

Empirical Study on the Influence of Social Capital to Informal Knowledge Transfer among Individuals

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Abstract—Informal knowledge transfer among individuals is a crucial section of organization knowledge management. Based on theories of knowledge transfer, the hypotheses of influence of social capital to informal knowledge transfer among individuals were proposed. By empirical study, this paper verified and revised the model, and revealed that three dimensions of social capital not only have a direct significant effect on informal knowledge transfer performance among individuals, but also have an indirect effect on the informal knowledge transfer performance among individuals by impacting on knowledge transfer opportunities, motives and ability respectively. The results obtained in this study can provide some useful guidance for organizations to enhance knowledge innovation by the promotion of informal knowledge transfer among individuals.

Index Terms—social capital; knowledge transfer; informal knowledge; informal knowledge transfer among individuals; organization knowledge management

I. INTRODUCTION

In the era of knowledge economy, information and knowledge are considered as the main driving forces for the development of economic and social value (Pralhad and Hamel, 1990; Zuboff, 1996). Therefore, the effective knowledge management is more and more linked with the competitive advantages that were crucial to the success of companies (Nonaka, 1994; Hamel & Prahalad, 1994; Spender & Grant, 1996). Knowledge acquisition and transfer are regarded as the prerequisite and basis of learning and innovation, and effective knowledge transfer is critical to organizational process and outputs^[1]. After knowledge transfer in an organization, the best practice and experience transfer^[2], the development of new products^[3], learning speed^[4], organizational survival^[5] can be achieved. The prior research about knowledge transfer has mainly focused on the inter-organization, intra-organization and individuals level, and informal knowledge transfer among individuals is regarded as the key of a series of organizational processes and results

(Jianglin Ke and Jintao Shi, 2006). Allen, Tsai & Ghoshal, and other scholars found that informal knowledge transfer among individuals is significant to knowledge flow across the organizations and teams, improve individual work efficiency, promote the technological innovation in enterprises^[6,7]. At the same time, knowledge transfer of informal channels depends on social interaction of individuals, and economic mechanisms have an effect of incentive distortion on knowledge transfer behavior. So it is more reasonable to explain knowledge transfer behavior from the perspective of social capital than other perspectives, which has become a hotspot of current research. However, the existing research has some shortage: (1) In China, scholars do not explicitly focus on informal knowledge transfer among individuals. (2) Most of prior research has only showed that social capital has a direct relation with knowledge transfer. (3) Empirical study about the relevance between social capital and knowledge transfer is rare.

Therefore, based on literature study, we proposed a research model on the influence of social capital to informal knowledge transfer among individuals. After validating and revising the model through empirical study, in the perspective of social capital, we provided some useful guidance for organizations to enhance knowledge innovation by promoting informal knowledge transfer among individuals.

II. THE RESEARCH MODEL AND HYPOTHESES

From the perspective of social capital, in knowledge transfer among individuals, informal knowledge transfer is that an individual develops personal relationship network by informal or knowledge exchanging and gets social source contained knowledge. Social capital refers to the assets of social structural resources owned by individual^[8], which mainly lies in social groups or social relational networks. Nahapiet and Ghoshal divided social capital into social structure, social relations and social cognition in their study of how the social capital

promoted the establishment of intellectual capital. Knowledge transfer behavior does not depend on the willingness of knowledge owners but also contact opportunities, absorptive and imparting ability. Furthermore, Adler and Kwon combined Nahapiet and Ghoshal's three dimensions of social capital with opportunities, motives, and ability of knowledge transfer correspondingly (Figure 1) when they investigated the concept of social capital and dimensions. This paper followed their research framework, and considered the elements of Kang, Morris and Snell^[9], then discussed the informal knowledge transfer among individuals from the tie strength, the network density, the network centrality of structural dimension, the trust of relational dimension and knowledge distance of cognitive dimension.

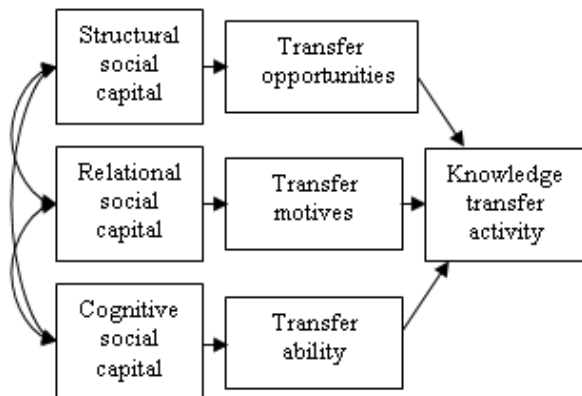


Figure 1. The relationship between social capital and determining factors in knowledge transfer

The social capital literature suggests that mutual engagement through informal networks is an essential activity that allows members to share beneficial knowledge or ideas. The interpersonal trust helps them develop a sense of “sameness” through interactions that can affect their communications. Prior research about knowledge transfer has shown that similarity of knowledge distance can also increase a sense of common identity among members. Summarized the existing research results, this paper proposed the following research model (Figure 2).

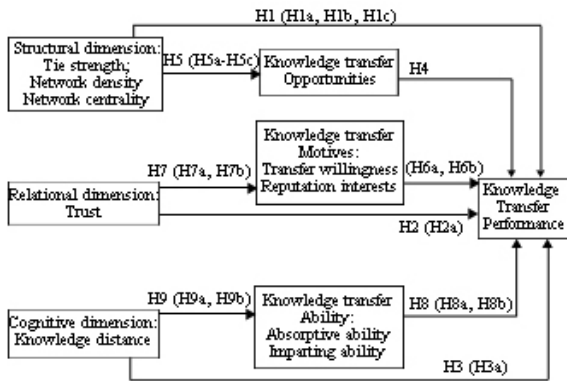


Figure 2. The research model

Based on the research model, we proposed some hypotheses correspondingly. Table I shows the hypotheses of research model.

TABLE I. THE HYPOTHESES

Hypothesis	Description
H1a	Tie strength is positively related to knowledge transfer performance.
H1b	Network density is positively related to knowledge transfer performance.
H1c	Network centrality is positively related to knowledge transfer performance.
H2a	Trust is positively related to knowledge transfer performance.
H3a	The similarity of knowledge distance is positively related to knowledge transfer performance.
H4	Knowledge transfer opportunities are positively related to knowledge transfer performance.
H5a	Knowledge transfer opportunities have mediating influence on the tie strength and knowledge transfer performance.
H5b	Knowledge transfer opportunities have mediating influence on the network density and knowledge transfer performance.
H5c	Knowledge transfer opportunities have mediating influence on the network centrality and knowledge transfer performance.
H6a	Transfer willingness is positively related to knowledge transfer performance.
H6b	Reputation interests are positively related to knowledge transfer performance.
H7a	Transfer willingness has mediating influence on the trust and knowledge transfer performance.
H7b	Reputation interests have mediating influence on trust and transfer performance.
H8a	Absorptive ability is positively related to knowledge transfer performance.
H8b	Imparting ability is positively related to knowledge transfer performance.
H9a	Absorptive ability has mediating influence on the knowledge distance and knowledge transfer performance.
H9b	Imparting ability has mediating influence on the knowledge distance and knowledge transfer performance.

III. RESEARCH METHODOLOGY AND ANALYSIS

In order to validate the model, we carried out questionnaire design and data collection by referencing prior research results. The main research steps are as follows: (1) designing questionnaire; (2) collecting data by actual survey; (3) using SPSS to analysis data; (4) revising the model based on the results of analysis.

A. Questionnaire design

Questionnaire design is the method combining qualitative and quantitative analysis, composing by a group of the statements of attitude towards certain things (Huaizu Li, 2004). We developed measure items by adopting measures that had been validated in prior studies, modifying them to fit our context of knowledge transfer. Respondents were asked to evaluate the significance of measure items. The questionnaire uses Likert's method to score the answers, dividing the options into “strongly disagree”, “somewhat agree”, “difficult to explain”, “basically agree”, and “strongly agree”, with 1, 2, 3, 4, 5 points respectively. About tie strength, we divided the options into “once more than half a year”,

TABLE II. QUESTIONNAIRES ITEMS

Constructs	Items	Source
Knowledge transfer performance	Q42. By informal knowledge transfer, my problems can obtain reliable answer. Q43. By informal network, knowledge communication process and knowledge communication efficiency can satisfy me. Q44. By informal knowledge transfer, I can obtain knowledge, experience and inspiration, which is beneficial for research and study. Q45. Informal knowledge transfer can help me reduce more mistakes in the work. Q46. Informal knowledge transfer can help me understand and grasp new knowledge faster and easier.	Argote & Ingram(2000), Cummings & Teng(2003), Yao Shen(2007), etc.
Tie strength	Q47. The frequency of communication with informal network members by e-mail. Q48. The frequency of communication with informal network members by MSN, QQ, AIM etc. Q49. The frequency of communication with informal network members by face to face. Q50. The frequency of communication with informal network members by leisure and recreational activities.	Yao Shen, 2007, Designed by ourselves.
Network density	Q10. The owners of knowledge are always patient. Q11. The owners of knowledge can take better communication way. Q12. The owners and the recipient of knowledge can feel free to communicate. Q13. The initiative of informal network members to participate in knowledge sharing is higher. Q14. Information can diffusion easily among informal network members.	Tjosvold (1998); Baiyun Liang & Hongyue Zheng (1993); Yao Shen (2007).
Network centrality	Q1. My informal network scale is big. Q2. My informal network relates to many different professional fields. Q3. I often take part in knowledge exchange cross different informal network. Q4. In knowledge exchange, the dialog among network members is equal relatively. Q5. In knowledge exchange, I am in the core position of network.	Designed by ourselves.
Trust	Q28. The feeling of informal network members is good and they are friendly and close. Q29. Everybody can easily express and communicate ideas. Q30. I think that everybody can let them hang out to share knowledge Q31. I think that the other members are responsible and reliable. Q32. I think that professional skills of the other members are worthy to trust. Q33. The other members will be willing to help me out when I get into difficulties.	McAllister(1995), Costigan, Itler & Berman(1998); Libing Shu(2006), etc.
Knowledge distance	Q6. The other members and I have similar education and professional background. Q7. The other members and I grasp similar tools and methods. Q8. The other members and I have similar project experience Q9. The other members and I can find many common topics in experience exchange.	Cummings & Teng(2003); Reagans(2003), etc.
Knowledge transfer opportunities	Q15. I know who owns knowledge I need in formal network. Q16. I can search knowledge easily from informal network. Q17. I have many informal communication channels Q18. I can always communicate knowledge with others by different interpersonal channels.	Designed by ourselves.
Transfer willing	Q23. I would take the initiative to exchange experience with other informal network members. Q24. I would propose ideas as far as possible in the discussion. Q25. I am willing to take part in exchanging activities or parties sponsored by other members. Q26. I will turn to other informal network members to help if I get into difficulties Q27. Informal network members consider knowledge sharing as a daily habit.	Lee & Kim(1999), Yangshun Xu(2001), etc.
Reputation interests	Q19. Knowledge transfers obtain praise from others in informal network. Q20. Knowledge recipients transfer knowledge to knowledge transfers in the same way. Q21. Knowledge transfers can obtain knowledge easily from others. Q22. I believe that the more others use my knowledge, which is good for me.	Yonghui Wu(2004), Designed by ourselves.
Absorptive ability	Q34. I can grasp knowledge other members provide. Q35. I can communicate and exchange ideas with other members easily. Q36. I can hold the latest progress in my field. Q37. I can distinguish and collect new knowledge and information rapidly. Q38. I can study knowledge I am lack of rapidly.	Zahra & George(2002), Minbaeva et.al.(2003), etc.
Imparting ability	Q39. I am good at expressing my knowledge in simple and clear words. Q40. I am good at sharing knowledge with other members by various ways. Q41. I am good at imparting knowledge to other members by various channels.	Simoin(1999), Libing Shu(2006), etc.

“once half a year”, “once a month”, “once a week”, “once a day”, with 1, 2, 3, 4, 5 points respectively.

The structure and content of the questionnaire are divided into three parts:

Part one: Illustrate the concepts. It aims to make the interviewees clear to several important concepts relating to the questionnaire such as: knowledge, informal knowledge transfer.

Part two: Basic information. This part is the personal data of interviewees, including gender, age, level of education, and other relevant information.

Part three: The content of questionnaire, which is the main body of the questionnaire. And it includes six

aspects that interviewees’ recognition about their informal network, their feeling about communicating with others in the informal network, willingness of transferring knowledge, degree of trust, ability to absorb and impart knowledge, and the frequency of informal knowledge transfer. Table II shows detailed questionnaire items.

B. Sample and data collection

Questionnaire survey of influence of social capital to informal knowledge transfer among individuals was conducted among researchers of high-tech enterprises and universities in the Pearl River Delta region, China. After

pre-investigation when we modified some questions, large-scale release of the questionnaire started. In this study, in a total of 259 questionnaires issued, about 195 were returned with a reply rate of 75.3%. Then eliminated some questionnaires with missing values or carelessly filled out, finally, 182 valid questionnaires were used, the effective recovery rate of questionnaire was 70.27%. Table III shows the demographic of respondents.

TABLE III. DEMOGRAPHIC INFORMATION OF RESPONDENTS*

Measure	Items	Frequency	Percent
Gender	Male	88	48.35%
	Female	94	51.65%
Education	Undergraduate	31	17.03%
	Postgraduate	133	73.08%
	Ph.D.	18	9.89%
Age	<25	67	37.81%
	26-35	53	29.12%
	36-45	43	23.63%
	46-55	15	8.24%
	>56	4	2.18%
Type of organization	University	105	57.69%
	High-tech	77	42.31%
	Enterprise		

* Sample Size = 182.

C. Reliability and validity analysis

Regarding exploring research, if the Cronbach α coefficient is bigger than 0.7, it is the acceptable minimum value of reliability^[10]. Table IV shows the reliability test. In this research, the dimensions of reliability are between 0.7 and 0.9, having higher reliability.

By adopting measures as far as possible that had been validated in prior studies, the content validity of the questionnaire is good.

When KMO is bigger than 0.5, Bartlett's globular test is significant and suitable to make the factors analysis. Table V shows the KMO and Bartlett test. According to analysis, the factors analysis can be carried out, the prominence rate of Bartlett's statistic (χ^2) is less than 0.001 and KMO is higher than 0.5. Hair et al. (1992) thought that it is significant when the sample size is bigger than or is equal to 50, and load factor of factors is bigger than 0.30. In order to ensure factors' significance,

the research took 0.5 as lowest critical value of load factor of factors. From factor analysis of subscales, the results showed that, observed variables of each subscales accorded with the requirement of statistics, it was proved that construct validity of each subscales was good.

TABLE V. KMO AND BARTLETT TEST

Variables	KMO	DF	Sig.
Structural dimension of social capital	0.833	91	0.000
Relational dimension of social capital	0.779	15	0.000
Cognitive dimension of social capital	0.788	6	0.000
Knowledge transfer opportunities	0.754	6	0.000
Knowledge transfer motives	0.845	36	0.000
Knowledge transfer ability	0.806	28	0.000
Knowledge transfer performance	0.769	10	0.000

D. Regression analysis

1) Direct influence of social capital dimensions and knowledge transfer elements to the informal knowledge transfer performance among individuals

We made regression analysis respectively about social capital dimensions and knowledge transfer elements to the knowledge transfer performance. Table VI summarizes the concrete results.

Table VI shows that, except for the regression model between knowledge transfer ability and the knowledge transfer performance, the independent variables of other regression models can explain more than 40% of dependent variables variance, also global significance ($p < 0.001$) and regression coefficients ($p < 0.001$) of each model are all high. The result of collinearity diagnosis shows that mutual linear correlation does not exist in the interpretive variable of each multiple regression equation. The independent variables can account for 23.4% of dependent variable variance in the regression model between knowledge transfer ability and the knowledge transfer performance, and the global significance is high. The mutual linear correlation does not exist in the interpretive variable of the multiple regression equation, also the regression coefficient of absorptive ability is significant, however the regression coefficient of impart ability is not significant ($p = 0.354 > 0.05$).

So, hypotheses H1(H1a, H1b, H1c), H2 (H2a) ,

TABLE IV. RELIABILITY TEST

Influence factors	Estimate indexes	Measurement items	Cronbach's α	Cronbach's α (Composite reliability)	Numbers of items
Structural dimension of social capital	Tie strength	Q47-Q50	0.8074	0.8.89	4
	Network density	Q10-14	0.7825		5
	Network centrality	Q1-Q5	0.7374		5
Relational dimension of social capital	Trust	Q28-Q33	0.7610	0.7610	6
Cognitive dimension of social capital	Knowledge distance	Q6-Q9	0.8070	0.8070	4
Knowledge transfer opportunities	Knowledge transfer opportunities	Q15-Q18	0.7570	0.7570	4
Knowledge transfer motives	Transfer willing	Q23-Q27	0.7654	0.8144	5
	Reputation interests	Q19-Q22	0.7405		4
Knowledge transfer ability	Absorptive ability	Q34-Q38	0.8251	0.8.90	5
	Imparting ability	Q39-Q41	0.7355		3
Knowledge transfer performance	Knowledge transfer performance	Q42-Q46	0.8105	0.8105	5

TABLE VI. REGRESSION ANALYSIS ABOUT SOCIAL CAPITAL DIMENSIONS AND KNOWLEDGE TRANSFER ELEMENTS TO THE INFORMAL KNOWLEDGE TRANSFER PERFORMANCE AMONG INDIVIDUALS

Independent variables	Constant	B	β	F	R2	t value	Sig.	Collinearity statistical values	
								Allowable degree	VIF
Tie strength	-0.080	0.397	0.351	82.751***	0.582	6.203	0.000	0.733	1.365
Network density		0.413	0.390			7.155	0.000	0.789	1.267
Network centrality		0.235	0.234			4.229	0.000	0.763	1.310
Trust	0.707	0.810	0.679	153.559***	0.460	12.392	0.000	1.000	1.000
Knowledge distance	0.857	0.773	0.692	165.182***	0.479	12.852	0.000	1.000	1.000
Knowledge transfer opportunities	0.710	0.710	0.682	156.654***	0.465	12.516	0.000	1.000	1.000
Transfer willingness	0.303	0.494	0.431	68.959***	0.435	6.654	0.000	0.751	1.331
Reputation interests		0.405	0.329			5.070	0.000	0.751	1.331
Absorptive ability	1.674	0.467	0.454	27.318***	0.234	6.402	0.000	0.850	1.176
Impart ability		0.061	0.066			0.929	0.354	0.850	1.176

*** P<0.001

TABLE VII. REGRESSION ANALYSIS BETWEEN THE INDEPENDENT VARIABLES AND THE MEDIATING VARIABLES

Independent variables	Mediating variables (Dependent variables)	B	β	F	R2	t value	Sig.	Collinearity statistical values	
								Allowable degree	VIF
Tie strength	Knowledge transfer opportunities	0.257	0.236	50.689***	0.461	3.677	0.000	0.733	1.365
Network density		0.361	0.354			5.722	0.000	0.789	1.267
Network centrality		0.270	0.281			4.456	0.000	0.763	1.310
Trust	Transfer willingness	0.658	0.631	119.279***	0.399	10.922	0.000	1.000	1.000
Trust	Reputation interests	0.468	0.483	54.846***	0.234	7.406	0.000	1.000	1.000
Knowledge distance	Absorptive ability	0.501	0.462	48.758***	0.213	6.938	0.000	1.000	1.000
Knowledge distance	Impart ability	0.176	0.145	3.87 (P=0.051)	0.021	1.968	0.051	1.000	1.000

*** P<0.001

H3 (H3a) , H4 and H6(H6a , H6b) were totally supported. H8a was supported, while H8b was not supported, so H8 was supported partially.

2) *The mediating influence of knowledge transfer elements*

a) *The test standard of mediating effect*

Baron & Kenny (1986) and Meehan (1997) thought that the mediating effect which mediating factor has between the dependent variables and the independent variables must meet four conditions: a, the independent variables must effect the mediating variables. b, the independent variables must effect the dependent variables. c, the mediating variables must effect the dependent variables. d, with the above conditions are tenable, considering the simultaneous effect of the independent variables and the mediating variables on the dependent variables, the effect of the independent variables is less than the individual effect of the independent variables on the dependent variables^[11].

b) *The analysis of mediating effect*

According to the test standard of mediating effect, condition b and c has been verified in the previous research, condition b and c still need to be tested. The corresponding regression analysis was made according to condition a. Table VII summarizes the concrete results.

Table VII shows that, except for regression model between knowledge distance and impart ability, the independent variables of other regression models have significant effect on corresponding mediating variables

(the detailed process of analysis can refer to the process of analysis of Table VI), so, condition a (except for impart ability) is tenable. Then the next step is to test condition d.

The corresponding regression analysis were made according to condition a. At first, make regression analysis between the independent variables and the dependent variables, then, make regression analysis about the dependent variables and the independent variables to the mediating variables. From Table VI, it shows that the result of regression analysis between the independent variables and the dependent variables. From Table VIII, it shows that the result of regression analysis about the dependent variables and the independent variables to the mediating variables.

Table VII shows that the independent variables and the mediating variables of each regression models have significant effect on the knowledge transfer performance among individuals (the detailed process of analysis can refer to the process of analysis of Table VI).

From the comparative analysis of the data of the corresponding models between Table VI and Table VIII, the results show that, after the mediating variable (e.g. knowledge transfer opportunities) enters regression analysis, regression coefficients of three structural dimensions of social capital all decrease. In other words, after the mediating variable (e.g. knowledge transfer opportunities) enter regression analysis, three structural dimensions of social capital have less direct influence on

TABLE VIII. REGRESSION ANALYSIS ABOUT THE INDEPENDENT VARIABLES AND THE MEDIATING VARIABLES TO INFORMAL KNOWLEDGE TRANSFER PERFORMANCE AMONG INDIVIDUALS

Independent variables	Constant	B	β	F	R2	t value	Sig.	Collinearity statistical values	
								Allowable degree	VIF
Tie strength	-0.222	0.314	0.278	76.811***	0.634	5.040	0.000	0.681	1.468
Network density		0.296	0.280			5.029	0.000	0.667	1.500
Network centrality		0.147	0.147			2.684	0.000	0.687	1.456
Knowledge transfer opportunities	0.289	0.323	0.311	91.879***	0.507	5.021	0.000	0.539	1.854
Trust		0.601	0.504			7.438	0.000	0.601	1.663
Transfer willingness		0.318	0.277			4.094	0.000	0.601	1.663
Trust	0.044	0.648	0.543	97.370***	0.521	9.182	0.000	0.766	1.305
Reputation interests		0.347	0.281			4.763	0.000	0.766	1.305
Knowledge distance	0.489	0.668	0.598	93.610***	0.511	10.146	0.000	0.787	1.271
Absorptive ability		0.210	0.204			3.460	0.000	0.787	1.271

*** P<0.001

the informal knowledge transfer performance among individuals, while having more mediating influence through the mediating variable (e.g. knowledge transfer opportunities). This implies that mediating effect exists in these dimensions, and from the change of the significance level, there is no change in three dimensions, regression coefficients only decrease. Thus knowledge transfer opportunities have mediating effect on tie strength, network density and network centrality in part. Therefore, condition d is tenable, and it shows that knowledge transfer opportunities exists mediating effect between the structural dimension of social capital and the knowledge transfer performance among individuals.

So, hypothesis H5 including H5a, H5b, H5c was supported. Similarly, H8a was supported, while H8b was not supported, so H8 was supported in part. From the comparative analysis of the corresponding models data between Table VI and Table VIII, H7 was supported. H9a was supported while H9b was not supported, so H9 was supported in part.

E. Research Model Revising

After using SPSS to analysis data, we examined the theoretical hypotheses proposed in this paper. Table IX summarizes the results of hypotheses.

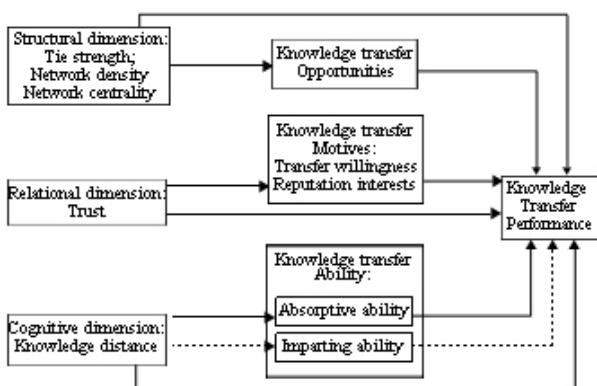


Figure 3. The structural model of influence of social capital to informal knowledge transfer among individuals

According to the results of testing hypotheses above, we did some modification of above empirical research model. The following model (Figure 3) illustrates the influence of social capital to informal knowledge transfer

TABLE IX. THE RESULTS OF TESTING HYPOTHESES

Hypothesis	Description	Results
H1	Structural dimension of social capital is positively related to knowledge transfer performance.	Supported
H2	Relational dimension of social capital is positively related to knowledge transfer performance.	Supported
H3	Cognitive dimension of social capital is positively related to knowledge transfer performance.	Supported
H4	Knowledge transfer opportunities are positively related to knowledge transfer performance.	Supported
H5	Knowledge transfer opportunities have mediating influence on the structural dimension of social capital and knowledge transfer performance.	Supported
H6	Knowledge transfer motives are positively related to knowledge transfer performance.	Supported
H7	Knowledge transfer motives have mediating influence on the relational dimension of social capital and knowledge transfer performance.	Supported
H8	Knowledge transfer ability is positively related to knowledge transfer performance.	Partially supported
H8a	Knowledge absorptive ability is positively related to knowledge transfer performance.	Supported
H8b	Knowledge imparting ability is positively related to knowledge transfer performance.	Not supported
H9	Knowledge transfer ability has mediating influence on the cognitive dimension of social capital and knowledge transfer performance.	Partially supported
H9a	Knowledge absorptive ability has mediating influence on the cognitive dimension of social capital and knowledge transfer performance.	Supported
H9b	Knowledge imparting ability has mediating influence on the cognitive dimension of social capital and knowledge transfer performance.	Not supported

among individuals, and dashed line shows that the hypotheses in the original model are not supported by testing.

IV. DISCUSSIONS AND IMPLICATIONS

Combining the result of statistical analysis of SPSS, we know that social capital has direct effect on the informal knowledge transfer performance among individuals. Knowledge transfer opportunities, motives (transfer willingness, reputation interests) and ability (absorptive ability) have direct influence on the knowledge transfer performance. Besides, they also have mediating influence on the relationship of dimensions of social capital and the informal knowledge transfer performance among individuals correspondingly. Except for the direct and mediating influence of imparting ability to informal knowledge transfer performance among individuals, all the other hypotheses were supported.

Based on the above findings, we believe that when the organizations promote the informal knowledge transfer among individuals in order to enhance organizational knowledge innovation, they should pay attention to the following aspects.

A. Construct a close social network and improve knowledge transfer opportunities

According to the results of our empirical study, high structural dimension of social capital is beneficial to informal knowledge transfer among individuals. So organizations should construct a close social network for individuals, which is good for improving knowledge transfer opportunities and promoting informal knowledge transfer among individuals. Organizations can increase and enhance relation among individuals by providing enough time, space and technical support for knowledge transfer. For example, holding experience communication activities, opening a special lounge, and building internet communication platform can promote informal knowledge transfer among individuals.

In 3M, the heads of each main laboratory hold a party each month for the purpose of sharing ideas. This group has a three-day review each year. The technology forum which is composed of scientists and experts has a three-day knowledge exchange meeting each year, and often invites the people who sharing similar interests to join the party. These informal teams promote the knowledge exchange widely, providing the researchers for time and condition to absorb knowledge inside the company and lead to the birth of dramatic new product^[12].

B. Build a trustful organizational culture and promote knowledge transfer motives Units

According to the results of our empirical study, high relation dimension of social capital is beneficial to informal knowledge transfer among individuals. High trust's culture atmosphere is a crucial prerequisite for knowledge diffusion^[13]. Interpersonal trust through the promotion of each other's identification weakens the anticipation of income and cost of knowledge transfer and improves knowledge transfer willingness^[14]. Willingness is the precondition to exchange and share knowledge, which depends on interpersonal trust. Therefore, it is necessary to build a trustful organizational culture to strengthen the communication and cooperation

of individuals, increasing better understanding. At the same time, organizations should cultivate an atmosphere to encourage knowledge sharing inside the company and knowledge transferring among all staffs from ordinary one to CEO.

In addition, owing to the incentive distortion of knowledge transfer, it is difficult to use economic mechanisms to inspire knowledge transfer motives. Only depending on trust atmosphere to improve knowledge transfer willingness is not adequate, and unconditionally desiring individual to transfer know is not only impractical but also is disadvantageous for insisting knowledge transfer permanently. So it is necessary to adopt some non-traditional methods of performance evaluation to inspire. "Management by Walking Around"^[15] and "storytelling"^[16] are regarded as effective non-traditional methods of performance evaluation, and knowledge management based on blogs provides a good non-material incentive mechanism (network effects, reputation mechanism)^[17]. These measures are beneficial for promotion of knowledge transfer motives.

Experiential training is deemed to helpfully enhance the confidence level among team members. IBM, Microsoft, Intel, Hewlett-Packard and other companies are adopting such training in order to increase trust between the employees^[18], which can promote communication among the staffs and create conditions for informal knowledge transfer between employees.

C. Shorten knowledge distance and cultivate knowledge transfer ability

According to our empirical study, high cognitive dimension of social capital is good for informal knowledge transfer among individuals. Thus, in order to enhance staffs' quality of transferring knowledge, organizations should improve staffs' absorptive ability and imparting ability, shorten knowledge distance among staffs and then cultivate knowledge transfer ability of staffs.

First, organizations need to increase training investment. Invite experienced staffs to impart their knowledge and experience to other staffs, especially for cross-team members, which will promote the spread of knowledge. Second, organizations should develop effective learning methods, systematic learning model, and encourages staffs to apply new knowledge by exchanging and cooperation^[19]. Third, Encourage members to build professional associations in accordance with their interests, hobbies, which known as the "community of practice"^[20] in foreign countries can increase the stock of knowledge, and improve staffs' quality of transferring knowledge.

In 1970, Xerox Palo Alto research center launched GUI interface, the failure's main reason of which was that R&D and marketing department had misunderstanding and bad communication due to lack of common language and values^[21]. Obviously, this is up to large-scale knowledge distance of two departments' staffs. In contrast, Sharp's R&D, the user department and the high-level committee cooperated, communicated and

shared new invention adequately. Finally, Sharp's technical transfer of R&D was very successful^[21].

V. CONCLUSIONS AND LIMITATIONS

In this empirical research, the result shows that: social capital dimensions and knowledge transfer elements (except for imparting ability) have direct influence on informal knowledge transfer performance among individuals. Besides, knowledge transfer elements (except for imparting ability) also have mediating influence in the relationship of social capital dimensions and informal knowledge transfer performance among individuals correspondingly. The empirical results of this study can help organizations enhance knowledge innovation by improving the informal knowledge transfer among individuals. This study has a few inherent limitations. First, we did not consider the potential cross-relationship between social capital dimensions and knowledge transfer elements. Second, our research sample consisted only of researchers of high-tech enterprises and universities. Third, the data collection was limited to knowledge transfer behavior within organizations in the Pearl River Delta region, China.

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