

The Impacts of Social Network on Work Stress and Organizational Citizenship Behavior

Seng-Su Tsang*, PhD Alice Liange Ying-Jung Yeh, PhD Shih-Fong Wang
National Taiwan University of Science and Technology
Department of Business Administration
Taipei, Taiwan (R.O.C.)
tsang@mail.ntust.edu.tw

Abstract

Given the negative impact of work stress on organizational citizenship behavior (OCB) and the alleviation of work stress by social supports in workplaces, the present study sets to investigate a worker's social network in providing social supports to reduce work stress and promote the engagement of OCB. The employees of financial institutes were surveyed to estimate their social network centrality with respect to the branch office they belonged to. Path analysis was performed to test drawn hypotheses. The results show that the job network centrality induces more work stress whereas the friendship network centrality reduces work stress, and work stress reduces worker's engagement of OCB. This opposite impacts of job versus friendship centrality may imply that the inevitable work stress due to job demand could be effectively mitigated by the social supports due to friendship network.

Keywords: Centrality, Social support, network.

Introduction

Organizational citizenship behavior (OCB), known as a discretionary, not directly or explicitly recognized by the formal reward system, can promote the efficiency and effectiveness of the organization (Organ, Podsakoff, & MacKenzie, 2006). In the past decades, industrial psychologist and researchers have identified several antecedents of OCB, including job satisfaction, and commitment, perceptions of fairness, leader behaviors, and feedback environment, etc. Recent research showed that work stress, a psychological reaction to the job stressors may hurt not only employees' task performance (LePine, Podsakoff, & LePine (2005), but also the OCB(Chang, Johnson,

& Yang, 2007; Peng & Chiu, 2010). As the OCB research attention turns to the antecedents concerning health and stress of employees, we postulate a question, can a person's social network in the organization alleviate or increase his/her stress, and consequently influence his/her engagement of OCB? Work stress is one of the known determinants decreasing OCB and social supports are shown an effective alleviator for work stress. Consequently, the provision of social supports is an enabler for OCB via the reduction of work stress. An immediate question is how the social supports arise in organization? The present study adopts the social network concept to investigate the social supports in organizations.

1. Theoretical background and hypotheses

In the human environment, social support arises from the personal interactions. Via interactions support accrues by the physical as well as emotional resources transferring among individuals. For support to arise within organization it requires that other community members who are responding to the one call for help. It is a dyadic interactions, therefore the dyadic approach of the social network analysis may meet this nature for the unique data approach characteristic. Next, resource scarcity is obviously an important factor that restrains social support. The scarcity may pose the resource holder to optimize by selecting the receiver among coworkers. Naturally, the resource giving and receiving is shaped by the interpersonal ties among coworkers, that is the embeddedness of individuals in social network(Granovetter, 1985). For the investigation of ties, social network analysis provides a quantitative method endeavoring to draw on structural properties of social ties in explaining organizational issues such as the job performance(Sparrowe, Liden, Wayne, & Kraimer, 2001), power(Brass, 1984) and so on.

The structures of social networks may be graphically analyzed by drawing the ties among networked members, however, for further statistical inferences we need quantitative indicators. *Centrality* that shows the connections of given one to others in the network is the widely adopted network indicator for social network analysis. The centrality is shown to be indicative for resource availability in organization (Krackhardt, 1992). The one of greater centrality may hold more resources. To this measure, three estimators are available: the degree centrality, closeness centrality and betweenness centrality(Degenne & Forse, 1999). Of the three, degree centrality is the earliest proposed estimator which simply counts the number of ties to other actors in the network. Betweenness centrality is later proposed to show the extent to which a node lies between other nodes in the network. It takes into account the connectivity of

the node's neighbors by measuring the number of actors connecting indirectly through their direct links. Finally, the closeness centrality estimates the degree an individual is near all other individuals in a network. It reveals the access through network actors. Oftentimes, the closeness is the inverse of the sum of the shortest distances between actors and others in the network. Therefore, for a small network study, the closeness centrality is oftentimes similar to the degree centrality. Therefore, in the current study, we then focus only the degree centrality to examine how social network can influence one's work stress, and OCB.

In addition to the *centrality* measures, social network is also measured in terms of the characteristics of network given the organization. For instance, strong ties versus weak ties is one of the widely concerned characteristics in network studies (Krackhardt & Hanson, 1993). Strong ties are often woven by following organizational hierarchy and job assignment (e.g., work network) whereas weak ties often arise in informal networks (e.g., the advice network and friendship network). The former is often called job centrality, while the latter is called friendship centrality. For strong ties in work network, the centrality is shown an indicator where the one with greater centrality may hold higher job title or social status (Kenis & Knoke, 2002) and knowledge capitals (Ibarra, 1990). We postulate that it may come with greater responsibilities, and psychological efforts or skills, and as a result, higher work stress according to the Job Demands-Resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The first hypothesis is stated as:

Hypothesis 1: one's job centrality is positively related with his/her work stress.

For weak ties in friendship network, since the ties are woven on the basis of close communication and interactions the derived social supports are prone to be sentimental (Krackhardt & Hanson, 1993). A few studies found that friendship network can effectively reduce work stress for nurses (Anderson, 1991) and enhance life quality (Achat, et al., 1998). We suspect those who are in the center of the social network at this aspect (i.e. friendship) may experience more social supports, and therefore reduce work stress.

Hypothesis 2: one's friendship centrality is negatively related with his/her work stress.

The direct link between network ties and OCB is nevertheless rarely addressed in the literature. A rare case is the adoption of the social exchange theory (Lin, Hung, & Chiu, 2008). Amid of organizational factors, interpersonal relationship is a generic fundamental for collaboration. Altruism that springs from this relationship is often the key to organizational success. The altruistic behavior in workplace is widely

documented as the OCB which endeavors to streamline the organization (Organ, 1990). In the light of altruistic behavior, reciprocity is an important organizational norm that can induce further interpersonal support (Einseberg, Armeli, Rexwinkel, Lynch, & Rhoades, 2001). When one excises an altruistic behavior toward coworker, the reciprocity norm assures the payback afterward, which is the key in the social exchange theory(Cook & Rice, 2006). Those who are high in friendship centrality may experience more positive interpersonal interactions and receive more social supports from workplace. Therefore, we propose the following hypothesis:

Hypothesis 3: Friendship centrality is positively related with OCBs.

Furthermore, the drawn hypotheses were summarized in Figure 1 as the research framework of the present study.

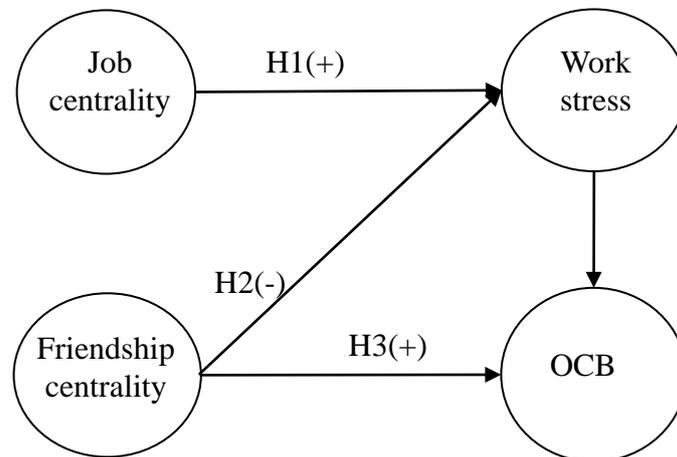


Figure 1. The research framework with respect to the drawn hypotheses where the plus and minus in the parentheses depicted the positive and negative impacts on factors

2. Methods

2.1. Subjects and questionnaire design

The survey was conducted on the employees of banks in Taiwan. The Minnesota satisfaction questionnaire (Weiss, Dawis, England, & Lofquist, 1967) was adopted for job satisfaction measurement which includes items regarding nursing occupation. Instrumental measures for OCB had gone through some reversions. The five-trait measure with altruism, conscientiousness, sportsmanship, courtesy and civil virtue was widely adopted in western society, however, was revised for eastern society by Farh, Earley, & Lin (1997), which included 20 items attributed to the following five traits: identification with the company, altruism toward colleagues, conscientiousness,

interpersonal harmony and protecting company resource. For work stress, the Nursing Stress Scale (Gray-Toft & Anderson, 1981) was adapted into four traits in the present study, including death, conflict with doctor, lack of support and work loadings.

The social network centralities measure the embedded relationships which are either attributed to their formal work relations or informal friendship. ‘Who would you usually share with the work related information, knowledge and experience?’ was the question depicting work network. ‘Who could you share personal issues confidently?’ was the question depicting friendship network. *Degree* centralities with respect the work and friendship networks were estimated by UCINET6 software.

3. Results

1892 questionnaires were sent to the employees of 68 branches of two banks in Taiwan. Excluding the ones with too many missing values, there were 1373 (72.57%) valid samples for the following analyses.

3.1. Validity and reliability check

Centrality The centralities were measured with respect to the work social network and friendship social network. For work network, two questions were asked, “Who would you need to communicate and collaborate with to finish your works?” and “Who would you share work information, knowledge and experiences?” For friendship network, two questions were asked, “Who are your close friends?” and “Who would you choose to advice with your lifetime experiences and wisdom?” By coding with dyadic matrix, degree centrality was estimate according to the model in Degenne & Forse(1999). The Cronbach’s α with respect to the work network and friendship network were 0.71 and 0.78.

Work stress The Nursing Stress Scale was revised for the measure which including 23 questions. By excluding the 6 questions that caused the loadings below 0.5, the Cronbach’s α arrived 0.89.

OCB The OCB scale proposed by Farh, et al. (1997) was adopted which including 18 questions. The result of Cronbach’s α arrived 0.92.

The final validity and reliability were summarized in Table 1.

Table 1 Validity and reliability

Variables	Cronbach's α	KMO	Bartlett
Job centrality	0.71	0.5	671.59***
Friendship centrality	0.78	0.5	982.07***
Work stress	0.89	0.9	9106.12***
OCB	0.92	0.9	15290.65***

*P<0.05, **P<0.01, ***P<0.001

For further path analysis, the correlations among were also checked. The results were shown in Table 2.

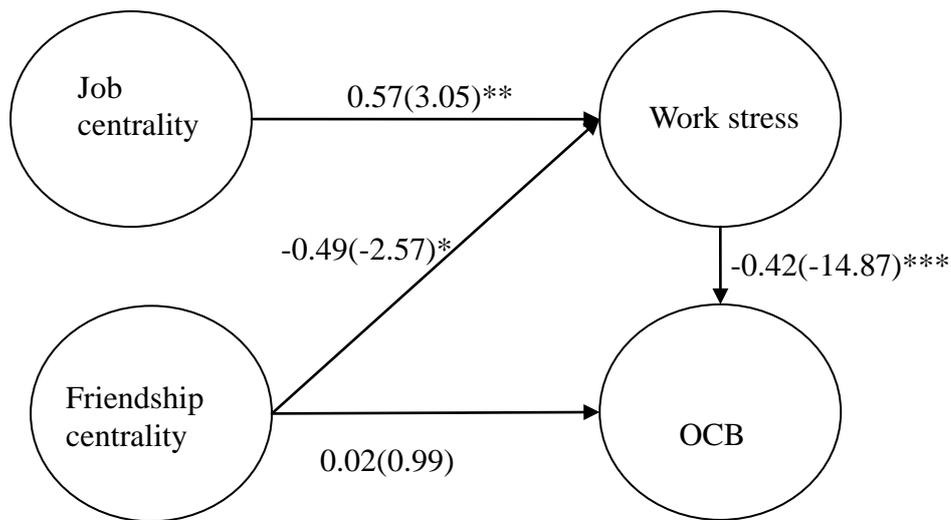
Table 2 Correlations among variables

variables	mean	sd	(1)	(2)	(3)
(1) Job centrality	0.15	0.12	1.00		
(2) Friendship centrality	0.13	0.11	0.93***	1.00	
(3)Work stress	1.81	0.71	0.12***	0.04	1.00
(4)OCB	4.75	0.94	-0.03	0.01	-0.42***

*P<0.05, **P<0.01, ***P<0.001

3.2. Path analysis

The path analysis for hypothesis testing was performed with LISREL. The fitness indicators were listed in Figure 2 which met the requirements(Hooper, Coughlan, & Mullen, 2008).



The model fit: $\chi^2/df=8.18$; RMSEA=.062; GFI=.96; AGFI=.94; RMR=.038; SRMR=.044; NFI=.96; NNFI=.96; CFI=.96; *P<0.05, **P<0.01, ***P<0.001;

Figure 2 The path analysis result.

In sum, the hypothesis 1 and 2 are significantly supported whereas hypothesis 3 is not significantly supported.

4. Discussion

By dividing the social network into job and friendship networks, centralities of job and friendship affect work stress significantly but in opposite directions. While the friendship centrality negatively affects the work stress, it is understandable as we have hypothesized that it is indeed an indicator for social supports. The greater of the centrality, the more social ties are connected, that is, the more social supports are arising between the one and other coworkers. Via social ties, work stress is effectively reduced and as a result OCB within the community is expected to increase.

Interestingly, the job centrality which is derived through the social ties in work situation positively affects the work stress. The greater of the job centrality is the greater work stress is expected. This may be interpreted as that the job centrality indeed indicates the rank and job demands on the one. When one is positioned with higher rank in organization, the job centrality is often positively associated with. Sadly, the work stress is also positively associated with. Finally, the work stress is shown negatively affecting OCB, coinciding with prior study results(Chang, et al.,

2007; Peng & Chiu, 2010).

4.1. Theoretical contributions and managerial implications

In the post industrialization era, work stress accrues as hazardous issue in various occupations (Dewe & Cooper, 2004). It is shown a significant oppressor for OCB arising in organizations (Bolino & Turnley, 2005). For work stress reduction, social support has been shown an effective managerial tool (Tsai & Huang, 2008). For social support to accrue in community, it is natural that one needs to call for help and the others respond to this call. In this study, the authors are motivated by the social network analysis where it estimates a person's status in a community with dyadic data. This method not only records a person's own perception but also other community member's perception of supports. In other words, by adopting the dyadic data to incorporate the perception of community members, such as coworkers in workplaces, shed new lights on the understanding of social supports.

4.2. Limits and future studies

Social network may arise differently in workplaces. The present study is limited by data source of financial institutes. The turnover rate in the financial sector is relatively low and may help to build networked relationships. For future study, it would be interesting to compare the high and low turnover rates sectors.

References

- Achat, H., Kawachi, I., Levine, S., Berkey, C., Coakley, E., & Colditz, G. (1998). Social networks, stress and health-related quality of life. *Quality of Life Research*, 7(8), 735-750.
- Anderson, J. (1991). Stress and burnout among nurses: a social network approach. *Journal of Social Behavior and Personality*, 6(7), 251-272.
- Bolino, M. C., & Turnley, W. H. (2005). The Personal Costs of Citizenship Behavior: The Relationship Between Individual Initiative and Role Overload, Job Stress, and Work-Family Conflict. *Journal of Applied Psychology*, 90(4), 740-748.
- Brass, D. J. (1984). Being in the right place: A structural analysis of individual influence in an organization. *Administrative Science Quarterly*, 29(4), 518-539.
- Chang, C. H., Johnson, R. E., & Yang, L. Q. (2007). Emotional strain and organizational citizenship behaviours: A meta-analysis and review. *Work & Stress*, 21(4), 312-332.

- Cook, K., & Rice, E. (2006). Social exchange theory. On *Handbook of social psychology*: Springer.
- Degenne, A., & Forse, M. (1999). *Introducing social network*. Thousand Oaks: SAGE.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, *86*(3), 499-512.
- Dewe, P., & Cooper, C. (2004). *Stress. A brief history*: Oxford: Blackwell.
- Einsele, R., Armeli, S., Rexwinkel, B., Lynch, P., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology*, *86*(1), 42-51.
- Farh, J., Earley, P., & Lin, S. (1997). Impetus for Action: A Cultural Analysis of Justice and Organizational Citizenship Behavior in Chinese Society. *Administrative Science Quarterly*, *42*(3).
- Granovetter, M. (1985). Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, *91*, 481-510.
- Gray-Toft, P., & Anderson, J. G. (1981). The nursing stress scale: Development of an instrument. *Journal of Psychopathology and Behavioral Assessment*, *3*(1), 11-23.
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: guidelines for determining model fit. *Electronic journal of business research methods*, *6*(1), 53-60.
- Ibarra, H. (1990). Relationship of job stress and Type-A behavior to employees' job satisfaction, organizational commitment, psychosomatic health problems, and turnover motivation. *Human Relations*, *43*(8), 727-738.
- Kenis, P., & Knoke, D. (2002). How organizational field networks shape interorganizational tie-formation rates. *Academy of Management Review*, *27*, 275-293.
- Krackhardt, D. (1992). *The strength of strong ties: the importance of philos in organizations*. Cambridge: Harvard Business School Press.
- Krackhardt, D., & Hanson, J. (1993). Informal network: The company behind the chart. *Harvard Business Review*, *71*(4), 104-111.
- Lin, C. P., Hung, W. T., & Chiu, C. K. (2008). Being good citizens: understanding a mediating mechanism of organizational commitment and social network ties in OCBs. *Journal of Business Ethics*, *81*(3), 561-578.
- Organ, D. W. (1990). The Motivational Basis of Organizational Citizenship Behavior. *Research in Organizational Behavior*, *12*, 43-72.

- Peng, J. C., & Chiu, S. F. (2010). An Integrative Model Linking Feedback Environment and Organizational Citizenship Behavior. *The Journal of Social Psychology, 150*(6), 582-607.
- Sparrowe, R., Liden, R., Wayne, S., & Kraimer, M. (2001). Social networks and the performance of individuals and groups. *Academy of Management Journal, 44*(2), 316-325.
- Tsai, M., & Huang, C. (2008). The Relationship among Ethical Climate Types, Facets of Job Satisfaction, and the Three Components of Organizational Commitment: A Study of Nurses in Taiwan. *Journal of Business Ethics, 80*(3), 565-581.
- Weiss, D. J., Dawis, R. V., England, G. W., & Lofquist, H. (1967). Manual for the Minnesota satisfaction questionnaire. *Minnesota Studies on Vocational Rehabilitation, 22*, 120-122.