Effect of knowledge sharing visibility on incentive-based relationship in Electronic Knowledge Management Systems: An empirical investigation

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ABSTRACT

Previous studies have confirmed the knowledge sharing visibility (KSV) may ensure the incentive-sharing relationship within traditional organizations. However, considering high loafing tendency in IT-based and distributed environments, this effect should be re-examined. This study examines how KSV impacts on incentive-based relationship in IT-based knowledge management systems. The data were collected from real KM systems in an innovative service company. The results show that, in distributed environment, KSV was still a critical moderators in the prediction of employee's knowledge sharing behaviors. In the electronic KMS environment, the positive relationship between incentive and KS is stronger when employees' perceived KSV is higher. This research contributes theoretically to KS literature in examing the KSV as the three-way moderators on incentive-based relationship in IT-based environment, from real organizational samples.

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1. Introduction

Knowledge sharing is a critical step in the knowledge management (Wasko & Faraj, 2005), as it can enable organizations to leverage their most valuable asset of employees sharing their knowledge with others. Without effective knowledge sharing, organizations might not integrate experts' critical knowledge, skills and abilities (KSAs) to accomplish the complex and innovation work (Breu & Hemingway, 2004). Thus, how to encourage employees' knowledge sharing behavior is the important research issue in the knowledge management (KM) field.

Knowledge sharing has been characterized as an exchange involving the provision of personal experience and knowledge in return for economic and social benefits (Kankanhalli, Tan, & Wei, 2005). In the literature, economic exchange has been represented by organizational reward, reflecting the explicit benefits of knowledge contribution. Organizational reward (ER) involves explicit and enforceable terms which organizations can provide directly (e.g., improved pay, conditions, and benefits). Thus, many organizations have provided reward systems as critical KM strategies to encourage employees' knowledge sharing behaviors, such as a knowledge market in Infosys (Garud & Kumaraswamy, 2005), and a point redemption system in Samsung (Moon & Park, 2002). However, a review of knowledge sharing literature shows organizational reward affects employees' knowledge sharing behaviors at dissimilar levels: none (Moon & Park, 2002), positive (Kankanhalli et al., 2005; Lin, 2007) and even negative (Bock & Kim, 2002; Bock, Zmud, Kim, & Lee, 2005). Subsequently, to explain the inconsistent findings, researchers draw on contingency perspective to explore moderated variables that might interact with organizational reward.

According to social exchange theory (SET), the employee–organization exchange relationship is also influenced by individual exchange orientation (Cropanzano & Mitchell, 2005). In various variables measuring individual exchange orientation, exchange ideology (EI) is considered to be a critical moderator, referring to the strength of a participant's belief that work effort (e.g., effort on sharing knowledge) depends on treatment by the organization (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Sinclair & Tetrick, 1995; Witt, 1991a). High EI individuals are calculative and rational (Witt, 1991a). Previous studies have confirmed significant moderating effects of EI on social exchange relationships in organizations (Eisenberger et al., 1986; Witt, 1991a, 1991b).

Since KS has come to be considered as an exchange process, recent studies have examined the moderator effect of EI on the reward–KS relationship (Lin, 2007; Redman & Snape, 2005). Unfortunately, related empirical studies have reported ambiguous results of the moderating effects of EI again (Eisenberger et al., 1986; Redman & Snape, 2005; Witt, 1991a, 1991b). Some previous studies have confirmed positive moderating effects of EI; however, other studies show EI to have significantly negative moderating effects.

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High EI employees may, especially, have strong incentives to shirk or engage in social loafing, showing no incentive to share knowledge unless the task condition allows employees to demonstrate discrete performance. Redman and Snape (2005) suggested that to the extent by which employees will repay their organization in an organization-employee exchange relationship may depend on different organizational contexts. Therefore, it is expected that the interaction effect of EI and organizational reward may be conditional upon a third-level contextual variable.

The social loafing theory (SLT) identifies series of contextual factors that may attenuate the positive effects of collective reward on rational employees' repayment behavior, such as organizational structure, division of labor, group size, and task characteristics (Jones, 1984). Individuals with high social loafing tendency may respond organizational reward with little repayment (Albanese & Fleet, 1985). From the perspective of social loafing theory (SLT), one of the most important contextual variables is task visibility (Liden, Wayne, Jaworski, & Bennett, 2004). As KS behavior is the special task in the current research, we use "knowledge sharing visibility" (KSV) to refer to employees' effort (e.g. sharing knowledge with co-workers) on their jobs being identifiable (George, 1992a). Task visibility (i.e., KSV) will reduce the intention of social loafing for rational employees (Liden et al., 2004). Under high KSV, high EI individuals believe that gaining organizational rewards is due to their previous effort. To obtain more anticipated benefits, they will be more likely to respond to organizational rewards with more repayment, such as contributing knowledge. Under low KSV, high EI individuals deem that gaining organizational rewards is unrelated to their previous knowledge contribution, and they will accept these rewards without any KS behavior. Thus, the interaction effect of organizational rewards and employees' EI might be dependent on employees' perceived KSV.

So far, rare studies examined a three-way interaction that perceived KSV regulates the interaction between organizational reward and employees' EI. To bridge up this gap, this study aimed to move beyond a two-way interaction and examine a three-way interaction in which knowledge sharing visibility moderates the interaction effect of organizational reward and employees' exchange ideology on employees' knowledge sharing behavior.

2. Literature review and hypotheses

2.1. Knowledge sharing visibility

Social loafing theory (SLT) posits that productivity losses in group work are due to the social loafing phenomenon (George, 1992b; Karau & Williams, 1993). According to SLT, individuals will reduce their contribution in group work when their individual performance and effort cannot be evaluated (Chidambaram & Tung, 2005; Karau & Williams, 1995). The perspective of social loafing has been widely adopted to understand productivity losses in several types of groups in the fields of organizational behavior, such as work group (Karau & Williams, 1997; Lin & Huang, 2009), and large organizations (Liden et al., 2004). As the knowledge has been seen to be the public good, and the performance of knowledge sharing are difficult to evaluate, SLT can be applied to understand the productivity losses in KS.

According to SLT, task visibility is a critical organizational environmental factor which is negatively associated with social loafing behavior in organizations (George, 1992; Price, 1987). Task visibility refers to the extent to which employees' effort in their jobs can be identified (George, 1992a). When the task visibility of a group is low, individuals' work effort cannot be identified and evaluated by other colleagues and organizations. In this study, KS is the critical task. Thus, we can recognize knowledge sharing visibility (KSV)

which originated from the definition of task visibility (Jones, 1984). KSV is defined as the extent to which employees' KS behavior can be identified and monitored by other participants (e.g., their supervisors and peer knowledge reviewers).

In the research stream on social loafing, some studies have adopted KSV to explain reward-KS relationship within organizations. They have found reward to be positive to individual KS in the environment where individual performance can be evaluated (i.e., high KSV) Moon & Park, 2002. They explain that the positive effects of reward on KS due to individual social loafing are reduced in that environment. However, the two-way interaction model of KSV and reward may not sufficiently explain the reward-KS relationship in KMS. One core assumption of SLT is that actors are rational. Based on this assumption, in the low KSV environment, individuals may have low performance-outcome expectancy, and have a high social loafing tendency. However, when actors have no self-interest and no intrinsic motivation, their performance-outcome expectancy may not increase when the environment is task visible. For these participants with a low level of self-interest, the effects of reward cannot be explained from the social loafing perspective. Few studies have considered the rationality of participants in extending two-way interaction model of KSV and reward. In order to better understanding the effects of organizational reward systems on KS in the KMS, it is important to investigate the three-way interactions of EI, KSV and reward.

2.2. Research model and hypotheses

Empirical evidence shows that task visibility is negatively associated with social loafing behavior in organizations (George, 1992a; Price, 1987). In the context of KS, KSV suggests that individuals' various efforts on jobs are identifiable, including knowledge contribution (George, 1992a). It is expected that high KSV will be related to high KS.

Although, the main effect of task visibility has been widely examined, little is known about the moderating effect of task visibility in an exchange relationship, especially under the context of KS. When task visibility (i.e., KSV) is high, knowledge shared by individuals is highly identifiable. Individuals will tend to regard organizational reward as a incentive for their previous KS. Therefore, employees with high EI, who wish to maximize their anticipated benefits, will be more likely to respond to organizational reward with KS. However, for employees with low EI, who place little importance on extrinsic rewards, the organizational instrumental will not affect their KS in KMS.

In contrast, when KSV is low, individuals' KS is not identified. Employees will deem organizational reward as a collective incentive rather than a reward to their knowledge contribution. High EI individuals have a social loafing tendency to maximize their own net benefits, and respond to organizational reward with little knowledge contribution behavior. Low EI employees, for whom moral reasons or obligation induces their KS, organizational reward will not affect their KS.

Therefore, it is expected that the interactive effect of EI and reward is dependent on KSV. The above argument is captured by the following hypotheses. The conceptual model of three-way interaction of knowledge sharing visibility, exchange ideology and organizational reward is illustrated in Fig. 1.

Hypothesis 1: There will be a three-way interaction of organizational reward, exchange ideology, and knowledge sharing visibility on employees' knowledge sharing behavior (KS) with organizations.
Hypothesis 2: Organizational reward will be unrelated to KS under the condition of low knowledge sharing visibility, regardless of the level of individuals' exchange ideology.
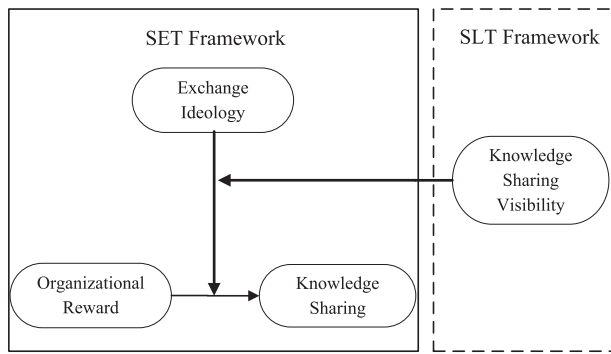
Fig. 1. Conceptual model of three-way interaction of KSV × EI × ER in KMS.

Hypothesis 3: For employees with high perceived knowledge sharing visibility, the positive relationship between organizational reward and KS is stronger when exchange ideology is high compared to when it is low.

3. Methodology

3.1. Operationalization of constructs

In this study, a cross-sectional survey instrument was also designed to get information on the variables. The formal definition of each construct is given in Table 1.

We adapted existing scales to enhance validity (Stone, 1978). Some questions were modified to match the background of this study. One construct for knowledge sharing behavior was measured through seven-point Likert scales by the frequency of "never" to "very frequently." All other constructs were measured through seven-point Likert scales anchored from "strongly disagree" to "strongly agree." As mentioned, since the survey was executed in China, we used backward translation to ensure consistency between the Chinese and the original English version of the instrument (Singh, 1995). A summary of the survey items is listed in Table 2.

3.2. Respondent and procedure

The field study was conducted in ASG (Xuan Cheng Division (XC)) in Mainland China, over a period of about 1 month, from the beginning of December, 2008 to the beginning of January, 2009. We contacted liaison persons from different departments of the company and asked them to help distribute the survey to colleagues in their department. All liaison persons were friends of the researcher. For the liaisons who agreed to help collect data, we called them in person and discussed the data collection procedure with them to ensure that they knew how to collect the data correctly.

To avoid selection bias, the criterion of identifying knowledge contributors was based on their knowledge sharing behaviors in knowledge management system (KMS) of ASG, rather than face-to-face knowledge sharing behaviors. In this way, we could ensure that data was collected from knowledge workers who had experience in sharing knowledge in KMS. This was done since employees sharing knowledge in their work place would not mean that they would share knowledge in KMS.

At first 6 liaison persons were contacted. Of them, two refused to participate since they did not have time or the senior leaders in their departments did not allow them to be involved in any kind of surveys. Finally, 4 liaison persons agreed to try, and help to distribute 210 questionnaires in 7 sub-divisions of ASG (XC). In the end, a total of 179 questionnaires were collected. Among them, 12 responses were not completely filled, and 8 responses were not filled out seriously (e.g., all the items were filled out as "7"). These 20 observations were excluded from further data analysis. Thus, the 159 successfully completed questionnaires represent a response rate of 75.7%, which is higher than the threshold of 70% response rate (Leslie & Berenson, 1975).

To ensure that there was no significant non-response bias and early-late response bias, we used the independent sample *t*-test suggested by Armstrong and Overton (1977). We compared the early-returned questionnaires (first 25%) and late-returned questionnaires (last 25%) on variables, such as gender, age, tenure with work department and educational level. The result of the non-response bias test is illustrated in Table 3. As shown in Table 3, the results of independent sample *t*-test indicate that there are no significant differences between these two groups on key variables. Thus, there is no significant non-response bias in this study.

Out of 159 respondents, the majority of them were general employees (71.1%), and a few were senior managers (5.6%), department managers (6.3%), and supervisors (17.0%). With regard to age, 78 respondents were between 20 and 29 years of age (49.1%), 37.1% in the 30–39 age group, and 13.2% in the 40–29 age group. Only 0.6% were older than 50. For the education level, 44.0% of the subjects had an education level of high school, with most others having attained Bachelors, Masters or even higher degrees (50.3% Bachelor, 3.8% Masters or higher). Only 1.9% of the subjects had an education level of middle school. As tenure with this company, the distribution was: <1 year 5.7%, 1–3 years 20.8%, 4–6 years 35.2%, 7–8 years 13.2%, 9–10 years 8.2%, and ⩾11 years 23.3%. Tenure with the current work department was distributed as follows: <1 year 5.7%, 1–3 years 25.8%, 4–6 years 28.9%, 7–8 years 8.8%, 9–10 years 13.2%, and ⩾11 years 17.6%.

4. Result

4.1. Measurement model

4.1.1. Descriptive statistics and reliability

Table 4 presents means, standard deviations, and correlations of study variables. Perceived organizational reward (ER) was found to

Table 1
Definition of constructs.

Construct	Definition	Resources
Perceived organizational reward (ER)	Employees' perceptions of the material benefits that organization will bring them	Sverke and Kuruvilla (1995)
Exchange ideology (EI)	The strength of an employee's belief that work effort should depend on treatment by the organization	Eisenberger, Armeli, Rexwinkel, Lynch, and Rhoades (2001)
Perceived knowledge sharing visibility (KSV)	Employees' beliefs about the extent to which KM group or their supervisors are aware of how much effort they exerted on the knowledge sharing	George (1992)
Knowledge sharing behavior (KS)	Individual sharing work relevant experiences and information within organizations	Lee (2001)

Table 2
Survey items.

Construct	Item wording and code	Source
Perceived organizational reward (ER)	1. I can get higher bonus when I share my knowledge in KMS (ER1)	Based on the work of Kankanhalli et al. (2005)
	2. I get a better work assignment when I share my knowledge in KMS (ER2)	
	3. I am praised by instructors when I share my knowledge in KMS (ER3)	
	4. Sharing my knowledge in KMS can make my job more secure (ER4)	
Employee exchange ideology (EI)	1. Employees should not care about the organization that employs them unless that organization shows that it cares about its employees (EI1)	Eisenberger et al. (2001)
	2. Employees should only go out of their way to help their organization if it goes out of its way to help them (EI2)	
	3. An employee should work as hard as possible no matter what the organization thinks of his or her efforts (EI3) (R)	
	4. If an organization does not appreciate an employee's efforts, the employee should still work as hard as he or she can (EI4) (R)	
	5. An employee who is treated badly by a company should work less hard (EI5)	
	6. An employee's work effort should depend partly on how well the organization deals with his or her desires and concerns (EI6)	
	7. An employee should only work hard if his or her efforts will lead to a pay increase, promotion, or other benefits (EI7)	
	8. An employee's work effort should not depend on the fairness of his or her pay (EI8) (R)	
Knowledge sharing visibility (KSV)	1. KM group and others (e.g., my supervisor) are generally aware of when a knowledge contributor is putting forth below average effort of others in KMS (KSV1)	George (1992a)
	2. KM group and others (e.g., my supervisor) are aware of the amount of knowledge I do in KMS (KSV2)	
	3. It is generally hard for KM group and others (e.g., my supervisor) to figure out how hard I am working on sharing knowledge in KMS (KSV3) (R)	
	4. KM group and others (e.g., my supervisor) usually notice when an employee is not sharing knowledge in KMS (KSV4)	
	5. It is difficult for KM group and others (e.g., my supervisor) to determine how hard I am working on sharing knowledge in KMS (KSV5) (R)	
	6. It is hard for KM group and others (e.g., my supervisor) to determine how much effort I exert on sharing knowledge in KMS (KSV6) (R)	
Knowledge sharing behavior (KS)	1. I share work reports and documents with members of my team (KS1)	Lee (2001)
	2. I share report templates, models, and designing methodologies with members of my team (KS2)	
	3. I share success and failure stories about my work in documents with members of my team (KS3)	
	4. I share related knowledge obtained from other media (KS4)	
	5. I share my experience or know-how from work with other team members (KS5)	
	6. I provide my knowledge about know-where or know-whom at the request of other team members (KS6)	
	7. I share my expertise obtained from my education or training with other team members (KS7)	

Note: (R) Reverse-coded.

Table 3
Result of non-response test.

Key variables	T-value	DF	Significance	F-value
Gender	1.574	78	0.214	1.569
Age	0.289	78	0.579	0.311
Tenure with work department	0.074	78	0.661	0.193
Education	−1.293	78	0.102	2.736
Position	−1.186	78	0.079	3.170

Table 4
Descriptive statistics.

Constructs	Mean	Std. deviation	KS	ER	EI	KSV
KS	5.72	1.00	(0.927)			
ER	4.63	1.38	0.122	(0.933)		
EI	3.74	1.86	0.202[*]	0.389[***]	(0.960)	
KSV	4.90	1.13	0.159[*]	0.256[**]	0.438[***]	(0.735)

+$P < 0.1$.
[*] $P < 0.05$.
[**] $P < 0.01$.
[***] $P < 0.001$.

have positive correlation with individual exchange ideology (EI) ($r = 0.389$, $p < 0.001$). Also, perceived organizational reward was found to have positive correlation with perceived knowledge sharing visibility ($r = 0.256$, $p < 0.01$). This replicates partial empirical result of Hui and Lam (2000) study. Exchange ideology (EI) was found to have positive correlations with perceived knowledge sharing visibility (KSV) ($r = 0.438$, $p < 0.001$), and knowledge sharing ($r = 0.202$, $p < 0.05$). Perceived knowledge sharing visibility (KSV) was positively correlated with knowledge sharing (KS) ($r = 0.159$, $p < 0.05$).

We assessed reliabilities of all independent variables by calculating Cronbach's alpha at individual level. As shown in Table 4, all the Cronbach's alpha values were found to be greater than 0.7, the threshold suggested by Nunally (1978).

4.1.2. Convergent and discriminant validity

The items were tested for validity using factor analysis with principle components analysis and varimax rotation. Convergent validity was assessed by checking loadings to see if items within the same construct correlated highly amongst themselves. Discriminant validity was assessed by examining the factor loadings to see if questions loaded more highly on their intended constructs than on other constructs (Cook & Campbell, 1979). Tabachnick and Fidell (2000) suggest that loadings should be at least 0.32, and loadings from 0.45 to 0.54 are considered fair, 0.55–0.62 are considered good, 0.63–0.70 are considered very good and above 0.71 are considered excellent.

Factor analysis yielded four components with eigenvalues above 1. These four components corresponded to the four constructs. One question for "Knowledge sharing visibility" (KSV6) tapped onto other constructs and was omitted. After omitting KSV6, the reliability of the KSV construct improved to 0.902 (see Table 5).

4.2. Hierarchical multiple regression results

To test the hypothesized three-way interaction, four-step hierarchical linear regression model was examined for knowledge sharing behavior (Aiken & West, 1991). Following Aiken and West (Aiken & West, 1991), the independent variables were mean-centered before forming the interaction terms. A set of demographic factors (i.e., department size, position) was controlled, because previous research has identified them as predictors of knowledge sharing (Albanese & Fleet, 1985; Riege, 2005). In the first step, the control variables were entered into the regression. In the second step, the three main effects of organizational reward (ER), exchange ideology (EI) and knowledge sharing visibility (KSV) were entered. In the third step, three two-way interactions were included, and in the fourth step, the three-way interaction was included.

As shown in Table 6, in step 1, no variables were significantly related to KS behavior. In step 2, EI was significantly positively related to KS behavior, and explained 4.9% of the variance ($\Delta R^2 = 0.049$, ΔF $(3,151) = 2.608$, $P < 0.05$). The main effects of reward and KSV were not predictive for KS behavior. In step 3, the two-way interaction of reward and exchange ideology (ER × EI) was significantly positively related to knowledge sharing behavior, and explained 5.7% ($\Delta R^2 = 0.057$, ΔF $(3,148) = 3.165$, $P < 0.05$). All the other two-way interactions showed no significant effects on employees' KS behavior. Finally, in step 4, the focal three-way interaction reached high significance, and explained 2.3% of the variance in employee's KS behavior ($\Delta R^2 = 0.023$, ΔF $(1,147) = 12.1$, $P < 0.05$). Therefore, hypothesis 1 (the same with study 2) was confirmed.

To evaluate our hypothesis 2 and 3, we plotted the interaction and examined the simple slopes according to Aiken and West's (1991) procedure. The three-way interaction patterns were plotted in a two-step procedure. In the first step, we plotted the three separated two-way interaction figures of ER × EI, ER × KSV, and EI × KSV. We found ER × EI has positive interaction effect on knowledge sharing. ER × KSV and EI × KSV are not significant.

In the second step, we plotted the three-way interaction of ER × EI × KSV (see Fig. 2). The results show that organizational reward does not have significant relationship with KS behavior under the conditions of low KSV environment of KMS in this case, regardless of the level of individual exchange ideology (EI). In H2, we hypothesized that organizational reward will be unrelated to KS under the condition of low knowledge sharing visibility. Therefore, the interactive effect fully confirms hypothesis 2.

Under the conditions of high KSV, organizational reward has a positive and significant relationship with knowledge sharing behavior at high levels of both KSV and individual EI ($p < 0.01$). Furthermore, organizational reward has a negative significant relationship with knowledge sharing behavior under the conditions of high KSV and low EI ($p < 0.01$). The interactive effect is in support of hypothesis 3 that under high KSV, the positive relationship between reward and KS is stronger when employees' EI is high than when it is low.

The summary of three-way interaction effects on KS is illustrated in Table 7. For the employees with high perceptions of KSV and high EI, the relationship between reward and KS is positive. For employees with high perceptions of KSV and low EI, the relationship between reward and KS is negative. For the employees with low perceptions of KSV, the relationship between reward and KS is non-significant.

5. Discussion

This study has several implications for theory. First, this study contributes to knowledge management literature with a more complete understanding of reward-KS relationships within organizations. Past research has found that an employee's EI has moderating effects in the relationship between organizational reward and KS behavior (Lin, 2007; Redman & Snape, 2005; Sinclair & Tetrick, 1995). However, the moderating effects have been inconsistent. Some findings suggest the positive effects, while others suggest absent or negative effects. Our findings unite and begin to clarify these past findings by investigating KSV as the third-level moderator. Second, this study presents an important step in building a theory to understand reward-KS relationship by integrating the individual level SET perspective with the organizational environment level SLT perspective. The three-way interaction model of this study was adapted and integrated from social exchange theory (SET) and social loafing theory (SLT), which helps to understand under which task conditions, and for which employees, the reward system is effective. This three-way interaction model explains 13% of the variance in the cross-organizational sample, compared with the explanatory power of 11% in the two-way interaction models. Our results suggest that the integration of SET and SLT in a single model can help to predict KS behavior.

The practical implication of our findings seems to be clear. Organizational reward aimed at increasing employees' knowledge sharing behaviors should consider task conditions (i.e., KSV) and individual difference (i.e., EI). First, it is suggested that organizations should establish an individual performance evaluation process for reviewing individuals' knowledge sharing to increase the

Table 5
Factor analysis result.

Question	Factor			
	1	2	3	4
KS1	0.33	**0.63**	0.01	−0.01
KS2	0.21	**0.76**	0.06	0.00
KS3	0.03	**0.90**	0.06	0.06
KS4	0.10	**0.93**	0.09	0.08
KS5	0.09	**0.94**	0.05	0.02
KS6	0.00	**0.90**	0.09	0.04
KS7	−0.15	**0.86**	0.01	0.05
EI1	**0.82**	−0.02	0.36	0.26
EI2	**0.86**	0.01	0.33	0.13
EI3	**0.87**	0.16	0.08	0.14
EI4	**0.87**	0.23	0.04	0.17
EI5	**0.88**	0.21	0.00	0.16
EI6	**0.83**	0.00	0.28	0.03
EI7	**0.86**	0.01	0.34	0.04
EI8	**0.74**	0.04	0.37	0.17
KSV1	0.26	0.11	**0.78**	0.13
KSV2	0.24	0.03	**0.87**	−0.01
KSV3	0.13	0.06	**0.81**	0.23
KSV4	0.16	0.01	**0.82**	0.29
KSV5	0.29	0.08	**0.77**	0.09
KSV6	0.10	0.09	**0.38**	**−0.33**
ER1	0.28	0.05	0.17	**0.78**
ER2	0.24	0.04	0.13	**0.91**
ER3	0.11	0.07	0.14	**0.92**
ER4	0.15	0.09	0.14	**0.84**
Eigenvalue	6.30	5.25	4.10	3.46
Variance explained (%)	25.19	20.99	16.42	13.83
Cumulative variance (%)	25.19	46.18	62.60	76.43

Table 6
Results of hierarchical multiple regression.

Constructs	Knowledge sharing		
Independent variable	Standardized coefficients	ΔR2	R2 (adj.)
Step 1: Control variables			
Position	0.023		
Team Size	0.024		
Step 2: Main effects			
Reward (ER)	0.022		
Exchange ideology (EI)	0.177[+]		
Knowledge sharing visibility (KSV)	0.064	0.05[*]	0.05(0.05)
Step 3: Two-way interactions			
ER × EI	0.257[*]		
EI × KSV	0.077		
ER × KSV	−0.099	0.06[*]	0.11(0.03)
Step 4: Three-way interactions			
ER × EI × KSV	0.244[*]	0.02[*]	0.13(0.05)

[**] $P < 0.01$; [***] $P < 0.001$.
[+] $P < 0.1$.
[*] $P < 0.05$.
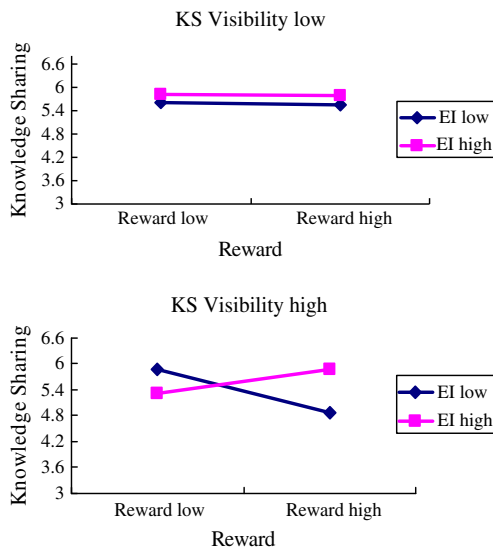
Fig. 2. Three-way interaction patterns.

Table 7
Summary of three-way interaction effects.

High KSV		Low KSV	
High EI	Low EI	High EI	Low EI
Reward-KS relationship is positive	Reward-KS relationship is negative	Reward-KS relationship is non-significant	Reward-KS relationship is non-significant

KSV within organizations. This "knowledge reviewing" strategy is also useful to help organization to establish a knowledge sharing culture which may positively influence KS in the long term (MvDermott & Dell, 2001). Second, organizations should encourage individual employees treating KS as one important task in their

work, and provide guidelines to help employees to complete KS tasks systematically and structurally. Our third suggestion is that organizations should consider "different strokes for different folks". In the other words, organizations should provide a portfolio of incentives different individuals for everyone favouring the outcomes of their sharing effort.

This study also has some potential limitations, i.e., common method variance may bias our findings to some degree. However, findings concerning the direction of interaction effects may be less susceptible to common method bias than are those concerning the significance of main effects (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). Regarding theory development related to knowledge sharing visibility and incentive-based relationship, future studies include examing the three-way interactive effects from different theoretical perspectives (e.g., cost-benefit perspective), and adding some new moderators on the reward-KS relationship to improve explanatory power.

Acknowledgement

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