With whom shall I share my knowledge? A recipient perspective of knowledge sharing

Xiao Zhang and Jane Yan Jiang

Xiao Zhang is an Associate Professor and Jane Yan Jiang is an Assistant Professor both are based at School of Business, Nanjing University, Nanjing, China.

Abstract

Purpose – *The purpose of this study is to examine knowledge-sharing phenomena from the perspective of recipients' characteristics. Specifically, this study examines the influence of knowledge recipients' competence, learning attitude and personal relationship with knowledge sharer on knowledge sharers' willingness to share.*

Design/methodology/approach – *The authors conducted two studies, a scenario experimental study and a field survey study to test their hypotheses about the effects of recipients' characteristics on knowledge sharers' willingness to share.*

Findings – *The results revealed that recipients' characteristics play different roles in different situations (responsive and proactive knowledge sharing) in triggering the knowledge sharers' motivation to share. In responsive knowledge sharing, a recipient's learning attitude and personal relationship with the knowledge sharer affected the sharer's willingness to share. In proactive knowledge sharing, a recipient's professional ability and personal relationship with the sharer significantly affected the sharer's willingness to share.*

Research limitations/implications – *The scenario experiment may suffer from the problem of social desirability and the external validity; this study only focuses on the simple main effect of knowledge recipients' characteristics.*

Practical implications – *First, managers should encourage employees to seek information and knowledge from other colleagues, and organizations could provide support for their interaction. Second, managers need to consider the composition of team members. Third, team managers may encourage each member to develop their own special skill or knowledge. Fourth, managers could make some efforts to develop a climate of trust among employees.*

Social implications – *Some organization can also use practice like recognition of internal copyright or patent to protect employees' new ideas or knowledge.*

Originality/value – *First, this study clarifies the relationship between knowledge sharing and other working behaviors. Second, this study contributes to the understanding of how episodic factors affect working behaviors, which has been given little attention in previous research.*

Keywords *Knowledge sharing, Knowledge recipient*

Paper type *Research paper*

1. Introduction

Organizations' competitive advantages increasingly depend on successful knowledge management and organizational learning. As one of the core activities of knowledge management, knowledge sharing is the fundamental means by which employees can contribute to knowledge application, innovation and, ultimately, the organization's competitive advantage (Jackson *et al.*, 2006). In this study, knowledge sharing is defined as the transfer of knowledge among individuals, groups, departments and organizations (Crossan *et al.*, 1999; Ipe, 2003). Knowledge sharing between employees and within and across teams allows organizations to exploit and capitalize on knowledge-based resources (Cabrera and Cabrera, 2005; Damodaran and Olphert, 2000; Davenport and Prusak, 1998). Because employees' knowledge-sharing behaviors play an important role in

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> **"If one shares knowledge with the purpose of seeking comments or further developing new ideas, he or she tends to select a good friend who has rich experience and good professional competence to discuss the new ideas."**

effective knowledge management (Park *et al.*, 2004), most organizations face the challenge of finding ways to encourage employees to share their knowledge with one another.

Prior research on the possible antecedents to knowledge-sharing behaviors suggested that organizational, group and sharers' characteristics may all affect knowledge sharing. Among the examined antecedents, organizational and group factors include organization culture, norms and values (Bock *et al.*, 2005; De Long and Fahey, 2000; McKinnon *et al.*, 2003); organization incentives (Nelson *et al.*, 2006); management support (Connelly and Kelloway, 2003); and team characteristics and norms (Bakker *et al.*, 2006; Sawng *et al.*, 2006). Sharers' factors include dispositional characteristics (Cabrera *et al.*, 2006), demographic variables (Constant *et al.*, 1994), attitudes toward knowledge sharing (Bock and Kim, 2002) and general job and organizational attitudes (Bock *et al.*, 2005).

Although researchers have made great progress in understanding knowledge-sharing behaviors, several issues hinder further investigation. First, the nature of knowledge-sharing behavior is still ambiguous. Although researchers have not explicitly clarified the nature of knowledge-sharing behaviors, previous research implied that knowledge-sharing behaviors can be either rewarded behaviors or citizenship behaviors. Some researchers, recognizing the problem of social dilemmas in organizational knowledge sharing, believe that these dilemmas can be resolved through monitoring and incentive alignment (Cabrera and Cabrera, 2002). Others who treat knowledge sharing as a type of citizenship behavior take the approaches used in citizenship behavior research to explain knowledge-sharing behaviors (Lam and Ford, 2010). For example, some researchers found that perceived supervisor and coworker support increases employees' knowledge exchange as well as their perceptions of the usefulness of knowledge sharing (Cabrera *et al.*, 2006; Kulkarni *et al.*, 2006). The diverse focus of knowledge-sharing literature logically leads to the question of whether all types of knowledge sharing are either rewarded behaviors or citizenship behaviors. If the literature on rewarded behaviors and citizenship behaviors could help to explain all knowledge-sharing behaviors, further investigation on knowledge-sharing behaviors may not be necessary.

The second barrier to further investigation of knowledge-sharing behaviors is that the episodic nature of such behaviors has not been sufficiently addressed. Regardless of whether knowledge-sharing behaviors are considered to be rewarded behaviors or citizenship behaviors, a common assumption among researchers is that knowledge sharing can be planned by an individual and is a relatively stable phenomenon. Therefore, most researchers interested in the antecedents of knowledge-sharing behaviors pay much attention to sharers' individual characteristics (e.g. dispositional factors, demographic variables, attitudes toward work and organization) and organizational environment factors (e.g. organizational culture, incentives, management support and norms). However, with the exception of well-planned knowledge sharing events such as lectures or seminars, most knowledge-sharing behaviors are situational and episodic, both stimulated and facilitated during interpersonal interactions. However, there is little research discussing the episodic nature of knowledge-sharing behaviors. Research on citizenship behavior in general has a similar problem. Whether a person engages in citizenship behaviors at a particular time depends on both the person and the situation. However, few researchers have discussed this issue. Ilies *et al.*, (2006) are among the few authors who discussed the

within-person changes (i.e. the episodic component) of citizenship behaviors. Thus, addressing the episodic factor in knowledge-sharing research would be enlightening for both knowledge-sharing and citizenship behavior research.

Another important feature of knowledge-sharing behavior is that it requires the involvement of at least two parties, which is not a necessary condition for some other tasks and citizenship behaviors. The knowledge recipient is, therefore, an important situational component in knowledge sharing; however, research on knowledge recipients is very scarce. Hendriks (2004) cautioned that, "knowledge sharing is not seen as pushing packages of existing knowledge back and forth, but as a process that requires not only knowledge of the bringing party but also of the obtaining party" (p. 6). Thus, understanding the role of recipients in knowledge sharing would help to extend the existing theory.

To address all these issues and contribute to further understanding of knowledge-sharing behaviors, this study aimed to investigate two general research questions:

RQ1. How many types of knowledge-sharing behaviors exist in organizations?

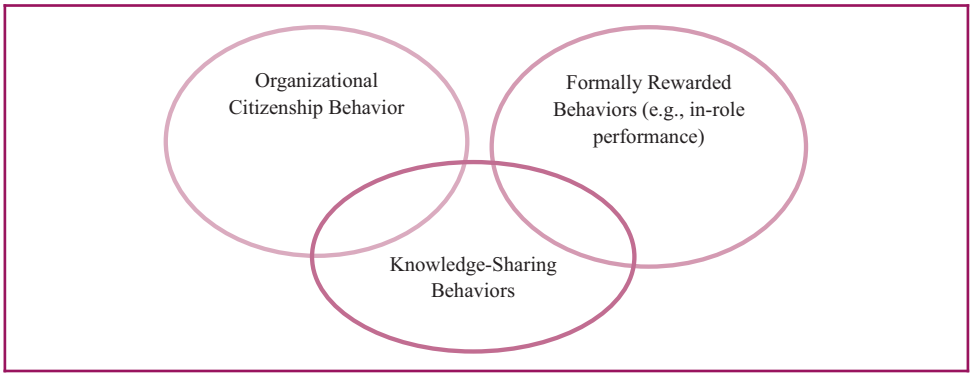
RQ2. What are the roles of knowledge recipients in each type of knowledge sharing?

To answer these questions, the authors developed a theoretical framework and hypotheses and examined them with two empirical studies.

The contributions of this study are in three aspects. First, this study clarifies the relationship between knowledge sharing and other working behaviors. Knowledge-sharing behavior shares some similarities with many other voluntary behaviors, such as helping, extra role, prosocial and organizational citizenship behaviors (Frey, 1993). However, if researchers want to make incremental contributions and avoid redundant work, they need to identify the distinctions between knowledge-sharing behavior and other behaviors. This study developed a category of knowledge-sharing behaviors and compared them to other working behaviors. It proposed that the types of knowledge sharing should be more than what researchers have discussed before. The Venn diagram in Figure 1 summarizes the logical relations among several behavioral sets based on the findings of this study.

Second, this study contributes to the understanding of how episodic factors affect working behaviors, which has been given little attention in previous research. It also contributes to the knowledge management literature by specifically investigating the influence of knowledge recipients on knowledge sharers' motivation. The authors emphasized that a sharer and a recipient are both necessary parties in the knowledge-sharing process. They believe that such a recipient perspective can provide new insights for understanding knowledge-sharing behaviors.

Figure 1 Relations among different working behaviors



2. Theoretical background and hypotheses

2.1 Prior explanation of knowledge-sharing motivation

Prior research on knowledge sharing suggested that sufficient motivation on the part of the sharer is necessary for engaging in the effort and time required to transfer knowledge (Davenport and Prusak, 1998; Goodman and Darr, 1998; Hansen *et al.*, 2005). Prior research found that the main antecedents of knowledge sharing include organizational characteristics (Hansen *et al.*, 1999; Liebowitz, 2003; Nelson *et al.*, 2006), interpersonal characteristics (Chowdhury, 2005; Mooradian *et al.*, 2006; Wu *et al.*, 2007), individual sharers' characteristics (Judge and Bono, 2001) and perceived knowledge nature (Constant *et al.*, 1994; Jarvenpaa and Staples, 2000). However, not many theoretical perspectives are available to explain *why* these antecedents affect knowledge-sharing behaviors (Gagné, 2009). These perspectives can be divided into three groups: incentive theory (Landy and Becker, 1987; Pinder, 1984), theory of reasoned action or theory of planned behavior (Bock and Kim, 2002; Bock *et al.*, 2005; Cabrera and Cabrera, 2005) and social exchange theory (Levin and Cross, 2004).

Incentive theory emphasizes the role of rewards and incentives in knowledge sharing, implying that knowledge sharing is reciprocal in nature. Specifically, researchers found that when individuals perceive a link between knowledge-sharing behaviors and organizational rewards (e.g. better pay, promotion, career advancement, international visibility or interesting project/activity assignments), they will be more inclined to participate in knowledge-sharing activities (Cabrera *et al.*, 2006; Maurer and Tarulli, 1994). Empirically, both knowledge-sharing (Cabrera *et al.*, 2006) and knowledge-seeking behaviors (Maurer and Tarulli, 1994) have been found to be associated with perceived organizational rewards.

In knowledge management research, the theory of reasoned action (Ajzen and Fishbein, 1975) and the theory of planned behavior (Ajzen, 1985, 2002) have been widely used to explain individuals' knowledge-sharing behaviors. Based on the theory of reasoned action and theory of planned behavior, researchers assert that three factors influence knowledge-sharing intentions:

1. attitude toward the sharing behavior;
2. social norms regarding the sharing behavior; and
3. beliefs about one's control over the sharing behavior.

Attitude is the degree to which one evaluates the behavior favorably or unfavorably. Subjective norm is the perceived social pressure to perform or not perform the behavior. Control beliefs are concerned with having the necessary skills, resources and opportunities to engage in a behavior. A few examples of studies that took a reasoned action perspective to explain knowledge-sharing behaviors are Bock and Kim (2002), Ryu *et al.* (2003) and Lin and Lee (2004).

Finally, the social exchange perspective is also widely used to emphasize interpersonal reciprocity and trust in knowledge sharing. For example, Liao (2008) investigated the knowledge-sharing phenomenon in an R&D department from a social power and social

"This study supported the hypotheses that knowledge recipients' characteristics in terms of learning attitude, competence and interpersonal relationship with knowledge sharers influence the knowledge sharers' motivation for sharing."

> **"Recipient perspective may be one of the special natures of knowledge-sharing behaviours that distinguish it from other behaviours."**

exchange perspective. She found that a manager's control of rewards for desired behaviors (i.e. reward power) and the employees' belief that the manager had knowledge and expertise in the area (i.e. expert power) were positively related to employees' self-reported knowledge sharing. Some researchers also used a similar perspective to propose that the social exchange relationship between individual employees and the organization can activate employees' sharing behaviors toward their colleagues. For example, perceived supervisor support and supervisors' encouragement of knowledge sharing increase employees' knowledge exchange with each other as well as their perceptions of the usefulness of knowledge sharing (Cabrera *et al.*, 2006; Kulkarni *et al.*, 2006).

A common assumption of the previously discussed three perspectives is that knowledge sharing is a kind of planned or dispositional behavior. Most of these perspectives aim to explain individuals' stable tendency to share knowledge in a certain organization. However, as previously discussed, knowledge-sharing behaviors are usually episodic and interpersonal. Knowledge recipients are important components of sharing. This study took a situational motivation perspective to examine the role of recipients' characteristics in affecting knowledge sharers' motivation.

2.2 Role of knowledge recipients

Little research has examined the influence of knowledge recipients on sharers' motivation, but its importance is evident. For example, among the few exploratory studies available in this area, Lichtenstein and Hunter (2008) employed Shannon and Weaver's (1949) communication model, which included a knowledge sharer, a recipient, transmission and obstructing "noise," to illustrate the components of a successful knowledge transfer. Lichtenstein and Hunter (2008) contended that sharers' perceptions lead them to form beliefs and attitudes about recipients' knowledge-based needs and behaviors, and the sharers are likely to behave in accordance with these beliefs (Fishbein and Ajzen, 1975). In other words, whether one chooses to share knowledge with someone is determined by the sharer's perception of the receiver's need for knowledge and knowledge-related behaviors (e.g. how he or she may use the knowledge). Lichtenstein and Hunter (2008) conducted two interpretive case studies in which they summarized four groups of recipient-related issues: need to know, desire to know, accessibility and anticipated use. These four categories contained 12 sub-issues that affect knowledge sharers' motivation including individual, role-related and situational characteristics. Lichtenstein and Hunter's (2008) findings provided important implications for further study on the role of recipients in knowledge sharing.

Knowledge-sharing behavior is a typical episodic behavior, so researchers need to consider different types of situations when analyzing this behavior. Knowledge sharing is also an interactive behavior, so the knowledge recipient is also an important situational factor. Most previous research on knowledge sharing mainly focused on situations in which individuals choose to share knowledge when they believe their recipients need that knowledge (Alavi *et al.*, 2005; Argote *et al.*, 2000; Foss, 2009; Zaidman and Brock, 2009). However, this type of situation does not cover all possibilities. Generally speaking, knowledge sharing is defined as the transfer of knowledge between individuals, groups, departments and organizations (Crossan *et al.*, 1999; Ipe, 2003). The transfer of knowledge

may occur during a variety of activities such as training, lecture, knowledge seeking, discussion, informal chat, proactive helping and so on. Unfortunately, few studies have explored the different situations in which knowledge sharing may occur. In this study, the authors proposed two dyadic knowledge-sharing situations and discussed the role of recipients in each of them.

2.3 Responsive and proactive knowledge sharing

Knowledge-sharing behaviors can happen under different situations. Bartol and Srivastava (2002) identified four major approaches for individuals to share their knowledge in organizations: "first, contribution of knowledge to organizational databases; second, sharing knowledge in formal interactions within or across teams or work units; third, sharing knowledge in informal interactions among individuals; and fourth, sharing knowledge within communities of practice, which are voluntary forums of employees around a topic of interest" (p. 65). The antecedents for each type of knowledge-sharing behaviors would be different. Among these four approaches, only the third one happens in dyadic situations. As the focus of this study was the influence of recipients' characteristics on sharers' behaviors, it only focused on this kind of knowledge sharing (informal interactions among individuals).

Most prior studies assumed that all informal dyadic knowledge-sharing behaviors are of the same nature. However, based on the authors' analysis of the literature and preliminary observations, they found that there are at least two types of dyadic knowledge sharing, which they labeled as responsive knowledge sharing and proactive knowledge sharing. These two categories are distinguished by the original impetus that stimulates the action of knowledge sharing.

2.3.1 Responsive knowledge sharing. The first type of knowledge-sharing behavior is responsive knowledge sharing, which refers to a person providing knowledge when asked for help. In this situation, knowledge-sharing behaviors are not planned in advance but are triggered by the recipients' action of asking. In this case, the knowledge sharer has to quickly decide whether or not and how to share with this specific person. Responsive knowledge sharing has some elements in common with citizenship behavior, so some researchers have discussed this type of knowledge sharing from the approaches used in citizenship behavior studies (Bock *et al.*, 2005). However, responsive knowledge sharing is episodic in nature, and so most knowledge sharers cannot plan their sharing in advance. This episode nature has received little previous attention.

2.3.2 Proactive knowledge sharing. The second type of knowledge sharing is proactive knowledge sharing, which refers to a person proactively sharing new ideas or new learned knowledge with another person to seek further comments or suggestions. In this process, the knowledge-sharing behavior is a proactive action that can be planned in advance by the sharer. The sharer can also choose the most appropriate knowledge recipients.

In proactive knowledge sharing, the sharer's main purpose of sharing knowledge or new ideas is to seek further comments, advice, suggestions or even partners for a project or goal through discussion. This behavior is somewhat similar to advice-seeking behavior in the literature. However, they differ in terms of two aspects. First, this study proposed "proactive knowledge sharing" to emphasize its function of sharing knowledge. This function is seldom discussed in the literature of advice-seeking behaviors, which emphasizes the consequence of advice-seeking behaviors on the advice-seeker. For

"Transactional memory system of a team, which is defined as members know what knowledge each team member has, is a critical base for both types of knowledge sharing."

example, strategic decision-making literature has proposed executives' advice-seeking behavior as an important determinant of TMTs' decisions about whether or not to modify current strategies (McDonald and Westphal, 2003). Second, not all advice-seeking behaviors but only those that include a knowledge or idea sharing component belong to proactive knowledge sharing. Almost all previous studies were based on the assumption that knowledge sharing occurs only when one knows that he or she possesses some knowledge needed by other colleagues or the organization. However, people also transfer knowledge when they proactively share knowledge or new ideas with others to get feedback. Although their original purpose may not be sharing knowledge, knowledge sharing occurs during this process because one has to share what he or she knows before seeking further comments and discussion.

2.4 Cue-triggered expectancy theory

To explain the mechanism through which recipients' characters may affect knowledge sharers' motivation, the authors extended expectancy theory and proposed a cue-triggered expectancy perspective to explain the links. Traditional expectancy theory holds that the force acting on an individual to work at a specific level of effort is a function of the algebraic sum of the products of:

- desirability of the outcomes (valences) of working at that level; and
- subjective probabilities (expectancies) that those outcomes will follow from working at that level (Behling and Starke, 1973; Vroom, 1964).

The implicit formula used to calculate the relationship between efforts and outcomes was assumed to be stable. Accordingly, the working behaviors predicted by expectancy theory should also be relatively stable. However, not all working behaviors can be planned in advance. What is proposed in both types of knowledge sharing is that the knowledge sharers' motivations vary with the sharing target.

2.5 Knowledge recipients' characteristics and responsive knowledge sharing

When people are asked for knowledge by their colleagues, their willingness to share knowledge, manifested by sharing versus not sharing, how much time and effort they would spend on sharing and whether they would share all the related knowledge they know would be different, especially if they are occupied by other urgent tasks. The authors proposed that in these responsive knowledge-sharing episodes, two characteristics of the knowledge seekers affect the knowledge sharer's willingness to share. The most important factor is the learning attitude of the knowledge seeker. Learning attitude refers to whether the knowledge seeker is perceived as modest, open-minded, humble or hubristic, arrogant and pretentious. A sincere and modest person is more likely to activate others' motivation to share knowledge than a hubris person. The second factor affecting sharing willingness is the personal relationship between the seeker and sharer. Specifically, whether they have a good personal relationship and whether the sharer trusts that the seeker may affect the sharer's willingness to share. This is consistent with Nahapiet and Ghoshal's (1998) proposition that the relational dimension of network affects knowledge transfer. Findings of empirical studies also support that relational factors such as cognitive trust and affective trust affect the willingness of professionals to share their tacit knowledge (Holste and Fields, 2010).

According to the perspectives in prior studies, individuals share knowledge out of two main reasons among others. The first is this process could bring them certain benefits in the future, in other words, social exchange. The second is this process could improve their perceived self-efficacy (Swift *et al.*, 2010).

If one shares knowledge for the reason of social exchange, the knowledge seekers' learning attitude and the personal relationship between sharer and recipient influences the sharer's willingness to share. First, if a knowledge recipient shows a high motivation to

learn, it means that he or she values the knowledge. It is a prerequisite that the knowledge recipient considers the knowledge as a valuable resource in the social exchange. Furthermore, a recipient with a high learning motivation is more likely to absorb well and internalize the knowledge, thereby making the knowledge-sharing process smooth and easy. Second, a good personal relationship also had a strong positive impact on knowledge sharers' sharing motivation. Because a high level of mutual obligation, expectation and trust exists in such relationships, there will be less risk and uncertainty in future social exchanges.

If one shares knowledge for the reason of increasing a sense of authority and self-efficacy, she or he may also care most about the knowledge seekers' learning attitude. They prefer knowledge seekers to approach them with a respectful and humble attitude and a willingness to listen and learn carefully in the sharing process, rather than with an attitude of hubris and arrogance. The knowledge sharer's authority and self-efficacy can be increased only when sharing with knowledge seekers who are humble and respectful. Therefore, based on these arguments, two hypotheses follow:

H1. A recipient's learning willingness positively affects a knowledge sharer's responsive sharing behaviors.

H2. The personal relationship between a recipient and a sharer positively affects the sharer's responsive sharing behaviors.

2.6 Knowledge recipients' characteristics and proactive knowledge sharing

Compared to responsive knowledge sharing, sharers value different recipient characteristics in proactive knowledge sharing. The authors proposed two factors of recipients that may affect proactive knowledge-sharing behaviors. The most important factor is the knowledge base and professional competence of the sharing partner. A knowledgeable recipient is necessary for the sharers to achieve their purpose through sharing knowledge. The second factor is the personal relationship between the knowledge sharer and the recipient. These sharers look for recipients who are able to provide valuable comments and who can be trusted. A potential recipient's professional competence and personal relationship with the sharer are critical factors for several reasons. First, those who are considered professionally competent would be more likely to provide valuable comments. Second, the ideas to be discussed are usually perceived by the sharer as either cutting-edge and potentially valuable or still too rough to share indiscriminately. Therefore, sharers tend to select those who they perceive as highly trustworthy because such colleagues are least likely to abuse the new knowledge. Thus, the recipient's personal relationship with the sharer is also important. Comparatively, whether the recipient has a strong motivation to learn is less important. Thus, two more hypotheses are:

H3. A recipient's professional competence positively affects a knowledge sharer's proactive knowledge-sharing behavior.

H4. The personal relationship between a recipient and a sharer positively affects the knowledge sharer's proactive knowledge-sharing behavior.

In summary, the authors extended the traditional expectancy theory to a cue-triggered expectancy theory by taking other individuals into consideration. The three main components of cue-triggered expectancy theory are efforts, cues and outcome. The key argument is that the desirability of the outcomes and the perceived links between effort and the outcomes affect individuals' motivations. However, for working behaviors that are related to specific persons, the characteristics of those persons may affect the expected link between effort and outcomes, in turn, affecting one's motivation to make such effort. Individuals form and store in memory their own theories about these links during their experience. When encountering similar situations (similar purpose and similar others), individuals will recall their theories and behave accordingly (Allan *et al.*, 2001). Knowledge sharing is a typical example. The characteristics of knowledge recipients affect knowledge

sharers' motivations because these characteristics affect the expected link between sharing efforts and outcomes. As the recipients' characteristics are important cues in the recall process, especially when individuals need to make decisions quickly, the authors called these behaviors "cue-triggered behaviors".

To test these theoretical hypotheses, the authors conducted two studies. In Study 1, they designed a scenario experiment, so that sharing motivation could be observed when the recipients' characteristics were manipulated. In Study 2, to cross-validate the results of the experimental study and increase the ability to generalize the findings, the authors conducted a survey in an R&D working team. The following sections report the detailed processes and findings of these two studies.

3. Study 1

3.1 Research design

The first study was a scenario experiment. The authors created a knowledge-sharing scenario to test the hypotheses in a controlled context. The participants were given a description of two employees (A and B) who both work at an information technology company as well as two situations of their interaction. Participants were then asked to imagine what they would do in each situation if they were Employee A. To eliminate the confounding effect of the formal position in the organization (i.e. knowledge sharing as a formal role responsibility), the description emphasized that A and B were in two different departments. Respondents were then exposed to one of the eight scenarios that manipulated B's characteristics. The primary experimental information consisted of three key characteristics of B, including learning willingness, professional competence and personal relationship with A. The manipulation of the characteristics of B was analogous to a conjoint design, similar to Smith *et al.*' (1999) approach. These three characteristics were incorporated into the scenarios. Each attribute was varied at two levels (for the complete wording, see Table I), resulting in eight different scenarios. For each of the eight scenarios, two different situations (i.e. responsive and proactive knowledge sharing) were described and asked the participants to rate the extent to which they would be likely to share knowledge with B in each situation.

To check whether the manipulation was effective, participants were asked to evaluate B in the above three attributes using a Likert scale as soon as they finished reading the material. The scale includes six items ranging from "strongly disagree" to "strongly agree".

3.2 Sample design and experimental procedure

The sample used to test the hypotheses and explore the research questions consisted of 258 MBA students from a large university in China. These students were from eight different

Table I Manipulation of the recipient's attributes

Attributes	*Description*
Factor 1: Professional competence	High: Xu Wei is an excellent engineer working in the technology department of the firm. He got his master's degree in computer science at a Top 10 university in China. Xu Wei has worked for more than ten years and accumulated rich experience. Low: Xu Wei is a newcomer to the technology department of the firm. As his current work is quite different from what he did before, he still has some difficulty accomplishing the tasks.
Factor 2: Learning attitude	High: Xu Wei is open-minded and curious about new knowledge. He also works hard to learn new things. Low: Xu Wei thinks that what he has learned before is enough to deal with the current work, so he does not have a strong motivation to learn new things.
Factor 3: Personal relationship	High: You and Xu Wei are good friends. You always have much to chat about. Sometimes you have outdoor family gatherings together. Low: You do not know much about Xu Wei. You do not have much overlap at work and seldom have personal interactions with him.

MBA classes, and they were in their first or second year of MBA study. As a necessary requirement for entering the MBA program, all participants had more than two years of work experience. Each class was an experimental group presented with one scenario. The available demographic data indicated that there were no significant differences among classes in terms of the students' demographic backgrounds. To check whether the participants were familiar with the situation described in the scenario, they were asked "Have you experienced the above situation at your workplace?" Three options were provided: "have never encountered the described situation", "have experienced the situation" and "very familiar with the situation". Two respondents who indicated that they had never encountered the situation were filtered out. Therefore, the final valid sample was 256. The sample consisted of 95 females and 157 males, with 4 participants not reporting their gender. Their average age was 31.5 (SD = 4.5), and average tenure was 8.9 (SD = 4.9).

3.3 Measurement of variables

3.3.1 Knowledge-sharing intention. The participants were asked to rate their willingness to share knowledge with the given Colleague B in two situations. The responsive situation question was: "Colleague B comes to ask you about a problem he has encountered at work. How likely is it that you will respond to this colleague?" The options were given on a six-point scale ranging from "I will certainly do so" to "I will certainly not do so". The proactive situation question was: "Based on your recent observation of the market, you find some new opportunities in a potential market; however, this idea is still too rough to propose at the formal monthly meeting. Would you go to share and discuss your findings with colleague B?" Options were given on the same six-point scale.

3.4 Results

3.4.1 Manipulation checks. Participants were first checked whether they had interpreted the scenarios as intended by running three ANOVAs on the measures of the three perceived attributes of the colleague described in the scenario. These ANOVAs were conducted to confirm that each experimental factor had a stronger effect on the corresponding manipulation check measure than on the non-corresponding manipulation check measure. As expected, all ANOVAs revealed significant main effects, which indicated that the manipulations in the scenarios were effective.

3.4.2 Hypothesis testing. The sample size, means and standard deviation are given in Table II. MANOVA was used to test *H1*, *H2*, *H3* and *H4*. In the MANOVA, responsive knowledge sharing and proactive knowledge sharing served as dependent variables. The MANOVA results are presented in Table III.

For responsive knowledge sharing, the results showed that learning attitude (AT) and personal relationship (PR) do not have main effects on responsive knowledge sharing (i.e. *H1* and *H2* are not supported). For proactive knowledge sharing, the results showed that

Table II Cell means and standard deviations for knowledge sharing

Scenario	*Professional competence*	*Attributes Learning attitude*	*Personal relationship*	*No. of participants in group*	*Responsive knowledge sharing*	*Proactive knowledge sharing*
1	High	High	High	31	5.45 (0.62)	4.03 (1.20)
2	Low	High	High	30	5.17 (0.83)	4.50 (1.13)
3	Low	Low	High	31	5.29 (1.17)	3.77 (1.56)
4	High	High	Low	34	4.88 (1.04)	3.56 (1.31)
5	High	Low	Low	35	5.23 (0.94)	3.26 (1.58)
6	Low	High	Low	30	5.13 (0.86)	4.78 (1.39)
7	High	Low	High	32	4.78 (1.39)	3.63 (1.50)
8	Low	Low	Low	33	5.24 (1.06)	3.30 (1.38)
Total	–	–	–	256	5.15 (1.02)	3.78 (1.40)

Table III Results of general linear model analysis for responsive knowledge sharing and proactive knowledge sharing

	Responsive knowledge sharing[a,c]					Proactive knowledge sharing[b]				
Variables	*df*	*Mean square*	*F*	*Significance*	*Partial* η^2	*df*	*Mean square*	*F*	*Significance*	*Partial* η^2
PC	1	0.02	0.02	0.91	0.00	1	**24.90****	13.71	0.00	0.05**
AT	1	0.01	0.01	0.97	0.00	1	0.08	00.05	0.83	0.00
PR	1	0.22	0.22	0.64	0.00	1	**8.34***	04.59	0.03	0.02*
Error	248	1.03				248	1.82			
Total	256					256				

Notes: $R^2 = 0.042$ (adjusted $R^2 = 0.016$); $R^2 = 0.095$ (adjusted $R^2 = 0.070$); *$p < 0.05$; **$p < 0.01$; Partial η^2 is an effect size indicator for analysis of fix effect

both professional competence (PC) ($F = 13.71$, $p < 0.01$, partial $\eta^2 = 0.05$) and personal relationship (PR) ($F = 4.59$, $p < 0.05$, partial $\eta^2 = 0.02$) have positive effects on proactive knowledge sharing. Thus, *H3* and *H4* are supported.

3.5 Discussion of Study 1

In Study 1, *H1* and *H2* were not supported, while *H3* and *H4* were supported. These results implied that in the responsive knowledge-sharing situation, none of the recipients' characteristics affect knowledge sharers' willingness to share. In the proactive knowledge-sharing situation, knowledge sharers will consider the professional competence of the knowledge recipient and their personal relationship with this recipient when deciding whether to share. In the discussion, the authors formulated three possible reasons for the unsupported hypotheses in terms of responsive knowledge sharing. First, the recipient's characteristics may indeed have no impact on the sharer's motivation. In this case, the theoretical propositions may need to be adjusted. Second, the respondents may have been influenced in their responses by their conscious or unconscious social desirability (i.e. desire for social acceptance), as providing help to others in need is widely considered a good behavior (Phillips and Clancy, 1972). Therefore, the actual between-person differences of sharing willingness have been hidden. If this is the case, the authors could reexamine the relationship with different methods to avoid the possible problem of respondents giving what they perceive as socially desirable answers rather than true answers. Third, the scenario study has the advantage of being able to manipulate the hypothesized variables. However, it also suffers from the same defect of external validity as all such scenarios. Respondents may have difficulty in associating the hypothetical Colleague B with their real colleagues.

To address the possible limitations of Study 1 and to generalize the findings to a working setting, the authors examined the hypotheses in a real organization using a survey study.

4. Study 2

4.1 Participants and research design

The second study was designed to compensate for the potential external validity problem of the scenario study. Participants of the survey were 20 members of an R&D group in a famous mobile phone software company. Although this R&D group had been founded only three months prior to the survey, all of these participants had worked as colleagues in this company for more than one year and thus knew each other well. The main task of this group was to develop new software and integrate it with the new sim chips for mobile phones. These 20 members worked in four different small teams, each of which was responsible for a relatively independent task. One of their regular tasks was keeping up with changes in technology and the market to remain innovative. Thus, this group was a very suitable setting for the research questions of this study. The authors selected the whole R&D group in an organization as a sample to exclude the interference effect of organizational or group climate on individuals' knowledge sharing. In other words, given the same organizational

environment, the between-individuals differences are pure individual variance, which was the aim to explain in the current study.

All members of the R&D group agreed to participate in the study. To avoid interrupting their regular work and to ensure the survey quality, one of the authors went to the company twice and stayed there for two days each time. The participants were invited to take the survey one at a time. All 20 members returned valid questionnaires.

The survey comprised three parts. The first part was each member's evaluation of other 19 colleagues in three aspects: professional competence, learning attitude and personal relationship. This part was completed in the first visit to the company. After one month, the authors collected data on the second part, which included each member's willingness to engage in responsive and proactive knowledge sharing with each of the other 19 colleagues. The third part includes some basic information collected from the leader of the R&D group.

4.2 Measures

4.2.1 Professional competence, learning attitude and personal relationship. To force the participants to identify differences among their colleagues, each participant was asked to rank each of their colleagues' professional competence, learning attitude and personal relationship to the participant using a number from 1 to 19, with 1 representing the highest level. The authors provided the specific meaning of each of the three characteristics, and they also emphasized that personal relationship referred to their "extra-work" relationship rather than their working relationship. The questionnaires were personalized for each respondent with the other 19 colleagues' names listed, so the respondents simply had to rank the names with numbers.

4.2.2 Responsive knowledge-sharing behaviors and proactive knowledge-sharing behaviors. The authors measured members' willingness to engage in responsive and proactive knowledge sharing with each of their colleagues during the second visit to the company. Responsive knowledge sharing was measured with the question: "If this colleague comes to ask you about a problem he or she encounters at work, how likely is it that you would share your knowledge with him or her?" Proactive knowledge sharing was measured with the question: "If you have some rough ideas or new findings, how likely is it that you would share and discuss them with this colleague?" As before, the respondents were required to answer these questions by ranking their colleagues with a number from 1 to 19.

4.2.3 Control variables. Prior literature showed that responsibility and working connections are important factors in affecting one's decision to share in dyadic interaction. For example, a department head believes that he or she is responsible for answering any work-related question raised by his or her own subordinates. Therefore, the leader of the R&D group was asked to provide a structure chart that showed the working relationships among these 20 individuals from different small teams. The authors coded two variables to represent the working relationship between each pair of members as follows:

1. If B is A's supervisor, it was coded as 1; otherwise, it was coded as 0.
2. According to how much interaction was needed in work between each pair of members, the working relationship was coded between B and A and between 1 and 5, where 1 referred to no need to interact and 5 referred to very close working connections.

4.3 Analysis

After matching the individuals' data with each other, the authors generated 380 dyads of data. For example, the authors matched A's rating of B's characteristics at Time 1 with A's willingness to share with B at Time 2. As each individual was asked to rank other colleagues' characteristics, as well as their sharing willingness with each colleague, each

rating was nested within an individual's 19 ratings. Thus, the authors used hierarchical linear modeling, Vision 6 (Raudenbush *et al.*, 2004), to account for non-independence of the observations and examine whether there was a stable pattern in the relationship between the recipient's perceived characteristics and sharing willingness among different individuals. Following the analytical procedures outlined by Bliese (2000) and Zhang *et al.* (2009), the authors analyzed knowledge recipients' professional competence, learning attitude, personal relationships and sharing motivation using hierarchical linear modeling.

4.4 Results

The results reported in Table IV show that learning attitude (AT) and personal relationship (PR) have positive effects on responsive knowledge sharing (i.e. *H1* and *H2* are supported). Effect sizes are $\beta = 0.20$ ($p < 0.01$) for AT and $\beta = 0.52$ ($p < 0.01$) for PR. Results showed that PC ($\beta = 0.20$, $p < 0.01$), AT ($\beta = 0.14$, $p < 0.01$) and PR ($\beta = 0.52$, $p < 0.01$) all have a positive effect on proactive knowledge sharing. Thus, *H3* and *H4* are supported.

5. Discussion

The ways to motivate employees to share knowledge have attracted the interest of both researchers and practitioners. Most prior studies focused on the effects of individual sharers' factors and organizational factors. However, the role of recipients' characteristics was not paid enough attention. The current study aimed to develop and examine a theoretical framework of how knowledge recipients' characteristics affect knowledge sharers' willingness to share. The authors proposed two different types of knowledge sharing in dyadic situations, which are labeled responsive and proactive knowledge sharing. They also developed a cue-triggered expectation perspective to explain why recipients' characteristics affect sharers' motivations in each situation. Then, they empirically examined the hypotheses through a scenario experimental study and a field survey study.

The two empirical studies showed consistent results for the proactive knowledge-sharing situation but inconsistent results for the responsive knowledge-sharing situation. In terms of proactive knowledge sharing, both studies consistently supported the argument that the recipients' professional competence and personal relationship with the sharer play important roles in motivating the knowledge sharer. This means that if one shares knowledge with the purpose of seeking comments or further developing new ideas, he or she tends to select a good friend who has rich experience and good professional competence to discuss the new ideas.

In the responsive knowledge-sharing situation, the findings show some inconsistency. The results of the scenario experiment showed that recipients' characteristics did *not* have a significant impact on the sharers' willingness. Furthermore, the mean of responsive sharing

Table IV Effects of recipient characteristics on knowledge sharing willingness

	Model 3 *A's responsive knowledge sharing with B (rated by A at Time 2)*	*Model 4* *A's proactive knowledge sharing with B (rated by A at Time 2)*
Control variables		
Whether A is B's supervisor	0.38*	0.14*
Working relationship between A and B	0.52**	0.50*
Independent variable		
B's PC	0.03	0.20**
B's AT	0.20**	0.14**
B's PR with A	0.52**	0.52**

Notes: $N = 380$ dyads; $^{**}p < 0.01$; $^{*}p < 0.05$

willingness was higher than proactive sharing willingness. This suggests that most people would be willing to provide an answer when asked by other colleagues. The action of asking is strong enough to motivate most individuals to share their knowledge. Compared with Study 1, the results of Study 2 better supported the hypotheses, which showed that recipients' learning attitude and personal relationship affect sharers' sharing motivation in responsive knowledge sharing.

There might be several reasons for the inconsistent results between the experiment study and the survey study. The first possible explanation is the potential limitation of the scenario experiment. In the experiment study, the authors manipulated the knowledge recipient's characteristics, whereas in the survey, respondents were asked to rank their colleagues' characteristics. Although the result of the manipulation check in the experiment was good, this scenario may suffer from some other problems. Respondents may not be able to match well the hypothetical colleague with their real colleagues. Also, the different respondents had different referent groups (i.e. their own real colleagues) when reading the specific information provided in the scenario. For example, if a respondent had many competent colleagues, the competent hypothetical colleague may not seem to be very salient in competence. The second possible explanation is that self-reported ratings of knowledge-sharing willingness were used as outcome variables in the experiment study, but forced rankings of knowledge-sharing willingness with each colleague were used as outcome variables in the survey. Therefore, the measure of self-reported willingness may have the problem of social desirability, which is avoided by forced ranking. For these reasons, regarding the inconsistent results, the results of survey study are assumed to be more reliable.

6. Summary

6.1 Brief summary of the paper's findings

The findings of this study supported the hypotheses that knowledge recipients' characteristics in terms of learning attitude, competence and interpersonal relationship with knowledge sharers influence the knowledge sharers' motivation for sharing. This study makes several contributions to both the knowledge-sharing literature and the general motivation literature. First, this study clarifies the relations between knowledge-sharing behaviors and other related working behaviors. It provides a ground for future research on knowledge sharing, so that researchers may avoid redundant work and make unique incremental contributions.

Second, this study proposes that episodic factors are important in understanding working behaviors. Specifically, this study found that knowledge recipients play critical roles in affecting sharers' motivation. Recipient perspective may be one of the special natures of knowledge-sharing behaviors that distinguish it from other behaviors, which is worthy of further investigation.

Third, this study also contributes to the general motivation literature by arguing that not all the working behaviors can be well-planned, as some behaviors are triggered by the cues in a certain situation. The authors developed a cue-triggered theory to explain this type of motivation. Individuals develop their own theories about the link between the characteristics of the situation and the outcome of their behaviors based on their experience. Whenever these characteristics appear in a new situation, these characteristics can serve as cues to trigger the individuals' motivation to behave in a certain way. This might be a very quick mental process but can also become a spontaneous response when an individual repeats a similar experience several times.

5.2 Limitations of the research and findings

Despite some notable strength, this study also has potential limitations. First, the scenario experimental used an imagined situation to manipulate the recipients' characteristics and

used a self-report scale to measure the respondents' sharing willingness, which may unavoidably cause social desirability and the issue of external validity. If possible, future research may conduct more field studies in the real organizational settings to examine the relationship between recipients' characteristics and knowledge sharers' motivation. Second, it is still a question whether the three characteristics of knowledge recipients cover the main recipients' factors that influence knowledge sharers' motivation. It is best that future research should take a qualitative approach to explore other possible factors. Third, this study only focuses on the simple main effect of knowledge recipients' characteristics.

Finally, the findings of this study may be affected by some contextual factor such as culture (Hendriks, 2004). For example, Guanxi (personal connections) and Mianzi (face) are two of the most prominent cultural characteristics in China that have strong implications for interpersonal and inter-organizational dynamics, which has been found to influence knowledge transfer at organization level (Buckley *et al.*, 2006). Therefore, relationships may play more important role in affecting knowledge-sharing willingness in China than in other culture context. Furthermore, as directly rejecting a request is often considered a face-losing act (Cardon and Scott, 2003), people may be more likely to share knowledge no matter who comes to ask. Thus, the relationship between recipient characteristics and sharer's knowledge sharing we found in China may be weaker than in other culture context. Future study may investigate the possible difference under various cultures.

5.3 Implications for practitioners and researchers

This study also provides meaningful implications for management practices. First, to encourage responsive knowledge sharing, managers should encourage employees to seek information and knowledge from other colleagues, and organizations could provide support for their interaction. For example, managers could set a common meeting place to increase the opportunities for colleagues to meet each other.

Second, to encourage proactive knowledge sharing, managers need to consider the composition of team members by asking whether each employee in the team is able to find colleagues to talk to about their new ideas if needed. Based on the findings, it might be helpful if some employees who have similar but different competences and have a good personal relationship to sit close together at the workplace.

Third, team managers may encourage each member to develop their own special skill or knowledge, so that every team member could be an expert of a certain aspect.

Fourth, transactional memory system of a team, which is defined as members know what knowledge each team member has, is a critical base for both types of knowledge sharing. Therefore, team managers may take some practice such as group learning or seminars to help team members know more about their colleagues. Then when needed, they will know whom they should turn to.

Finally, as interpersonal relationships are important for both responsive and proactive knowledge sharing, managers could make some efforts to develop a climate of trust among employees. If needed, some organizations could also use practice like recognition of internal copyrights or patents to protect employees' new ideas or knowledge.

5.4 Possible areas for future research

The discussion on knowledge-sharing phenomena from a recipient's perspective has not been robust until now, so there are many possible new explorations in this direction. First, future study may develop a more comprehensive understanding of the recipients' characteristics that are meaningful in knowledge sharing as well as how organizations could encourage these characteristics through some practice. This would provide meaningful practical implications.

Second, as prior studies have discussed the influence of knowledge sharers' dispositional factors and attitude as well as organizational factors, future research could consider their

interactions with the recipient factors in a whole model, so that there might be more understanding about the boundary conditions for the influence of recipient factors.

Third, this study explored the recipients' role in a static situation. However, in real organizations, the sharer–recipient relationship may develop through a certain process. Future studies could take a dynamic approach to investigate into the process through which the knowledge sharing patterns develop as well as whether organizations could make some positive intervention into this process.

References

Ajzen, I. (1985), "From intentions to actions: a theory of planned behavior", in Kuhl, J. and Bechmann, J. (Eds), *Action-Control: From Cognition to Behavior*, Springer, Heidelberg, pp. 11-40.

Ajzen, I. (2002), "Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior", *Journal of Applied Social Psychology*, Vol. 32 No. 4, pp. 665-683.

Ajzen, I. and Fishbein, M. (1975), *Understanding Attitudes and Predicting Social Behaviour*, Prentice-Hall, Englewood Cliffs, NJ.

Alavi, M., Kayworth, T.R. and Leidner, D. (2005), "An empirical examination of the influence of organizational culture on knowledge management practices", *Journal of Management Information Systems*, Vol. 22 No. 3, pp. 191-224.

Allan, K., Wolf, H.A., Rosenthal, C.R. and Rugg, M.D. (2001), "The effect of retrieval cues on post-retrieval monitoring in episodic memory: an electrophysiological study", *Brain Research. Cognitive Brain Research*, Vol. 12 No. 2, pp. 289-299.

Argote, L., Ingram, P., Levine, J.M. and Moreland, R.L. (2000), "Knowledge transfer in organizations: learning from the expertise of others", *Organizational Behaviour and Human Decision Processes*, Vol. 82 No. 1, pp. 1-8.

Bakker, M., Leenders, R.T.A.J., Gabbay, S.M., Kratzer, J. and Van Engelen, J.M.L. (2006), "Is trust really social capital? Knowledge sharing in product development projects", *The Learning Organization*, Vol. 13 No. 6, pp. 594-605.

Bartol, K.M. and Srivastava, A. (2002), "Encouraging knowledge sharing: the role of organizational reward systems", *Journal of Leadership and Organizational Studies*, Vol. 9 No. 1, pp. 64-76.

Behling, O. and Starke, F.A. (1973), "The postulates of expectancy theory", *The Academy of Management Journal*, Vol. 16 No. 3, pp. 373-388.

Bliese, P.D. (2000), "Within-group agreement, non-independence, and reliability: implications for data aggregation and analysis", in Klein, K.J. and Kozlowski, S.W.J. (Eds), *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Jossey-Bass, San Francisco, CA, pp. 349-381.

Bock, G.W. and Kim, Y.G. (2002), "Breaking the myths of rewards: an exploratory study of attitudes about knowledge sharing", *Information Resources Management Journal*, Vol. 15 No. 2, pp. 14-21.

Bock, G.W., Zmud, R.W., Kim, Y.-G. and Lee, J.-N. (2005), "Behavioral intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate", *MIS Quarterly*, Vol. 29 No. 1, pp. 87-111.

Buckley, P.J., Clegg, J. and Tan, H. (2006), "Cultural awareness in knowledge transfer to China – the role of *guanxi* and *mianzi*", *Journal of World Business*, Vol. 41 No. 3, pp. 275-288.

Cabrera, A. and Cabrera, E.F. (2002), "Knowledge sharing dilemmas", *Organization Studies*, Vol. 23 No. 5, pp. 687-710.

Cabrera, A., Collins, W.C. and Salgado, J.F. (2006), "Determinants of individual engagement in knowledge sharing", *International Journal of Human Resource Management*, Vol. 17 No. 2, pp. 245-264.

Cabrera, E.F. and Cabrera, A. (2005), "Fostering knowledge sharing through people management practices", *International Journal of Human Resource Management*, Vol. 16 No. 5, pp. 720-735.

Cardon, P.W. and Scott, J.C. (2003), "Chinese business face: communication behaviors and teaching approaches", *Business Communication Quarterly*, Vol. 66 No. 4, pp. 9-22.

Chowdhury, S. (2005), "The role of affect- and cognition-based trust in complex knowledge sharing", *Journal of Managerial Issues*, Vol. 17 No. 3, pp. 310-326.

Connelly, C.E. and Kelloway, E.K. (2003), "Predictors of employees' perceptions of knowledge sharing cultures", *Leadership & Organization Development Journal*, Vol. 24 Nos 5/6, pp. 294-301.

Constant, D., Kiesler, S. and Sproull, L. (1994), "What's mine is ours, or is it? A study of attitudes about information sharing", *Information Systems Research*, Vol. 5 No. 4, pp. 400-421.

Crossan, M., Lane, H.W. and White, R.E. (1999), "An organizational learning framework: from intuition to institution", *Academy of Management Review*, Vol. 24 No. 3, pp. 522-537.

Damodaran, L. and Olphert, W. (2000), "Barriers and facilitators to the use of knowledge management systems", *Behaviour and Information Technology*, Vol. 19 No. 6, pp. 405-413.

Davenport, T.H. and Prusak, L. (1998), *Working Knowledge: How Organizations Manage What they Know*, Harvard Business School Press, Boston, MA.

De Long, D.W. and Fahey, L. (2000), "Diagnosing cultural barriers to knowledge management", *Academy of Management Executive*, Vol. 14 No. 4, pp. 113-127.

Fishbein, M. and Ajzen, I. (1975), *Beliefs, Attitudes, Intentions and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Boston, MA.

Foss, N. (2009), "Alternative research strategies in the knowledge movement: from Macro bias to micro-foundations and multi-level explanations", *European Management Review*, Vol. 6 No. 1, pp. 16-28.

Frey, B.S. (1993), "Motivation as a limit to pricing", *Journal of Economic Psychology*, Vol. 14 No. 4, pp. 635-664.

Gagné, M. (2009), "A model of knowledge-sharing motivation", *Human Resource Management*, Vol. 48 No. 4, pp. 571-589.

Goodman, P.S. and Darr, E.D. (1998), "Computer-aided systems and communities: mechanisms for organizational learning in distributed environments", *MIS Quarterly*, Vol. 22 No. 4, pp. 417-440.

Hansen, M.T., Mors, M.L. and Lovas, B. (2005), "Knowledge sharing in organizations: a relational perspective", *Academy of Management Journal*, Vol. 48 No. 5, pp. 776-795.

Hansen, M.T., Nohria, N. and Tierney, T. (1999), "What's your strategy for managing knowledge?", *Harvard Business Review*, Vol. 77 No. 2, pp. 106-116.

Hendriks, P.H.J. (2004), "Assessing the role of culture in knowledge sharing", in *Proceedings of Fifth European Conference in Organization, Knowledge, Learning and Capabilities (OKLC 2004)*, *Innsbruk*.

Holste, J.S. and Fields, D. (2010), "Trust and tacit knowledge sharing and use", *Journal of Knowledge Management*, Vol. 14 No. 1, pp. 128-140.

Ilies, R., Scott, B.A. and Judge, T.A. (2006), "A multilevel analysis of the effects of positive personal traits, positive experienced states and their interactions on intra-individual patterns of citizenship behavior at work", *Academy of Management Journal*, Vol. 49, pp. 561-575.

Ipe, M. (2003), "Knowledge sharing in organizations: a conceptual framework", *Human Resource Development Review*, Vol. 2 No. 4, pp. 337-359.

Jackson, S.E., Chuang, C.-H., Harden, E.E., Jiang, Y. and Joseph, J.M. (2006), "Toward developing human resource management systems for knowledge-intensive teamwork", in Joseph, J.M. (Ed.), *Research in Personnel and Human Resources Management*, Vol. 25, JAI, Amsterdam, pp. 27-70.

Jarvenpaa, S.L. and Staples, D.S. (2000), "The use of collaborative electronic media for information sharing: an exploratory study of determinants", *The Journal of Strategic Information Systems*, Vol. 9 Nos 2/3, pp. 129-154.

Judge, T.A. and Bono, J.E. (2001), "Relationship of core self-evaluations traits – self-esteem, generalized self-efficacy, locus of control, and emotional stability – with job satisfaction and job performance: a meta-analysis", *Journal of Applied Psychology*, Vol. 86 No. 1, pp. 80-92.

Kulkarni, U.R., Ravindran, S. and Freeze, R. (2006), "A knowledge management success model: theoretical development and empirical validation", *Journal of Management Information Systems*, Vol. 23 No. 3, pp. 309-347.

Lam, A. and Ford, J.P.L. (2010), "Knowledge sharing in organizational contexts: a motivation-based perspective", *Journal of Knowledge Management*, Vol. 14 No. 1, pp. 51-66.

Landy, F. and Becker, W.S. (1987), "Motivation theory reconsidered", *Research in Organizational Behavior*, Vol. 9, pp. 1-38.

Levin, D.Z. and Cross, R. (2004), "The strength of weak ties you can trust: the mediating role of trust in effective knowledge transfer", *Management Science*, Vol. 50 No. 11, pp. 1477-1490.

Liao, L.F. (2008), "Knowledge-sharing in R&D departments: a social power and social exchange theory perspective", *The International Journal of Human Resource Management*, Vol. 19 No. 10, pp. 1881-1895.

Lichtenstein, S. and Hunter, A. (2008), "Toward a recipient-based theory of knowledge sharing", in Jennex, M. (Ed.), *Current Issues in Knowledge Management*, Hershey, New York, NY.

Liebowitz, J. (2003), "A knowledge management strategy for the Jason organization: a case study", *Journal of Computer Information Systems*, Vol. 44 No. 2, pp. 1-5.

Lin, H.F. and Lee, G.G. (2004), "Perceptions of senior managers toward knowledge-sharing behaviour", *Management Decision*, Vol. 42 Nos 1/2, pp. 108-125.

McDonald, M.L. and Westphal, J.D. (2003), "Getting by with the advice of their friends: CEOs' advice networks and firms' strategic responses to poor performance", *Administrative Science Quarterly*, Vol. 48 No. 1, pp. 1-32.

McKinnon, J.L., Harrison, G.L., Chow, C.W. and Wu, A. (2003), "Organizational culture: association with commitment, job satisfaction, propensity to remain, and information sharing in Taiwan", *International Journal of Business Studies*, Vol. 11 No. 1, pp. 25-44.

Maurer, T.J. and Tarulli, B.A. (1994), "Investigation of perceived environment, perceived outcome, and person variables in relationship to voluntary development activity by employees", *Journal of Applied Psychology*, Vol. 79 No. 1, pp. 3-14.

Mooradian, T., Renzl, B. and Matzler, K. (2006), "Who trusts? Personality, trust and knowledge sharing", *Management Learning*, Vol. 37 No. 4, pp. 523-540.

Nahapiet, J. and Ghoshal, S. (1998), "Social capital, intellectual capital, and the organizational advantage", *Academy of Management Review*, Vol. 23 No. 2, pp. 242-266.

Nelson, A., Sabatier, R. and Nelson, W. (2006), "Toward an understanding of global entrepreneurial knowledge management (EKM) practices: a preliminary investigation of EKM in France and the US", *Journal of Applied Management and Entrepreneurship*, Vol. 11 No. 2, pp. 70-89.

Park, H., Ribiere, V. and Schulte, W.D. (2004), "Critical attributes of organizational culture that promote knowledge management technology implementation success", *Journal of Knowledge Management* Vol. 8 No. 3, pp. 106-118.

Phillips, D.L. and Clancy, K.J. (1972), "Some effects of 'social desirability' in survey studies", *American Journal of Sociology*, Vol. 77 No. 5, pp. 921-940.

Pinder, C.C. (1984), *Work Motivation: Theory, Issues, and Applications*, Scott, Glenville, IL.

Raudenbush, S.W., Bryk, A.S. and Congdon, R. (2004), *HLM6: Hierarchical Linear and Nonlinear Modeling*, Scientific Software International, Chicago, IL.

Ryu, S., Ho, S.H. and Han, I. (2003), "Knowledge sharing behavior of physicians in hospitals", *Expert Systems with Applications*, Vol. 25 No. 1, pp. 113-122.

Sawng, Y.W., Kim, S.H. and Han, H.-S. (2006), "R&D group characteristics and knowledge management activities: a comparison between ventures and large firms", *International Journal of Technology Management*, Vol. 35 Nos 1/2/3/4, pp. 241-261.

Shannon, C.E. and Weaver, W. (1949), *The Mathematical Theory of Communication*, University of Illinois, Chicago, IL.

Smith, A.K., Bolton, R. and Wagner, J. (1999), "A model of customer satisfaction with service encounters involving failure and recovery", *Journal of Marketing Research*, Vol. 36 No. 3, pp. 356-372.

Swift, M., Balkin, D.B. and Matusik, S.F. (2010), "Goal orientations and the motivation to share knowledge", *Journal of Knowledge Management*, Vol. 14 No. 3, pp. 378-393.

Vroom, V.H. (1964), *Work and Motivation*, Jossey-Bass, San Francisco, CA.

Wu, W.L., Hsu, B.F. and Yeh, R.S. (2007), "Fostering the determinants of knowledge transfer: a team-level analysis", *Journal of Information Science*, Vol. 33 No. 3, pp. 326-339.

Zaidman, N. and Brock, D.M. (2009), "Knowledge transfer within multinationals and their foreign subsidiaries", *Group & Organization Management*, Vol. 34 No. 3, pp. 297-329.

Zhang, Z., Zyphur, M.J. and Preacher, K.J. (2009), "Testing multilevel mediation using hierarchical linear models: problems and solutions", *Organizational Research Methods*, Vol. 12 No. 4, pp. 695-719.

Further reading

Glaser, B.G. and Strauss, A. (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine, Chicago, IL.

About the author

Jane Yan Jiang can be contacted at: jiangyan@nju.edu.cn

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4. Ceicalia Tesavrita, Kadarsah SuryadiOrganization learning through effective knowledge sharing in SME's: A conceptual model 203-207. [CrossRef]
5. Brendan Boyle, Stephen Nicholas, Rebecca Mitchell. 2016. The Value of International Assignees' Knowledge of Interpersonal Networks: Knowledge of People, Networks and Politics and Knowledge Flows in Multinational Enterprises. *Management International Review* **56**:3, 425-454. [CrossRef]
6. Muhammad Sabbir Rahman International Islamic University Malaysia, Gombak, Malaysia Aahad M Osmangani International Islamic University Malaysia, Gombak, Malaysia Nuraihan Mat Daud International Islamic University Malaysia, Gombak, Malaysia Fadi Abdel Muniem AbdelFattah Multimedia University, Cyberjaya, Malasia . 2016. Knowledge sharing behaviors among non academic staff of higher learning institutions. *Library Review* **65**:1/2, 65-83. [Abstract] [Full Text] [PDF]
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