

A Study on the Influence of Organizational Climate on Knowledge-Sharing Behavior in IT Enterprises

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Abstract—The aim of our study was to further develop an understanding of organizational climate in organizational knowledge sharing. We first developed a research model in which three organizational climate factors (friendly relation, innovation and fairness) were combined with the social cognitive theory. After developing a measurement tool, we collected 142 effective questionnaires about developers from IT enterprises in south China, and examined and revised the research model by using confirmatory factoring analysis. We found that, in IT enterprises, organizational climate (friendly relations, innovation and fairness), self-efficacy and outcome expectations significantly contributed to in a staff's knowledge-sharing behavior, organizational climate had a indirect effect on knowledge-sharing behavior by impacting self-efficacy and outcome expectations, and self-efficacy significantly contributed to outcome expectations in knowledge sharing. According to study results, we finally provided some suggestions for IT enterprises to promote organizational knowledge sharing.

Index Terms—organizational climate, knowledge sharing, knowledge-sharing climate, social cognitive theory

I. INTRODUCTION

In the era of knowledge economy, knowledge has become important resources for economic and commercial growth. Hendriks (1999) believed that knowledge sharing is an important channel of translating individual knowledge into strategic resources of enterprises^[1]. It takes an important role to encourage and facilitate knowledge-sharing behavior among employees within organizations. At present, the study on promoting employees' knowledge sharing within enterprises has different research perspectives, which mainly contain technology, economy and social perspectives. Zarraga & Bonache (2003) indicated that, only information technology cannot activate self-management team members' cooperation and the sharing of knowledge and experience, and information systems is the necessary condition but not the sufficient condition in knowledge sharing^[2]. To some extent, Organizational mechanisms of economic incentive often hinder knowledge sharing among employees (Huber, 2001; Baker, 2002). So, more

and more scholars began to focus their efforts on the social perspective, and anticipated to study knowledge sharing of employees within organizations from a social perspective (such as social capital, theory of reasoned action, and theory of planned behavior, etc).

Organizational climate is the result of interaction between individual and environment, and it is a hidden motive mechanism. Based on the strong explanatory ability of organizational climate in the aspects of organizational effectiveness, employee satisfaction, employee empowerment, citizenship behavior, etc., a growing number of scholars began to introduce organizational climate into organizational knowledge-sharing research. Yoo & Torrey (2002) believed that not only personal motives but also environment forces affect knowledge-sharing behavior. Xie Hefeng et al. hold that, the perception of staffs toward organizational environment has a crucial influence on the knowledge-sharing behavior within organizations^[3]. Moreover, once an organization forms a working climate which is bad for knowledge sharing, this situation is hard to change (Ruggles, 1998). Knowledge-sharing climate is a variable in the cultural level, and prior studies showed that culture often affects individual behavior by impacting individual self-awareness. However, prior researches only consider knowledge-sharing climate as a direct influencing factor on knowledge sharing, and the influence mechanism of knowledge-sharing climate on knowledge sharing within organizations needs to be further studied^[4].

Knowledge sharing of employees within organizations firstly belongs to an individual behavior. For individual behavior, scholars proposed a lot of theories to explain it. Social cognitive theory^[5] is one of theoretical models, which is applied in explaining individual behavior extensively^[6]. In addition, social cognitive theory has an advantage in explaining knowledge sharing^[7]. Therefore, from the organizational environment, combined with social cognitive theory, a research model about the influence of organizational climate on knowledge-sharing behavior was proposed. Through empirical research on IT enterprises, we examined and revised research model, according to the research results, and finally provided

some suggestions for organizations to promote organizational knowledge sharing within organizations.

II. THEORETICAL BACKGROUND

A. Knowledge sharing

Knowledge sharing is a bidirectional process, in which one transfers information to the other party help him/her to understand and learn information, and then the information becomes the other party's information. Therefore, knowledge sharing is a process in which individual knowledge can translate into others' comprehensible, absorbable and practicable knowledge.

B. Organizational climate

Tagiuri believed that, organizational climate is a relatively long-lasting characteristic within organizational environment and a set which consists of a series of measurable attributes of working environment, and good organizational climate can lead to the increasing of satisfaction and productivity, the reduce of employees' turnover rate^[8,9].

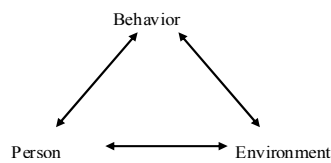


Figure 1. The social cognitive theory

C. Organizational knowledge-sharing climate

Celia Za' rraga (2003) hold that organizational knowledge-sharing climate is a common perception of staffs about knowledge-sharing situation within organizations. It reflects knowledge-sharing relationship among employees. In this atmosphere, staffs have great confidence in other members, and knowledge is free flow, even more failures which are reasonable can get understanding and tolerance.

D. Social cognitive theory

Social cognitive theory, which was proposed by Bandura, developed rapidly in 1990s, and now is an important field of research in psychology. Social

cognitive theory is a model which is used to validate individual behavior extensively, and it showed that, personal motivation and behavior is impacted by personal forethought. This theory emphasizes, personal behavior, personal cognition and social environment are dynamically interactive.

These three factors influence with each other. Environment would affect person while personal cognitive ability would actively explain, select, and affect environment. Similarly, environment would also influence behavior while behavior would change environment. Likewise, personal cognition would affect personal behavior while the result of behavior would affect cognition. Therefore, person, behavior, and environment construct a "Triadic Reciprocity" model of human behavior^[10] (As shown in Figure 1). Among these three factors, personal cognition consists of two parts: one is self-efficacy, namely a judgment of one about whether his ability can achieve a certain level; the other is outcome expectations, namely a judgment of one about the results of his behaviors.

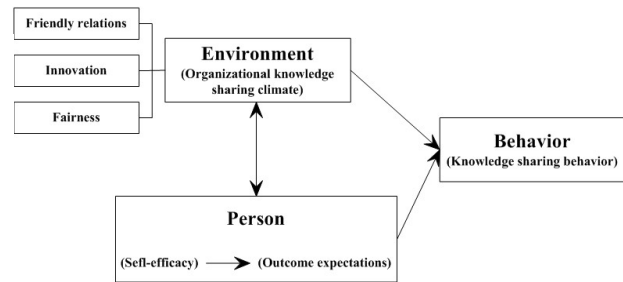


Figure 2. A concept model about the influence of organizational climate on organizational knowledge-sharing behavior

III. THE RESEARCH MODEL AND HYPOTHESES

A. The research model

Organizational climate is one of organizational environmental characteristics. It affects individual behavior by impacting individual cognition. According to social cognitive theory, an employee' self-efficacy has a direct effect on outcome expectations. On the basis of the dimensions of organizational knowledge-sharing climate which were proposed by Gee-Woo Bock et.al (2005), we proposed a conceptual model in which three

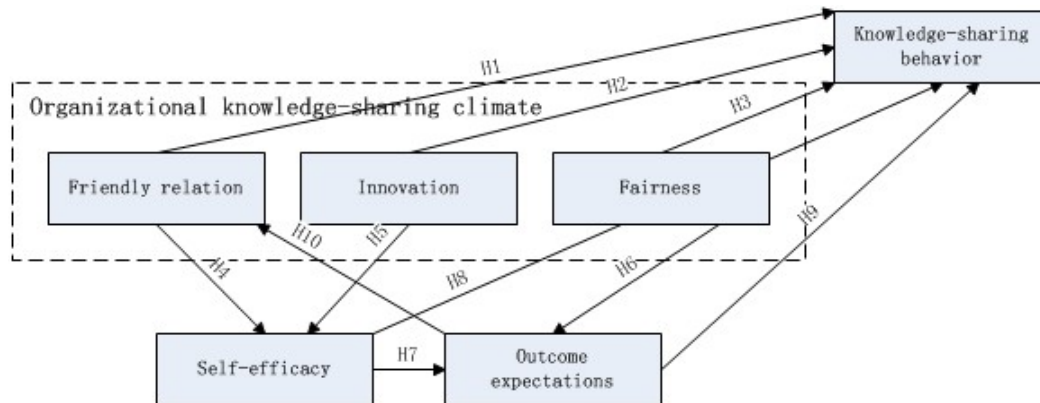


Figure 3. The research model

TABLE I. THE DEFINITIONS OF THE CONSTRUCTS

Constructs		definitions	References
Knowledge-sharing behavior		The degree of an employee to share knowledge, skills, and experience with colleagues	Nonaka (1997), Davenport (1998), etc.
Organizational climate of knowledge sharing	Friendly relation	The degree of an employee's cognition about interpersonal relation and mutual operation	Celia Za' raga (2003) , Gee-Woo Bock (2005) , etc
	Innovation	The degree of an employee's cognition about the innovation within an organization	Gee-Woo Bock (2005)
	Fairness	The degree of an employee's cognition about the fairness within a organization	Gee-Woo Bock (2005)
Self-efficacy		The degree of an employee's judgment or brief that an employee will carry out work or knowledge sharing	Bandura(1977), Compeau & Higgins(1995)
Outcome expectations		The result of an employee's anticipation that he/she will share knowledge, skills, and experience with colleagues	Bandura(1977), Bock & Kim (2002)

organizational climate factors (friendly relation, innovation, fairness) were combined with social cognitive theory. Figure 2 shows the conceptual model.

Based on relative literature research, we then proposed a research model (as shown in Figure 3). Table I summarizes the definitions of the constructs.

B. The research hypotheses

Figure 3 also shows our hypotheses. Organizational climate is a key driver factor of knowledge sharing (Constant et al., 1996; Huber, 2001). Gee-Woo Bock hold that, when an organization advocates fairness and encourages innovation and close relationship, staffs' intension to share knowledge becomes stronger. Chung-Jen Chen & Jing-Wen Huang insisted that organizational climate of innovation and cooperation would influence knowledge management indirectly.

Friendly relationship embodies the mutual relation among employees, for example, trust degree, contact degree, etc. Trust would reduce the transaction cost. Nahapiet and Ghoshal (1998) believed that trust can promote intellectual capital sharing. From the perspective of social network, strong contact has a promoting effect on knowledge sharing among individuals. This lead to our first hypotheses:

H1: organizational climate of friendly relation has a direct and positive effect on knowledge-sharing behavior.

Innovation reflects that, organizations encourage originalities and new ideas, emphasize staffs' study and open knowledge flows. In contrast, employees would incline to share new and innovative ideas in the background of innovation work (Kim & Lee, 1995). This lead to our second hypothesis:

H2: Organizational climate of innovation has a direct and positive effect on knowledge-sharing behavior.

Fairness reflects that, organizations are impartial but not arbitrary or capricious. Consequently, fairness climate would make staffs be full of strong sense of mission, drive staffs to share their knowledge and then apply in the workflow (Kim & Mauborgne, 1997). This lead to our third hypothesis:

H3: Organizational climate of fairness has a direct and positive effect on knowledge-sharing behavior.

Organizational climate is a measure index of group level and belongs to environment factor. According to the framework of "Triadic Reciprocity" in social cognitive

theory, self-efficacy is the interactive core of environment, person and behavior, and environment factor would affect person factor. Accordingly, organizational knowledge-sharing climate which contains friendly relation, innovation and fairness, reflects some characteristics (like interpersonal trust, innovation thinking, etc.), which would promote employees' self-efficacy in knowledge sharing. This lead to our fourth and fifth hypothesis:

H4: Organizational climate of friendly relation has a direct and positive effect on self-efficacy in knowledge sharing.

H5: Organizational climate of innovation has a direct and positive effect on self-efficacy in knowledge sharing.

Fairness theory, which proposed by Stacy Adams (1965), showed that people would compare their inputs and outputs with others and then make a subjective judgment, which are outcome expectations. Liu Ya al.et indicated that, enhancing staffs' fairness could promote organizations to play functions, and improve employees' positive feeling and behavior^[11]. This lead to our sixth hypothesis:

H6: Organizational climate of fairness has a direct and positive effect on outcome expectations in knowledge sharing.

According to Bandura's view, one can forecast behavior result (namely, outcome expectations) by determining pattern of behavior in specific environment (namely, self-efficacy), and different outcome expectations would affect final behavior and results. Similarly, in an organization, employees' evaluation about his ability of knowledge sharing would impact decisions that whether they are willing to share knowledge, or what knowledge with others, naturally, these different decisions would lead to different outcome expectations. Obviously, employees who own high knowledge-sharing self-efficacy would raise knowledge-sharing outcome expectations of. This lead to our seventh hypothesis:

H7: Self-efficacy has a direct and positive effect on outcome expectations in knowledge sharing.

Self-efficacy had been confirmed that it is enough to affect decision-making of behavior (Bandura, 1977; Betz & Hackett, 1986). Guo Feng-yuan and Yang Mei-lian (2003) found that, individual self-efficacy has significant forecast ability in knowledge-sharing behavior, and

people who have high self-efficacy have high intention and behavior of knowledge sharing. Lu & Leung (2004) found that, self-efficacy can improve knowledge-sharing behavior. This lead to our eighth hypothesis:

H8: Self-efficacy has a direct and positive effect on knowledge-sharing behavior.

People often would determine anticipative result firstly before taking actions (Meng-Hsiang Hsu, Teresal L. Ju et al., 2007). Knowledge sharing would occur when the reward is greater than cost (Constant et al., 1994). Bock & Kim proved that the benefit which was got by an individual has a stimulant effect on knowledge-sharing behavior in their empirical research. This lead to our ninth hypothesis:

H9: Outcome expectations have a direct and positive effect on knowledge-sharing behavior.

According to the social cognitive theory, personal cognition would affect environment. Therefore, employees would be willing to share knowledge with each other when they all own high outcome expectations of knowledge sharing. When this behavior of knowledge sharing occurs frequently, organizations would form mutual trust and positive sharing climate, and then, naturally, an organization would construct a good organizational climate of knowledge sharing. This lead to our tenth and eleventh hypothesis:

H11: Outcome expectations have a direct and positive effect on organizational climate of friendly relation in knowledge sharing.

H12: Outcome expectations have a direct and positive effect on organizational climate of innovation in knowledge sharing.

IV. RESEARCH METHODOLOGY AND ANALYSIS

To test the model, we adopted a survey method for data collection and examined the hypotheses using structural equation modeling (SEM) on the data.

A. Measurement and data collection

We developed measurement items by adopting measures that had been validated in prior studies, modifying them to fit our context of knowledge sharing in IT enterprises.

The measurement items for knowledge-sharing

TABLE II. DEMOGRAPHIC INFORMATION OF RESPONDENTS*

Measure	Items	Frequency	Percent
Gender	Male	99	69.7
	Female	43	30.3
Age	<22	2	1.4
	22-25	72	50.7
	26-30	59	41.6
	31-35	7	4.9
	>35	2	1.4
Education background	Secondary and below	2	1.4
	Secondary	11	7.7
	Undergraduate	88	62.0
	Postgraduate and above	41	28.9

*sample size = 142

TABLE III. ORGANIZATIONAL INFORMATION OF RESPONDENTS*

Measure	Items	Frequency	Percent
Type of industry	Hardware manufacturing	5	15.2
	Software	10	30.3
	Network service	11	33.3
	Systems integration	4	12.1
	Others	3	9.1
Operational period of the organization(in years)	<1	1	3.0
	1-5	7	21.2
	6-10	15	45.5
	>10	10	30.3
Size (number of employees)	<50	2	6.1
	51-100	4	12.1
	101-500	9	27.3
	500-1000	10	30.3
	>1000	8	24.2
Operational stage of the organization	Start-up stage	4	12.1
	Developing stage	17	51.5
	Mutual stage	9	27.3
	Transition stage	3	9.1

*sample size = 142

behavior were adopted from Davenport & Prusak (1998), Lin & Li (2004), and wei-Li Wu (2007). The measurement items for organizational knowledge-sharing climate were adopted from Gee-Woo bock (2005), Celia Za' rraga. The measurement items for self-efficacy were adopted from Compeau & Higgins (1995) and Wang Meixiang (2006). The measurement items for outcome expectations were adopted from Compeau & Higgins (1999) and Chao-Min Chiu (2006).

Respondents were asked to evaluate the significance of measurement items using a Likert scale of 1–5, where a value of 5 represented “strongly agree,” and 1 represented “strongly disagree.”

The study sample consisted of developers from IT enterprises in south China. A total of 200 questionnaires were sent, and a total 153 replies were return, though 11 were incomplete and so discarded. Consequently, 142 questionnaires were used for data analysis, a response rate of 71%. Table II shows the demographics of the respondents, while table III lists the organizational information of respondents. Respondents had obviously attained a significant degree of knowledge from their education and jobs.

TABLE IV. RELIABILITY TEST

Constructs	Number of items	Cronbach's α
Knowledge-sharing behavior	6	0.875
Friendly relation	4	0.854
Innovation	4	0.861
Fairness	4	0.862
Self-efficacy	6	0.881
Outcome expectations	7	0.876

TABLE V. THE CONFIRMATORY ANALYSIS OF CONSTRUCTS

Index	Ideal standard value	Knowledge-sharing	Organizational knowledge-sharing climate			Self-efficacy	Outcome expectations
			Friendly relation	Innovation	Fairness		
χ^2 (df)	N/A	11.48 (6)	2.15 (2)	5.41 (4)	7.33 (4)	15.53 (12)	14.05 (7)
χ^2/df	≤ 2.00	1.913	1.075	1.352	1.833	1.294	1.901
GFI	≥ 0.90	0.958	0.979	0.978	0.967	0.982	0.961
AGFI	≥ 0.80	0.897	0.962	0.953	0.934	0.961	0.928
RMR	≤ 0.05	0.031	0.009	0.013	0.019	0.011	0.022
RMSEA	≤ 0.05	0.048	0.014	0.037	0.038	0.033	0.041
CFI	≥ 0.90	0.924	0.988	0.953	0.949	0.967	0.934

B. Reliability and validity test

1) Reliability test

Reliability is a measure index about result degree of consistency. Cronbach's alpha was used to assess in the internal consistency of the proposed constructs. Table IV summarizes the reliability test. According to the analysis results, we concluded that measurement items had reached an acceptable validity level.

2) Validity test

Most of measurement items of our study were derived from prior studies. Combining with experts' suggestions in knowledge management and the particular case in pre-surveying period, we modified and improved the questionnaire. Therefore, the validity of measurement items was considered good.

We adopted confirmatory factoring analysis to examine the structural validity. Table V shows the confirmatory factoring analysis of constructs. Most of indexes (like χ^2/df , CFI, GFI, RMR, RMSEA) of every construct achieved ideal standard value. Therefore, we concluded that measurement had reached a good validity. By relative analysis, we also examined convergent validity and discriminant validity, and they both good. Therefore, we concluded that structural validity of

measurement items had reached a good level.

C. Structural equation modeling

The test of the model was carried out using SEM, a confirmatory factor analysis that tests a model and its validity simultaneously. Amos7.0 was used to perform the SEM analysis.

Table VI shows the overall model fit indexes. It shows that our model resulted in good results at the χ^2/df , GFI, RMR, AGFI, CFI, and marginal fitness levels for the

TABLE VI. OVERALL MODEL FIT INDEXES

Fit index	Ideal standard value	Acceptable standard value	Scores
χ^2	N/A	N/A	809.621
df	N/A	N/A	423
χ^2/df	≤ 2.00	≤ 3.00	1.914
GFI	≥ 0.90	≥ 0.80	0.843
RMR	≤ 0.05	≤ 0.08	0.071
RMSEA	≤ 0.05	≤ 0.08	0.033
AGFI	≥ 0.80	≥ 0.70	0.819
NFI	≥ 0.90	≥ 0.80	0.806
CFI	≥ 0.90	≥ 0.80	0.925
PNFI	≥ 0.5		0.690
PCFI	≥ 0.5		0.712

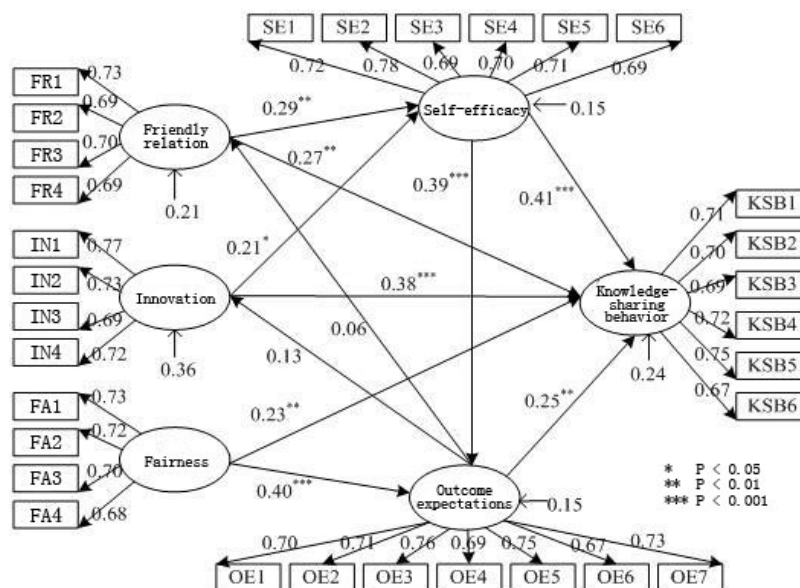


Figure 4. The path coefficient of research model

TABLE VII. SUMMARY RESULTS OF HYPOTHESIS TEST ABOUT THE RESEARCH MODEL

Hypothesis	Path	Path coefficient	P value	Results
H1	FR→KSB	0.27**	0.003	Supported
H2	IN→KSB	0.38***	0.000	Supported
H3	FA→KSB	0.23**	0.007	Supported
H4	FA→SE	0.29**	0.002	Supported
H5	IN→SE	0.21*	0.029	Supported
H6	FA→OE	0.40***	0.000	Supported
H7	SE→OE	0.39***	0.000	Supported
H8	SE→KSB	0.41***	0.000	Supported
H9	OE→KSB	0.25**	0.006	Supported
H10	OE→FR	0.06	0.471	Not supported
H11	OE→IN	0.13	0.118	Not supported

*P<0.05 ; ** P<0.01 ; *** P<0.001

TABLE VIII. OVERALL MODEL FIT INDEXES OF THE REVISED MODEL

Fit index	Ideal standard value	Acceptable standard value	Scores
χ^2	N/A	N/A	809.937
df	N/A	N/A	425
χ^2/df	≤2.00	≤3.00	1.906
GFI	≥0.90	≥0.80	0.844
RMR	≤0.05	≤0.08	0.071
RMSEA	≤0.05	≤0.08	0.033
AGFI	≥0.80	≥0.70	0.819
NFI	≥0.90	≥0.80	0.807
CFI	≥0.90	≥0.80	0.925
PNFI	≥0.5		0.697
PCFI	≥0.5		0.718

indexes of NFI, PGFI, and PNFI. We concluded that our model had reached an acceptable level and could be used to explain our hypotheses.

And then we analyzed the path coefficient of our model. Figure 4 depicts the final results about the path coefficient of the research model. Table VII shows the results of hypothesis test. It shows that, the hypotheses H1, H2, H3, H4, H5, H6, H7, H8 and H9 were supported, but the hypotheses H10 and H11 were not supported.

D. Model revise

According to above analysis of path coefficient and hypothesis test of research model, we revised the model by deleting two invalid paths. Figure 5 shows the revised model. Because the model had been revised, we needed to reexamine the overall model fit indexes. Table VIII lists overall model fit indexes. It shows that our model resulted in good results at the χ^2/df , GFI, RMR, AGFI, CFI, and marginal fitness levels for the indexes of NFI, PGFI, and PNFI. We concluded that our model had reached an acceptable level and could be used to explain our hypotheses.

After examining the overall model fit indexes of the revised model, we needed to recalculate the path coefficient and then find out the relation among variables.

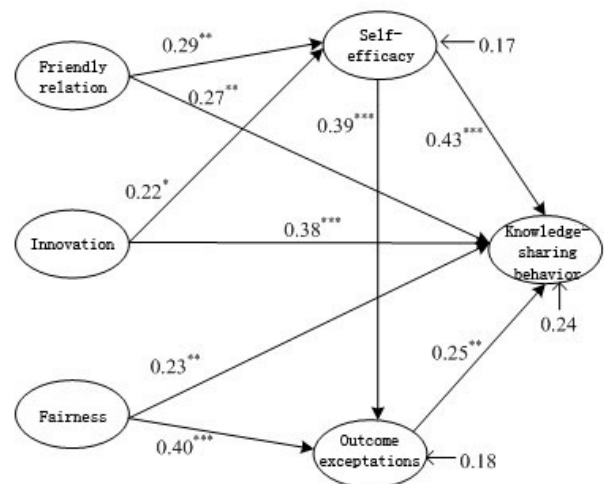


Figure 5. The revised model and path coefficient

TABLE IX. THE PATH COEFFICIENT AND HYPOTHESIS TEST OF THE REVISED MODEL

Hypothesis	Path	Path coefficient	P value	Original path coefficient
H1	FR→KSB	0.27**	0.003	0.27**
H2	IN→KSB	0.38***	0.000	0.38***
H3	FA→KSB	0.23**	0.007	0.23**
H4	FA→SE	0.29**	0.002	0.29**
H5	IN→SE	0.22*	0.029	0.21*
H6	FA→OE	0.40***	0.000	0.40***
H7	SE→OE	0.39***	0.000	0.39***
H8	SE→KSB	0.43***	0.000	0.41***
H9	OE→KSB	0.25**	0.006	0.25**

TABLE X. THE OVERALL INFLUENCING EFFECTS AMONG VARIABLES ABOUT THE REVISED MODEL

Dependent variable \ Independent variable	Knowledge-sharing behavior	Self-efficacy	Outcome expectations
Friendly relation	0.39*	0.29	—
Innovation	0.47*	0.22	—
Fairness	0.33*	—	0.40
Self-efficacy	0.53*	—	0.39
Outcome expectations	0.25	—	—

Table IX lists the path coefficient and hypothesis test of the revised model.

Structural equation modeling contains direct effect and indirect effect. Direct effect is the direct influence of independent variable on dependent variable, and it can be measured by the corresponding path coefficient. Indirect effect is the product of path coefficient from independent variable to dependent variable. The sum of direct effect and indirect effect is overall effect, and it reflects influencing degree of independent variable on dependent variable (Hou Tajie al.et, 2004). Table X summarizes the influencing effects among variables about the revised model.

E. The explanation and analysis of the revised model

According to Figure 5 and table X, we can know the revised model and the overall influencing effects among

variables. Then we summed up the following aspects to analysis and explain the research results.

1) *Organizational knowledge-sharing climate, self-efficacy and outcome expectations significantly had a positive effect knowledge-sharing behavior.*

Friendly relation, innovation and fairness were the three dimension of knowledge-sharing climate, and they had a direct influence on knowledge-sharing behavior. The results were in accord with the studies of Gee-Woo Bock (2005), Zhang Shuhua (2005), Xie Hefeng (2007), etc.

Self-efficacy had an important effect on knowledge-sharing behavior, which was in accord with the Barling & Beattie (1983), Xu Mengxiang (2000), Vijayasathy (2004), etc.

Outcome expectations had a significant effect on knowledge-sharing behavior within organizations, which was in accord with Bock & Kim (2002).

2) *Organizational knowledge-sharing climate had an indirect effect on knowledge-sharing behavior by affecting self-efficacy and outcome expectations*

According to our empirical results, friendly relation and innovation had a positive effect on self-efficacy in organizational knowledge sharing, while fairness had a positive effect on outcome expectations. Combining with the above first description, we can know that the indirect effect of organizational climate on knowledge-sharing behavior obtained preliminary understanding.

3) *Self-efficacy significantly had a positive effect on outcome expectations*

Our study was in accord with the studies of Compeau and Higgins (1995, 1999), Johnson and Marakas (2002), etc. In IT enterprises, R&D personnel have high knowledge-sharing self-efficacy and they have outcome expectations.

4) *Outcome expectations had not a positive effect on organizational knowledge-sharing climate*

The result has certain deviation with common sense. According to the studies of Sun Rui (2008), He Jile (2008), etc, we concluded that, the positive effect of outcome expectations on organizational climate was existent. The reasons that the effect was not confirmed in our study may be that: (1) the effect of outcome expectations on organizational climate maybe very little; (2) the effect of outcome expectations on organizational climate maybe indirect.

V. DISCUSSIONS AND IMPLICATIONS

According to our study, we believed that IT enterprises should pay attention to the following aspects when they try to promote employees' knowledge sharing.

A. *Improve organizational knowledge-sharing climate*

Previous study showed that good organizational knowledge-sharing climate is good for knowledge-sharing behavior, so, it is necessary to improve organizational knowledge-sharing climate by the following aspects.

1) *Construct a friendly relation climate*

Empirical study showed organizational climate of friendly relation significantly contributed to knowledge-sharing behavior. To build a friendly relation climate, first, IT enterprises should held exchange activities (like tea party, technology exchanging meeting, victory meeting, etc) to strength employees' exchange and contact, and then enhance mutual closeness. Second, organizations should advocate teamwork spirit. Microsoft considered team spirit as the core of its corporate culture. Teamwork does not only provide more exchange chance for employees, but also strengthen employees' trust level.

2) *Construct an innovative climate*

Empirical study showed organizational climate of innovation significantly contributed to knowledge-sharing behavior. To build an innovative climate, firstly, IT enterprises should cultivate distinctive innovative culture and respect employees' knowledge and value, which can encourage their advantages and subjective innovative [12]. Secondly, IT enterprises should held technology forum to enhance knowledge exchange and collide with the sparks of thinking. Moreover, because staff cannot innovate without organizations' support, so organizations should pay attention to innovative ideas and protect innovative teams.

3) *Improve organizational fairness level*

Empirical study showed that organizational climate of fairness significantly contributed to knowledge-sharing behavior. To improve fairness climate, IT enterprises should set up an effective performance evaluation system and perfect material and spirit rewards, ensure carrying out fairly and then enhance organizational fairness.

B. *Improve employees' self-efficacy about knowledge sharing*

Empirical study showed that knowledge-sharing self-efficacy significantly contributed to knowledge-sharing behavior. To improve knowledge-sharing self-efficacy, first, IT enterprises should provide rich training for staffs and help them progress. Secondly, according to employees' characteristics, IT enterprises should set up tutorial system. Moreover, IT enterprises should advocate team learning and establish learning organization. These measures can enhance employees' knowledge level and confidence, and then improve staffs' self-efficacy about knowledge sharing.

C. *Improve employees' outcome expectations about knowledge sharing*

Empirical study showed that outcome expectations about knowledge sharing significantly contributed to knowledge-sharing behavior. To improve outcome expectations about knowledge sharing, first, in the fact of material interest, IT enterprises should establish incentive system according to knowledge contribution. For example, Lotus associated 25% factors of staffs' performance evaluation system with their knowledge sharing activities. Secondly, according to knowledge contribution, IT enterprises should give spiritual encouragement. Based on the theory of individual needs, staffs have different level's demand in honor, respect, sense of accomplishment and self-development, etc.

Almost all of these factors would influence staffs' knowledge-sharing outcome expectations. For instance, HP offered reputations to employees who took part in knowledge sharing activities, like marking the corresponding "stars" on their nametags. These measurements can improve employees' outcome expectations about knowledge sharing.

VI. CONCLUSION AND LIMITATIONS

On the basis of social cognitive theory, from the perspective of organizational environment, we proposed a research model about influencing factors of organizational climate on knowledge-sharing behavior within organizations. By empirical study for IT enterprises in south China, we found that, organizational climate (friendly relation, innovation and fairness), self-efficacy, outcome expectations significantly contributed to knowledge-sharing behavior, and organizational climate also had an indirect effect on knowledge-sharing behavior by impacting self-efficacy and outcome expectation, and self-efficacy significantly contributed to outcome expectations in knowledge sharing. Finally, according to research results, we provided some suggestions for IT enterprises to promote knowledge sharing within organizations.

This study has a few inherent limitations. First, we hypothesized only three organizational climate factors in our model; other factors (such as cooperation) may also affect outcomes. Second, our research sample consisted only of R&Ds in IT enterprises. Third, the data collection was limited to knowledge-sharing behavior within organizations in south China.

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