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The Effect of Tertius Iungens Orientation on Knowledge Sharing Activity in Social Media

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Abstract

This study examines the effect of tertius iungens orientation on knowledge sharing activity within a social media environment. In addition, the study also introduces, based on the social cognitive theory and social capital theory, individual and social factors which influence tertius iungens orientation and knowledge sharing activity in social media. The research model was assessed using data collected from 234 respondents and the structural equation model with LISREL 8.70. The empirical analysis revealed that knowledge self-efficacy, social interaction ties, and norm of reciprocity positively influenced tertius iungens orientation and knowledge sharing activity in social media, while enjoyment of helping was found to only have an insignificant influence on these factors. In addition, tertius iungens orientation had a significant impact on knowledge sharing activity in social media, which in turn influenced individual job performance. Based on the results of this analysis, this study discusses the research findings and proposes the theoretical and practical implications.

Keywords

Tertius Iungens Orientation, Knowledge Sharing Activity in Social Media, Job Performance, Social Cognitive Theory, Social Capital Theory

1. Introduction

Social media can be combined with various media tools (video, audio and pictures etc.) found on the Internet. Through social media, people can easily share not only explicit knowledge based on text, but also the tacit knowledge which may be difficult to express in written form. In other words, as social media has become a helpful information technology through which to facilitate knowledge sharing activities amongst the members of an organization, it has become essential for managers who intend to heighten the job performance of their employees through knowledge sharing activities to actively review the introduction of social media as an alternative or supplement to the existing knowledge management system.

People who make active use of social media tend to gain knowledge and information with which to resolve the problems they encounter not only from their coworkers, but also from various other people around them. Thus, in the context of social media, the notion of tertius

iungens, which refers to the introduction of unconnected individuals and to the transformation of alienated relationships into close ones, plays an important role in information exchange and knowledge sharing.

This study has the following objectives. First, it seeks to ascertain the influence of knowledge sharing activities by the members of an organization within a social media environment on individual job performance. Second, it sets out to introduce the use of tertius iungens as a way to improve knowledge sharing activities, and examines the causal relationship between these factors. Lastly, it attempts to, based on social cognitive and social capital theory, derive the individual (knowledge self-efficacy and enjoyment of helping) and social factors (social interaction ties and norm of reciprocity) which influence tertius iungens orientation and knowledge sharing activities in social media, and then assesses the casual relationship between these individual and social factors.

2. Conceptual Background

2.1 Social Cognitive Theory and Social Capital Theory

The social cognitive theory, a model designed to explain individual behaviors, has been used to understand individual motivations and behaviors under various situations. Bandura (1977) asserted that individual behaviors were the result of the interactions between the social environment and cognitive skills.

As a result of the social cognitive theory's emphasis on individual and intrinsic factors many previous studies have paid attention to the notion of self-efficacy (Chen and Hung 2010; Lin and Huang 2008). Self-efficacy is a person's belief in his or her ability to succeed in a particular situation, rather than a person's possession of specific skills. The enjoyment of helping, or what is more commonly referred to as altruism, is another important individual and intrinsic motivation from the perspective of the social cognitive theory that helps to inspire human behavior.

However, social cognitive theory does not provide any explanations as to how the social capital that develops within a social network influences individual behaviors. To fill up this gap, this study makes use of social capital theory as a tool with which to supplement the social cognitive theory in explaining individual behaviors and performances (Lin 2001). The social interaction ties can play an important role from the perspective of the social capital theory when explaining individual behaviors and performances. Knowledge sharing is not achieved through one person's efforts. Rather it involves active interaction with other people who possess the necessary knowledge. As such, the norm of reciprocity plays an important role in accumulating social capital.

2.2 Tertius Iungens ("the third who joins")

The tertius iungens orientation is a behavioral orientation that emphasizes creating or facilitating ties amongst people in one's social network, actively introducing dissimilar others (Obstfeld 2005).

The emphasis on tertius iungens contrasts with the strategic separation of parties which is emphasized in Simmel (1950)'s concept of tertius gaudens. Simmel (1950) defined tertius gaudens ("rejoicing third") as a third party who profits or benefits from competition amongst

two others. Simmel (1950)'s tertius gaudens can be regarded as a state of active separation between two parties connected through a third party.

The concepts of tertius iungens and tertius gaudens can be explained using two different perspectives related to the formation of social capital, namely the network closure and structural hole perspectives. The network closure perspective revolves around the view that social capital is formed based on strong ties within the facilitating group. Thus, people with strong ties can benefit from the cooperation and support of others within the group (Coleman 1988). By introducing two parties who do not know each other and strengthening estranged relationships, tertius iungens effectively creates a network closure structure with strong ties.

On the contrary, the structural hole perspective maintains that social capital is formed through a loosely tied network structure. The structural hole refers to the relationship of non-redundancy that exists between parties, and can be defined as a position in which one connects actors who are not yet connected within a network (Burt 1992).

Tertius iungens orientation can be regarded as a behavioral orientation which emphasizes connections between the parties within a specific social network. As such, people with a tertius iungens orientation can be expected to be actively involved in knowledge sharing.

3. Research Model and Hypothesis

To explore how tertius iungens orientation affects an individual's knowledge sharing activities in social media, we developed a research model that considered their psychological consequences and antecedents. This is shown in Figure 1.

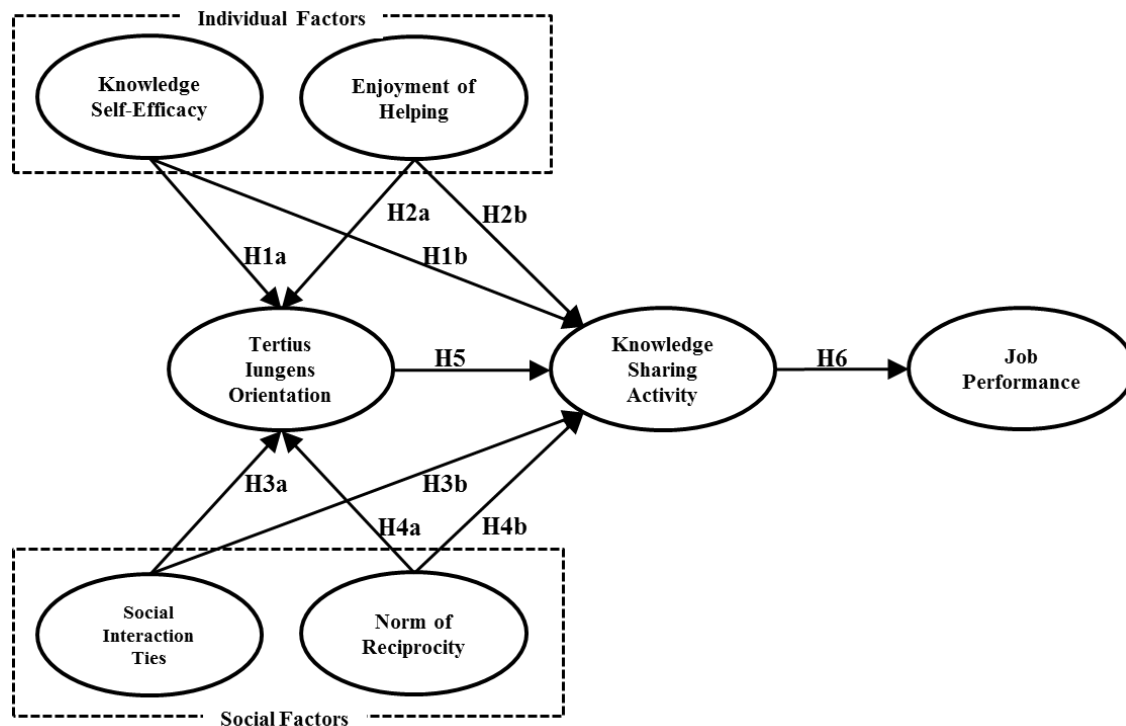


Figure 1: Research Model

Self-efficacy is defined as the individual belief in one's capabilities to conduct the given tasks (Bandura 1977). Based on the context of this definition, the self-efficacy of knowledge contribution can be defined as the confidence in one's capabilities to provide useful knowledge to others (Chen and Hung 2010). Busch (1996)'s study found that a person with high self-efficacy exhibits a tendency to help others with tasks and to create a cooperative environment with them or between them. In addition, Lin and Huang (2008) showed that the higher level of self-efficacy a person possesses with regards to knowledge contribution, the more he or she tends to share knowledge within the knowledge management system. Based on these discussions, the following hypothesis is suggested.

H1a: Knowledge self-efficacy will positively influence tertius iungens orientation.

H1b: Knowledge self-efficacy will positively influence knowledge sharing activity in social media.

As they perceive helping others as enjoyable and interesting and as a good behavior, people obtain enjoyment and satisfaction from helping others (Kollock 1999). A person that gladly helps other people and experiences a sense of enjoyment from helping others will search for various ways to help people who face difficulties

Within the context of knowledge sharing, enjoyment of helping can be considered from the perspective of altruism. Organ (1988) defined altruism as the discretionary behavior of helping others who face problems with regards to the performance of organizational tasks. When organization members have an attachment and sense of altruism towards their organizational work duties, they can be easily motivated for sharing knowledge with other colleagues (Davenport and Prusak 1998). Based on these discussions, the following hypothesis is introduced.

H2a: Enjoyment of helping will positively influence tertius iungens orientation.

H2b: Enjoyment of helping will positively influence knowledge sharing activity in social media.

Interactions with other people within a social network facilitate the activities of the people who belong to the network and provide an important asset for the members of the network (Coleman 1990). Organizational success is dependent on the extent to which a knowledge worker can effectively and efficiently share knowledge with his or her coworkers. Many of the recent studies have identified the improvement of close relationships with others as a means to bring about effective knowledge sharing (e.g. Chow and Chan 2008). Social interaction ties play the role of channels through which resources such as knowledge and information flow (Tsai and Ghoshal 1998). Based on these discussions, the following hypothesis is introduced.

H3a: Social interaction ties will positively influence tertius iungens orientation.

H3b: Social interaction ties will positively influence knowledge sharing activity in social media.

Norm of reciprocity refers to the social regulations which are established with regards to relationships with other people, and which are generally applied to all cultures and relations (Wu et al. 2006). Norm of reciprocity also becomes a motivation in and of itself. As such, the

cooperative behaviors carried out through norm of reciprocity facilitate the advent of tertius iungens orientation that revolves around making people actively participate. Chiu et al. (2006) empirically proved that norm of reciprocity positively influenced the volume of knowledge sharing. Based on these discussions, the following hypothesis is suggested.

H4a: Norm of reciprocity will positively influence tertius iungens orientation.

H4b: Norm of reciprocity will positively influence knowledge sharing activity in social media.

Due to its behavioral orientation, in that it introduces and connects two dissimilar parties, tertius iungens orientation can be regarded as helping foster cooperation by improving relationships between people (Obstfeld 2005). The improvement of such social relationships makes it possible to, by leading people to connect with new things, establish a network structure that is based on strong ties. Within such groups, the flow of information and knowledge must be smoothly carried out in order to ensure effective knowledge sharing from the standpoint of resources mobilization (Coleman 1988). Based on these discussions, the following hypothesis is suggested.

H5: Tertius iungens orientation will positively influence knowledge sharing activity in social media.

Knowledge sharing can be defined as the act of diffusing individually obtained knowledge to the other members of an organization (Ryu et al. 2003). It increases the transactive memory needed to make the coordination and collaboration between members of an organization possible (Mathieu et al. 2000), which results in successful job performance. Based on these discussions, the following hypothesis is introduced.

H6: Knowledge sharing activity in social media will positively influence individual job performance.

4. Research Methodology

4.1 Development of Measurement Instrument

The measurement instrument was developed based on survey questions found in previous studies whose validity have been tested. All questionnaire items were scored based on a seven-point Likert-type scale. The operational definitions of these seven variables and the related research are summarized in Table 1.

Variables	Operational definitions	Related research
Knowledge self-efficacy	Extent to which a person is confident that he/she possesses the capability to provide useful knowledge to others	Chen and Hung(2010) Lin(2007)
Enjoyment of helping	Extent of enjoyment from helping others	Wasko and Faraj(2005)
Social interaction ties	Extent of interaction with others	Chiu et al.(2006)
Norm of reciprocity	Extent of belief that a behavior which provides a favor to others will be reciprocally returned in the future	Chen and Hung(2010) Wasko and Faraj(2005)
Tertius iungens orientation	Extent to which new ties are established by introducing dissimilar parties to each other or extent to which stronger ties are established between similar parties.	Obstfeld(2005)
Knowledge sharing activity in social media	Extent to which knowledge is provided or shared with others in a social media environment	Hsu et al(2007) Davenport and Prusak(1998)
Job performance	Extent to which one's goals with regards to the conduct of work duties are achieved	Williams and Anderson(1991)

Table 1: Operational Definitions of the Measurement Instruments and Related Research

4.2 Data Collection

To verify the research model, a survey of individual employees who were working for various organizations representing nine industries was conducted. Questionnaires were distributed for about a month. A total of 259 questionnaires were returned. Twenty-five questionnaires were eliminated because it was deemed that the respondents work conditions did not mesh with the goals of this study. As such, a total of 234 questionnaires were used for the final analysis. All in all, 139 men and 95 women returned their surveys, thus meaning that 59.4% of respondents were men. In terms of jobs, 5 individuals were government workers, 196 company workers, and 31 professionals. With regard to the age of respondents, 21 people were found to be between the ages of 20-25, 116 between the ages of 26-30, 57 between the ages of 31-35, 30 between the ages of 36-40, and 10 were found to be 40 or higher. Individuals between the ages of 26-35 were found to account for 49.6% of the overall total.

5. Analysis and Results

5.1 Measurement Model

The research model introduced in this study was verified through data analysis carried out in accordance with the two-step approach using LISREL 8.70 based on the structural equation

model (Anderson and Gerbing 1988). First, the convergent validity and discriminant validity of the measurement model were identified; thereafter, a structural model based on the cleansed measurement model, whose validity was verified, was examined and used to verify the proposed hypotheses.

The verification of the convergent validity requires that the unidimensionality of each variable be tested. In accordance with the suggested methodological procedure (Anderson and Gerbing 1988; Gefen et al. 2000), the measurement model was modified, with a total of seven items eliminated (SEC1, ENH2, SIT3, TIU6, KSA1, KSA2, and JOP6), by removing items which shared a high degree of residual variance with other items. The Normed χ^2 was calculated at 1.893, which was deemed to be a good fitness level lower than the recommended level of 3.0 (Gefen et al. 2000). While RMR was estimated to be 0.044, which was lower than the recommended level of 0.05 (Hair et al. 1998), GFI was estimated to be 0.834, thus meeting the recommended level of 0.8 (Taylor and Todd 1995). The other fitness indexes also exhibited satisfactory levels (CFI=0.987, NFI=0.978, NNFI=0.985), which indicated that overall the measurement model exhibited a satisfactory level of fitness.

The following three criteria were used to evaluate the convergent validity: First, the standardized path coefficients should be greater than 0.7 and statistically significant (Gefen et al. 2000). Second, the composite reliability and the Cronbach's alpha for each variable must be greater than 0.7 (Hair et al. 1998). Third, the average variance extracted (AVE) for each variable should exceed 0.5 (Fomell and Larcker 1981). As can be seen in Table 2, the convergent validity of the measurement items used in this study was confirmed.

Construct	Items	Factor loadings	Composite reliabilities	Average variance extracted	Cronbach's alpha
Knowledge self-efficacy	SEC2	0.748	0.855	0.597	0.854
	SEC3	0.751			
	SEC4	0.769			
	SEC5	0.822			
Enjoyment of helping	ENH1	0.845	0.929	0.767	0.926
	ENH3	0.926			
	ENH4	0.787			
	ENH5	0.937			
Social interaction ties	SIT1	0.929	0.934	0.826	0.932
	SIT2	0.935			
	SIT4	0.861			
Norm of reciprocity	NOR1	0.798	0.915	0.731	0.913
	NOR2	0.863			
	NOR3	0.925			
	NOR4	0.829			

Tertius iungens orientation	TIU1	0.851	0.931	0.732	0.930
	TIU2	0.839			
	TIU3	0.911			
	TIU4	0.883			
	TIU5	0.791			
Knowledge sharing activities	KSA3	0.930	0.896	0.685	0.891
	KSA4	0.803			
	KSA5	0.857			
	KSA6	0.705			
Job performance	JOP1	0.918	0.963	0.841	0.963
	JOP2	0.899			
	JOP3	0.954			
	JOP4	0.926			
	JOP5	0.889			

Table 2: Results of Convergent Validity Testing

Next, the discriminant validity was assessed. It was assessed by comparing the square root of AVE for each construct with the correlations between that construct and other constructs (Fomell and Larcker 1981). As can be seen in Table 3, the square root of AVE for each construct exceeded the correlations between that construct and other constructs. Therefore, the discriminant validity of the measurement items employed in this study was confirmed.

Variables	Mean(SD)	SEC	ENH	SIT	NOR	TIU	KSA	JOP
SEC	4.448(1.451)	0.772						
ENH	4.566(1.454)	0.720	0.875					
SIT	3.625(1.691)	0.606	0.593	0.908				
NOR	4.322(1.399)	0.639	0.736	0.661	0.854			
TIU	4.116(1.492)	0.618	0.499	0.594	0.582	0.855		
KSA	3.352(1.615)	0.677	0.622	0.767	0.734	0.712	0.827	
JOP	4.090(1.483)	0.606	0.594	0.610	0.679	0.586	0.692	0.917

Note: Leading diagonals represent the square root of the average variance extracted between the constructs and their measures, while off diagonal entries are the correlations among constructs.

Table 3: Results of Discriminant Validity Testing and Correlations

5.2 Structural Model and Hypothesis Testing

Hypothesis testing was conducted using the structural model of LISREL. Although there are no unified standards for model fitness, existing studies have suggested standards such as $RMR < 0.05$, $GFI > 0.8$, $AGFI > 0.8$, $NFI > 0.9$, $NNFI > 0.9$, and $CFI > 0.9$ (Taylor and Todd 1995; Hair et al. 1998). The general fitness of the structural model used in this study was revealed to be as follows: $\chi^2 = 856.69$, $df = 361$, Normed $\chi^2 = 2.381$, $P\text{-value} = 0.000$, $RMR = 0.060$, $GFI = 0.827$, $AGFI = 0.791$, $CFI = 0.984$, $NFI = 0.972$, $NNFI = 0.981$. While certain fitness indexes (RMR and $AGFI$) did not reach the conservative recommended level, these can nevertheless be considered to be generally satisfactory, because not only is it difficult to obtain all suitable fitness indexes in a structural equation model, but the model has no absolute standards when it comes to acceptability (Gefen et al. 2000; Jöreskog and Sörbom 1993). So these results suggest that the structural model fitted the data adequately.

Figure 2 shows the standardized LISREL path coefficients and the results of hypothesis test.

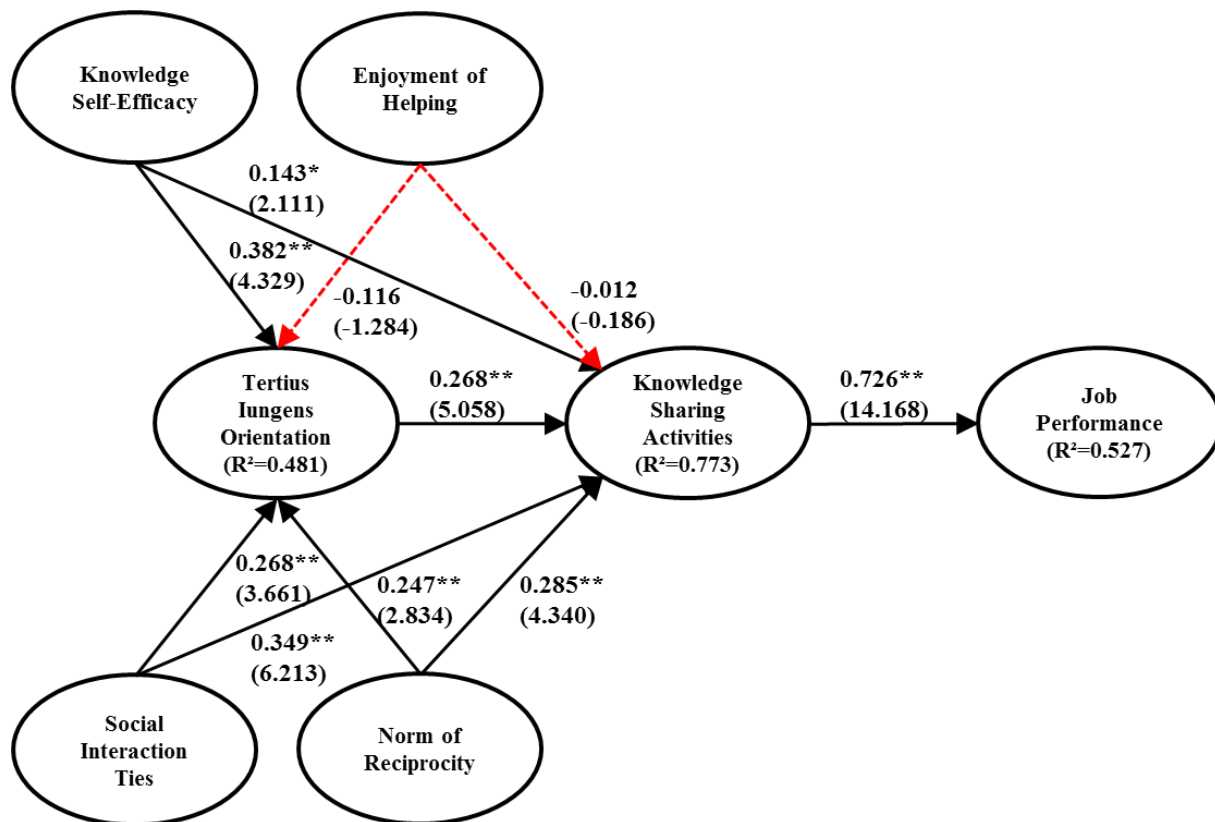


Figure 2: Results of the Analysis of the Research Model (* $p < 0.05$, ** $p < 0.01$)

6. Discussion

This study analyzed the relationship between tertius iungens orientation and knowledge sharing activity in social media. An empirical analysis showed that all hypotheses were

supported, except for H2a and H2b (enjoyment of helping related hypotheses). So this leads to the following discussion.

First, enjoyment of helping was found not to significantly influence tertius iungens orientation. Within online environments, such as social media, one can establish various social networks with people that exist beyond the regional and cultural barriers that dictate offline environments. However, as there are fewer interactions based on trust, the social networks established within an online environment have a strong likelihood of being based on loose connections. In addition, there is also a high probability that such networks will not pursue common goals or collective actions because those who are involved with activities through social media are not likely to have established relationships that are based on common values through the prolonged sharing of emotions with others. Under such circumstances, people tend to try to obtain short-term and direct benefits rather than long-term and indirect ones gained by accumulating knowledge and information through relationships with others. Moreover, as the benefits of tertius iungens activities are not reciprocated over the short term, individuals will not engage in the voluntary introduction of others in their capacity as intermediaries. As a result, we can guess that enjoyment of helping does not influence tertius iungens orientation in social media environments.

Second, enjoyment of helping was found not to significantly influence knowledge sharing activity in social media. This finding runs contrary to the results of the study conducted by Kankanhalli et al. (2005) and Lin (2007), which found that a person who felt a sense of enjoyment from helping others through such means as the provision of knowledge possessed a strong motivation to engage in knowledge sharing activities. However, the results of the present study are consistent with those of Wasko and Faraj (2005), who failed to confirm the influence of enjoyment of helping on the volume and helpfulness of knowledge contribution. Several reasons can be postulated as to why enjoyment of helping, which represents one of the intrinsic motivation factors, brought about mixed results in terms of the influence of this factor on knowledge sharing activities. First of all, the non-anonymous nature of social media environments may be a factor that impedes knowledge sharing activities. Enjoyment of helping is regarded as an intrinsic motivation factor that is not based on extrinsic rewards. Therefore, enjoyment of helping, in its capacity as a private reward, may not function as a motivation factor that fosters knowledge sharing activities under a non-anonymous situation. The burden of sharing professional knowledge related to job duties may also be another factor to impede knowledge sharing activities. The behavior of providing knowledge eventually tends to lead the person who has originally possessed the knowledge to lose his/her special status. Within a social media environment, many people are able to enjoy a proverbial free-ride vis-à-vis the people who share knowledge. As such, although it may be enjoyable to help others, people may not be willing to share their specialized knowledge with others for the benefit of the group in an unlimited manner.

7. Implications

This study involved several implications from both theoretical and practical perspectives. From the theoretical standpoint, first of all, this study developed a new theoretical model to explain the influence of knowledge sharing activities within a social media environment on job performance. Considering that there has been a lack of studies on the behavioral characteristics

within social media and the relationship between social media and job performance in organizations, this research model is expected to provide a useful theoretical basis for those researchers who in the future intend to conduct studies on the role of social media as a knowledge management tool.

Second, this study introduced a new variable called *tertius iungens* orientation as a factor which influences knowledge sharing activities in social media. A look at previous empirical studies related to *tertius iungens* orientation (Obstfeld 2005) revealed a dearth of studies that have directly addressed knowledge sharing activities amongst the members of an organization. The fact that *tertius iungens* orientation constitutes an important factor behind the knowledge sharing activities required for cooperation can be taken to mean that the effective use of *tertius iungens* orientation may represent a helpful strategy with which to activate knowledge management within an organization. *Tertius iungens* orientation is expected to provide new theoretical insights for researchers who intend to explore various factors related to the activation of knowledge sharing activities in social media from the standpoint of the knowledge management.

Third, this study introduced an integrated theoretical model that simultaneously takes into consideration, based on the social cognitive theory and social capital theory, individual and social factors as antecedent factors that influence knowledge sharing activities in social media. Since knowledge sharing requires active interactions with others who possess knowledge, the concept of social networks should be taken into consideration in explaining its behavioral properties. However, previous studies have by and large failed to assess the role of social factors and to empirically prove their influence. Aware of these limitations, this study introduced a model which took into consideration not only individual and intrinsic factors, but also social and relational ones as the variables which influence knowledge sharing activities, and then proceeded to empirically prove their influence in an integrated manner. As a result, knowledge self-efficacy, which constituted an individual factor, as well as social interaction ties and norm of reciprocity, which were introduced herein as social factors, was revealed to significantly influence knowledge sharing activities. These results present a new theoretical viewpoint, namely that the combination of individual and social factors can bring about significant results as far as knowledge sharing activities in social media are concerned.

From a practical standpoint, first, this study shows that social media has emerged as a necessary implement that makes knowledge sharing activities within an organization possible; by revealing that knowledge sharing activities in social media positively influenced individual job performance. These results can also be regarded as sending a concrete message to companies which intend to improve job performance through social media.

Second, by identifying *tertius iungens* orientation as a factor which increases knowledge sharing activities in social media, this study proposed a way with which to facilitate knowledge sharing activities within companies. In cases where connections have not yet been formed between members of an organization or between organizations, the introduction and connection of such entities through *tertius iungens* activities can be expected to bring about a more effective and efficient knowledge flow. In addition, useful information and knowledge can be obtained and shared through *tertius iungens* activities at a low cost. As knowledge capital is usually internalized by individuals, the most effective method of obtaining knowledge is to directly come into contact with those who possess the knowledge. Therefore, managers who intend to activate knowledge sharing need to analyze the fields of interest and

knowledge demanded by members and to create direct interaction ties between the persons who need knowledge and those who possess the knowledge through tertius iungens activities.

8. Conclusion

This study confirmed the influence and influential process of knowledge sharing activities within a social media environment on job performance. It also empirically verified the role of tertius iungens vis-à-vis knowledge sharing activities in social media. To attain this, this research identified the factors influencing tertius iungens orientation and knowledge sharing activity in social media, which were divided into the individual and social factors, and empirically verified the relationship between these factors. These study results are expected to provide important theoretical implications for researchers desiring to conduct behavioral studies on topics such as knowledge management in social media context, and to introduce a helpful perspective for managers who intend to introduce social media within their organizations as a means to facilitate the conduct of job duties.

References

- Anderson, J. C. and D. W. Gerbing (1988) "Structural Equation Modeling in Practice: Review and Recommended Two-Step Approach," *Psychological Bulletin*, (103)3, pp. 411-423.
- Bandura, A. (1977). "Self-efficacy: Toward a Unifying Theory of Behavioral Change," *Psychological Review*, (84)3, pp. 191-215.
- Burt, R. S. (1992) *Structural Holes: The Social Structure of Competition*, Cambridge: Harvard University Press.
- Busch, T. (1996) "Gender, Group Composition, Cooperation, and Self-Efficacy in Computer Studies," *Journal of Educational Computing Research*, (15)2, pp. 125-135.
- Chen, C. J., and S. W. Hung (2010) "To Give or to Receive? Factors Influencing Members' Knowledge Sharing and Community Promotion in Professional Virtual Communities," *Information & Management*, (47), pp. 226-236.
- Chiu, C. M., M. H. Hsu, and E. T. G. Wang (2006) "Understanding Knowledge Sharing in Virtual Communities: An Integration of Social Capital and Social Cognitive Theories," *Decision Support System*, (42). pp. 1872-1888.
- Chow, W. S., and L. S. Chan (2008) "Social Network, Social Trust and Shared Goals in Organizational Knowledge Sharing," *Information & Management*, (45), pp-458-465.
- Coleman, J. (1988) "Social Capital in the Creation of Human Capital," *American Journal of Sociology*, (94), pp. 95-121.
- Coleman, J. (1990) *Foundations of Social Theory*, Belknap Press, Cambridge, MA.
- Davenport, T. H., and L. Prusak (1998) *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston, MA.
- Fomell, C., and D. F. Larcker (1981) "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Management Science* (40), pp. 440-465.
- Gefen, D., D. W. Stuaab, and M. C. Boudreau (2000) "Structural Equation Modeling and Regression: Guidelines for Research Practice," *Communications of the Association for Information Systems*, (4)7, pp. 1-76.
- Hair, J. T., R. E. Anderson, R. L. Tatham, and W. C. Black (1998) *Multivariate Data Analysis*, 5th ed., Upper Saddle River, NJ, Prentice Hall, pp. 1-730.

- Hsu, M. H., T. L. Ju, C. H. Yen, and C. M. Chang (2007) "Knowledge Sharing Behavior in Virtual Communities: The Relationship between Trust, Self-efficacy, and Outcome Expectation," *International Journal of Human-Computer Studies*, (65), pp. 153-169.
- Jöreskog, K. G., and D. Sörbom (1993) *Structural Equation Modeling with the SIMPLIS Command Language*, Chicago: Scientific Software International Inc.
- Kankanhalli, A., B.C.Y. Tan, and K.-K. Wei (2005) "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation," *MIS Quarterly*, (29)1, pp. 113-143.
- Kollock, P. (1999) *The Economies of Online Cooperation: Gifts, and Public Goods in Cyberspace*, in *Communities in Cyberspace*, M. A. Smith and P. Kollock(Eds.), Routledge, New York, pp. 220-239.
- Lin, H. F. (2007) "Effects of Extrinsic and Intrinsic Motivation on Employee Knowledge Sharing Intentions," *Journal of Information Science*, (33)2, pp. 135-149.
- Lin, N. (2001) *Social Capital*, Cambridge University Press, Cambridge, UK.
- Lin, T. C., and C.C. Huang (2008) "Understanding Knowledge Management System Usage Antecedents: An Integration of Social Cognitive Theory and Task Technology Fit," *Information and Management*, (45)6, pp. 410-417.
- Mathieu, J. E., T.S. Heffner, G. F. Goodwin, E. Salas, and J. A. Connon-Bowers (2000) "The Influence of Shared Mental Models on Team Process and Performance," *Journal of Applied Psychology*, (85)2, pp. 273-283.
- Obstfeld, D.(2005) "Social Networks, The Tertius Iungens Orientation, and Involvement in Innovation," *Administrative Science Quarterly*, (50), pp. 100-130.
- Organ, D. W. (1988) *Organizational Citizenship Behavior: The Good Soldier Syndrome*, Lexington Books, Lexington, MA.
- Ryu, S., S. H. Ho, and I. Han (2003) "Knowledge Sharing Behavior of Physicians in Hospitals," *Expert Systems with Application*, (25)1, pp. 113-122.
- Simmel, G. (1950) *The Sociology of Georg Simmel*, Trans. By Wolff, K. H., and Glencoe, IL, Free Press.
- Taylor, S. and P. A. Todd (1995) "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research*, (6)2, pp. 144-176.
- Tsai, W., and S. Ghoshal (1998) "Social Capital and Value Creation: An Empirical Study of Intrafirm Networks," *Academy of Management Journal*, (41)4, pp. 464-476.
- Wasko, M. M., and S. Faraj (2005) "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly*, (29)1, pp. 35-57.
- Williams, L. J., and S.E. Anderson (1991) "Job Satisfaction and Organizational Commitment as Predictors of Organizational Citizenship and In-role Behaviors," *Journal of Management*, (17)3, pp.601-617.
- Wu, J. B., P. W. Hom, L. E. Tetrick, L. M. Shore, L. Jia, C. Le, and L. J. Song (2006) "The Norm of Reciprocity: Scale Development and Validation in the Chinese Context," *Management and Organization Review*, (2)3, pp. 377-402.