologies at work in the Chinese context, we propose that the guanxi network plays a mediating role on transforming the use of Web 2.0 tools into communication performance and work performance, as captured in Figure 1. The framework extends MST and incorporates guanxi network as an indigenous mediating factor that operates on communication performance and work performance.
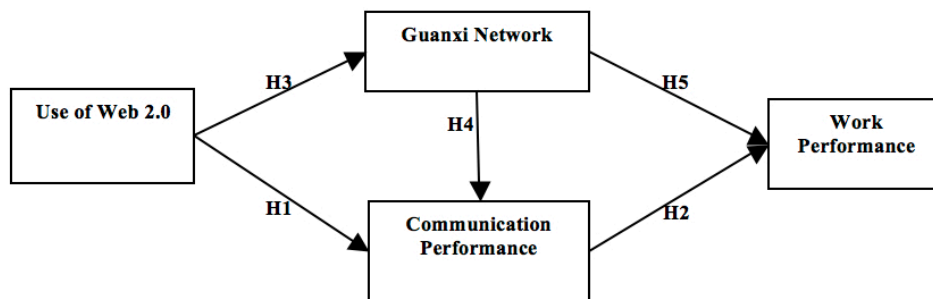

Figure 1: The Proposed Research Model

METHODOLOGY

We used the survey method to collect data to verify the research model. This section briefly explains the development and validation of measures, and the data collection procedure.

Measurement Development

All the measurement items for the constructs used in this study are adapted from existing measures from the literature. The independent variable, the use of Web 2.0 at work, is operationalized formatively based on Ou and Davison's (2011) measure of IM usage at work as well as Olasina's (2011) measure of "the use of Web 2.0 tools and social networking sites". We extended their measures into the context of using Web 2.0 technologies for work-related purposes such as information seeking, information sharing, office communication, file sharing, information dissemination, training and learning. Moreover, we particularly referred to commonly used Web 2.0 technologies in China including instant messaging (QQ or MSN), microblogging (WeChat, Weibo or Twitter), social networking sites (LinkedIn) and wiki as examples of Web 2.0 technologies in order to allow respondents to relate to their usage experience. Regarding communication performance, the measures are adapted based on Ou and Davison's (2011) as well as Mohr and Sohi's (1995) scales of communication quality. For guanxi network, we adapted the scale based on Chow and Chan's (2008) study of social networks and Arias' (1998) conceptualization of guanxi networks. The items of work performance were adapted based on the scales developed by Rice (1992). All the items were anchored on a scale from strongly disagree (1) to strongly agree (7). Appendix 1 lists all items for the constructs.

Data Collection

The survey instrument was developed in English then translated into Chinese following Van de Vijver and Leung's (1997) guidance on cross-cultural research. We used a customer panel database provided by a marketing research firm in China to randomly select 3000 panel members who had registered as employees aged over 18 as the sample frame. We used Qualtrics, an online survey platform to build the survey. We sent out the online

survey hyperlink to these 3000 potential survey participants and indicated that 30RMB (approx. NZD5.75) would be provided as a token of appreciation for those who completed the survey. We successfully reached 2873 email addresses during May and June, 2014. We considered the following criteria to guarantee the quality of the data used for the analysis: (1) less than 8% missing data; (2) not too little time spent in the online survey since the questions might be overlooked or answered too quickly. Following such criteria, we finally obtained 179 valid responses, yielding a response rate of 6.2%. We examined non-response bias using the method described by Armstrong and Overton (1977). Specifically, we conducted a t-test of the demographic characteristics of respondents in the first two weeks and in the second two weeks, finding that they did not significantly differ (p>0.10). Therefore these 179 data points formed the data set for subsequent statistical analysis. We summarize the demographic characteristics of these 179 survey respondents in Table 1.

Table 1. Demographic Characteristics (n=179)

Gender	%	Age range	%	Industry Type	%
Male	47	25 or below	58	Agriculture/forestry/fishery/mining	6
Female	53	26–35	31	Construction	8
		36–45	9	Culture, sports, and entertainment	4
		46 and above	2	Electric power, gas, and water production and supply	4
Education level	**%**	**Position**	**%**	Financial intermediation	7
High school or below	28	Non-Management Employee	57	Manufacturing	7
				Hotels and catering services	2
College	28	Manager	15	Information transfer, computer services, and software	18
Undergraduate	35	Senior or Executive Manager	7	International organization	3
Master or above	8			Real estate	3
		Undisclosed	21	Transport, storage and post	4
				Wholesale and retail trades	7
				Others	27

DATA ANALYSIS

We used Statistical Product and Service Solutions (SPSS) and Smart Partial Least Squares (SPLS) to conduct the data analysis. We first assess the validity and reliability of our measurement model. We then proceed with the analysis of the structural model.

Analysing the Measurement Model

We first validated the reliability of the reflective constructs (guanxi network, communication performance and work performance) in our model by examining their composite reliability scores. Composite reliability scores of the constructs range from 0.96 to 0.98 (see Table 2), which are all higher than the recommended criteria of 0.70 (Hair et al. 2011), hence suggesting acceptable internal consistency.

Table 2. Descriptive statistics, correlation matrix, and AVEs of constructs

Constructs	Composite Reliability	Mean (STD)	Correlation matrix			
			UoW2	GN	CP	WP
Use of Web 2.0 (UoW2)	-	-	-			
Guanxi network (GN)	0.98	4.97(1.70)	0.41	0.89		
Communication Performance (CP)	0.97	5.26(1.77)	0.42	0.72	0.82	
Work Performance (WP)	0.96	5.12(1.71)	0.38	0.65	0.67	0.85

Note: *Diagonal elements are the AVEs, off-diagonal elements are correlations between constructs.*

We then examined convergent and discriminant validity of the reflective constructs. The results of factor analysis shows that all the factor loading scores on their hypothesized measurement items are above 0.88 with their own factor loading scores being higher than the cross-loading scores. The eigenvalues of the constructs are greater than 1.0, with the communality scores above 0.82. The square roots of the Average Variance Extracted (AVE) are all above 0.91, which is greater than all other cross correlations. This shows that all constructs capture more construct-related variance than error variance. Jointly, these results suggested adequate convergent and discriminant validity for all those reflective constructs.

Since the Use of Web 2.0 construct is operationalized as a formative construct, its mean, STD, AVE and composite reliability are not relevant for measuring its construct validity. To verify the validity of the Use of Web 2.0 construct, we conducted correlation tests to examine multicollinearity in the formative measurement items. The maximum value of each item's variance inflation factor (VIF) came to 2.81, which is lower than the suggested maximum of 5 (Hair et al. 2011), ruling out the risk of multicollinearity.

Considering that all the data were collected from one single source, we also tested the potential common method bias. First, our principal components factor analysis indicated that each factor explains roughly equal variance (14.5% – 23.5%). Second, the correlation matrix shows that the highest inter-construct correlations are below 0.72, while common method bias is usually evidenced by extremely high (r=0.90) inter-construct correlations (Bagozzi, et al. 1991). These tests indicate that common method bias is not a major concern for the current study. Finally, to test for multicollinearity, collinearity diagnostics for constructs were also conducted. The analysis shows that the collinearity indicators – tolerance values and variance inflation factors – are all well less than the acceptable cut-off points (Hair et al. 2011).

Analysis of the Structural Model

With the measurement model verified, we then examined the structural model using SPLS. The results shown in Figure 2 suggest that all the hypotheses in the structural model are supported by the data.
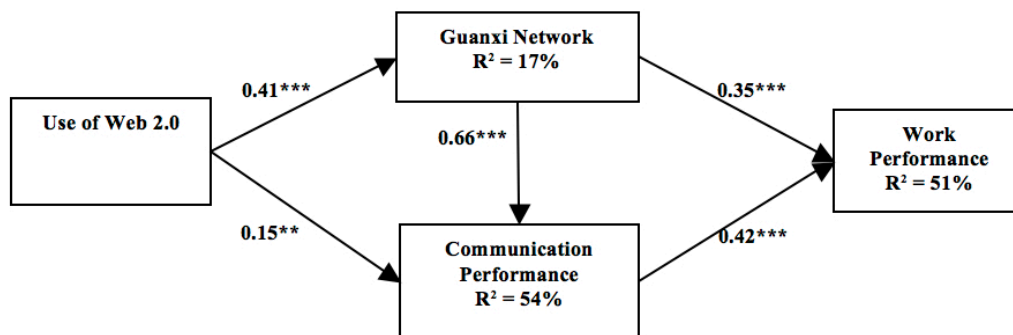

Figure 2: SPLS Results. Note: ** *and *** denotes significant at p < 0.05 and p < 0.01 respectively*

Specifically, use of Web 2.0 has significant influence on communication performance (b=0.34, p<0.05) and guanxi network (b=0.41, p<0.01) in the workplace, with the explained variance of 17% for guanxi network, thus validating H1 and H3. Besides, guanxi network partially mediates use of Web 2.0 with a significant influence on communication performance (b=0.66, p<0.01). Together with use of Web 2.0, guanxi network explains 54% of the variance in communication performance, thus supporting H4. Our data also indicate that guanxi network (b=0.35, p<0.01) and communication performance (b=0.42, p<0.01) significantly influence work performance, thus validating H5 and H2. Overall, guanxi network and communication performance explained 51% of the variance for work performance. The R^2 score for the dependent variable in this study, together with the factor loadings, yield an excellent goodness-of-fit for the whole research model (Chin 1998).

In addition to the proposed structural model, we also conducted the classical mediation tests by following Baron and Kenny (1986). Specifically, the original significant path directly from use of Web 2.0 to work performance (b=0.41, p<0.01) became insignificant (b=0.09, p>0.10) when the two mediators guanxi network and communication performance were added in the model. Thus the mediation test confirmed the impacts of the use of Web 2.0 on work performance are fully mediated by guanxi network and communication performance.

DISCUSSION, IMPLICATIONS AND FUTURE RESEARCH

This research has several key findings and implications. Building on the MST (Dennis et al. 2008), we have conceptualized the use of Web 2.0 at work as a formative construct using different dimensions of usage

purposes. We also extended MST by incorporating guanxi network as an indigenous construct to investigate work performance as positive consequences of using a portfolio of IT artifacts in the Chinese context.

Our data validate our suggestion that the use of Web 2.0 technologies facilitates communication performance (effectiveness, quality, and timeliness). The guanxi network partially mediates the effect of Web 2.0 usage leading to increased communication performance. In addition, we have conducted a mediation test between the use of Web 2.0 and work performance. The test results indicate that the direct impact is not significant. This suggests the performance benefits of using of Web 2.0 technologies are not automatically realised, but need to be brought out through enhancement of guanxi network and communication performance.

When Web 2.0 tools are accessible by individual employees, the power of the tools can be realized through the individuals' guanxi networks. The use of Web 2.0 technologies at work not only can help build one's guanxi network but also directly enhance one's communication performance with peers, partners and customers in performing work related tasks, hence resulting in a better work performance. Companies can capitalize on individual employees' social relationships in a non-social context by permitting employees to use Web 2.0 technologies for work purposes. These intangible company assets have the potential to enhance communication performance among the individuals' social and work contacts and therefore lead to excellence in work performance.

This study has limitations that open up a few research opportunities. First, although we collected data in China, we expect the existence of social relationships to be prevalent in other countries. We encourage researchers to validate the research model by collecting data in different contexts and different countries. Second, the survey data used in the current study were subjective and collected from a single source. In future research, it would be useful to collect data from different sources and measuring objective data. Third, our cross-sectional research design inhibits the investigation of the dynamic effects among the constructs. Future studies may consider examining these dynamic effects and causal relationships using a longitudinal research design.

CONCLUSION

To summarize, Web 2.0 technologies are becoming ubiquitous in workplaces in China. There is a need to understand how individuals' usage can transform into performance benefits in the workplaces. Grounded on MST and incorporating guanxi network concepts, this study validates a new theoretical model to investigate how the use of these new forms of interactive media contribute to work performance. This study also shows that guanxi network is an important element in the process. We expect our findings will benefit both academics and practitioners by providing useful insights to unleash the power of Web 2.0 technologies in the context of modern China.

REFERENCES

Arias, J.T.G. 1998. "A Relationship Marketing Approach to Guanxi," *European Journal of Marketing*, (32:12), pp 145-156.

Armstrong J.S., and Overton, T.S. 1977. "Estimating Non-response Bias in Mail Surveys," *Journal of Marketing Research* (14:3), pp 396-402.

Bagozzi, R.P., Yi, Y., and Phillips, L.W. 1991. "Assessing Construct Validity in Organizational Research," *Administrative Science Quarterly* (36:3), pp 421-458.

Baron, R.M., and Kenny, D.A. 1986. "The Moderator-Mediator Variable Distinction in Social Psychological research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology* (51), pp 1173-1182.

Bughin, J., Chiu, M., and Miller, A. 2009. "How Companies are Benefiting from Web 2.0 Work: McKinsey Global Survey Results," *McKinsey Quarterly*, September.

Chin, W.W. 1998. "Issues and Opinion on Structural Equation Modeling," *MIS Quarterly* (22:1), pp vii-xvi.

Chou, L. F., Cheng, B. S., Huang, M. P., and Hsu, W. L. 2004. "Guanxi Networks and Members' Effectiveness within Chinese Work Team: The Mediating Effect of Trust Networks," *Asian Journal of Social Psychology* (9), pp 79-95.

Chow, W.S., and Chan, L.S. 2008. "Social Network, Social Trust and Shared Goals in Organizational Knowledge Sharing," *Information and Management* (45), pp 458-465.

Dennis, A.R., Fuller, R.M., and Valacich, J.S. 2008. "Media, Tasks, and Communication Processes: A Theory of Media Synchronicity," *MIS Quarterly* (32:3), pp 575-600.

Davison, R.M., and Ou, C.X.J. 2013. "Sharing Knowledge in Technology Deficient Environments: Individual Workarounds Amid Corporate Restrictions," *17th European Conference on Information Systems*. Utrecht, The Netherlands. http://aisel.aisnet.org/ecis2013_cr/23.

Davison, R.M., Ou, C.X.J., and Martinsons, M.G. 2013a. "Information Technology to Support Informal Knowledge Sharing," *Information Systems Journal* (23:1), pp 89-109.

Davison, R.M., Ou, C.X.J., Martinsons, M.G., Zhao, Y., Hua, X.Q., and Du, R. 2013b. "The Communicative Ecology of Web 2.0 @ Work: Social Networking in the Workspace," *73rd Academy of Management Conference*. Orlando, USA, August 9-13.

Farh, J.L.L., Tsui, A.S., Xin, K., and Cheng B.S. 1998. "The Influence of Relational Demography and Guanxi: The Chinese Case," *Organization Science* (9:4), pp 471-488.

Hair, J.F., Ringle, C.M., and Sarstedt, M. 2011. "PLS-SEM: Indeed a Silver Bullet," *Journal of Marketing Theory and Practice* (19:2), pp 139-151.

Lee, D.Y., and Dawes, P. 2005. "Guanxi, Trust, and Long-Term Orientation in Chinese Business Markets," *Journal of International Marketing* (13:2), pp 28-56.

Levy, M. 2009. "WEB 2.0 Implications on Knowledge Management," *Journal of Knowledge Management* (13:1), pp 120-134.

Mohr, J.J., and Sohi, R.S. 1995. "Communication Flows in Distribution Channels: Impact on Assessments of Communication Quality and Satisfaction," *Journal of Retailing* (71), pp 393-415.

Olasina, G. 2011. "The Use of Web 2.0 Tools and Social Networking Sites by Librarians, Information Professionals, and Other Professionals in Workplaces in Nigeria," *PNLA Quarterly* (75:3), pp 1-40.

O'Reilly, T. 2005. "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software." Retrieved from http://www.oreillynet.com/lpt/a/6228

Ou, C.X.J., and Davison, R.M. 2011. "Interactive or Interruptive: Instant Messaging at Work," *Decision Support Systems* (52:1), pp 61-72.

Ou, C.X.J., Davison, R.M., Zhong, X.P., and Liang, Y. 2010. "Empowering Employees through Instant Messaging," *Information Technology and People* (23:2), pp 193-211.

Ou, C.X.J., Pavlou, P.A., and Davison, R.M. 2014. "Swift Guanxi in Online Marketplaces: The Role of Computer-Mediated Communication Technologies," *MIS Quarterly* (38:1), pp 209-230.

Pachler, N., and Daly, C. 2009. "Narrative and Learning with Web 2.0 Technologies: Towards a Research Agenda," *Journal of Computer Assisted Learning* (25:1), pp 6-18.

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," *Organizational Science* (3:4), pp 475-500.

Su, C.T., Sirgy, J., and Littlefield, J.E. 2003. "Is Guanxi Orientation Bad, Ethically Speaking? A Study of Chinese Enterprises," *Journal of Business Ethics*, (44:4), pp 303-315.

Van de Vijver, F.J., and Leung, K. 1997. *Methods and Data Analysis for Cross-Cultural Research*. Newbury Park, CA: Sage.

Voelpel, S.C., and Han, Z. 2005. "Managing Knowledge Sharing in China: The Case of Siemens ShareNet," *Journal of Knowledge Management* (9), pp 51-63.

Wilson, D.W., Lin, X., Longstreet, P., and Sarker, S. 2011. "Web 2.0: A Definition, Literature Review, and Directions for Future Research," *AMCIS 2011 Proceedings*, Paper 368. http://aisel.aisnet.org/amcis2011_submissions/368

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.

APPENDIX 1

Table A1. Measurement Items

Construct	Item	Source
Use of Web 2.0 at Work (Formative)	How frequently do you use Web 2.0 for the following purposes at work? a) Information seeking b) Information sharing c) To stay well informed d) Office communication e) File sharing f) Information dissemination g) Learning and training	Ou and Davison (2011) Olasina (2011)
Communication Performance	To what extent do you agree the following activities are performed at a high level of quality in your current work practice? a) Communication Effectiveness b) Information Exchange Quality c) Information Exchange Timeliness d) Feedback from Suppliers e) Feedback from Customers f) Feedback from Employees	Ou and Davison (2011) Mohr and Sohi (1995)
Guanxi Network	1. I have developed a good guanxi network with my colleagues in the organization. 2. I have developed a good guanxi network with my organization's external business partners. 3. I have developed a good guanxi network outside my organization. 4. I have many good work-related contacts with my colleagues in the organization. 5. I have many good work-related contacts with my organization's external business partners. 6. I have many good work-related contacts outside my organization.	Chow and Chan (2008) Arias (1998)
Work Performance	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)

Note: All the items were anchored on a scale from strongly disagree (1) to strongly agree (7).

COPYRIGHT