경영학 석사학위논문

# Moderating Mechanisms of Subordinates' Expertise on the Relationship between Supervisor Knowledge Sharing and Subordinates' Task Performance

# 상사의 지식공유와 부하과업성과의 관계에 대한 부하전문성의 조절 메커니즘에 관한 연구

2013년 2월

서울대학교 대학원

경영학과 경영학 전공

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## ABSTRACT

# Moderating Mechanisms of Subordinates' Expertise on the Relationship between Supervisor Knowledge Sharing and Subordinates' Task Performance



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In this knowledge-based economy, knowledge is a crucial strategic resource (Wang & Noe, 2010) because it is valuable, unique, inimitable, and non-replaceable (Cabrera & Cabrera, 2002). Consequently, an increasing number of organizations have tried to equip knowledge management systems which best harnesses four characteristics – creating, storing, sharing, and applying knowledge (Alavi & Leidner, 2001). Among these, knowledge sharing is the most important since the other three functions are not viable without knowledge sharing (Wasko & Faraj, 2005). Despite the importance of knowledge and knowledge sharing, there are still many unanswered questions in knowledge literature.

First and foremost, the majority of knowledge sharing research has been conducted at an organizational level even though knowledge clearly

exists not only at organizational level but also at the group and individual level (Quigley, Tesluk, Locke, & Bartol, 2007). It is especially surprising that there is a paucity of knowledge sharing research conducted at the individual level considering that individuals are the primary sources of knowledge (Ipe, 2003) and the only agents capable of analyzing it (Huber, 1991).

Second, there are still unexplored areas in expertise literature despite extensive research efforts during the past three decades. Scholars studying expertise, "specialized, deep knowledge and understanding in a certain field, which is far above average" (Bender & Fish, 2000, p. 126), have directed most of their attention to a few specific topics such as the positive side of expertise or expertise transfer within a fixed setting (i.e., knowledge providers are high in expertise while beneficiaries are low in expertise) (e.g., Farrington-Darby & Wilson, 2006; Hind, 1999). For this reason, there have been suggestions for investigating the negative influence of expertise (Hind, 1999) as well as the possibility that a beneficiary's current level of knowledge can facilitate or disrupt the processes of expertise transfer (Strike & Posner, 1992). With these limitations in mind, this study examined and found following issues.

First, I focused my attention on shared knowledge from a *supervisor* at the individual-level. The supervisors are crucial knowledge sources since they tend to have more work-related knowledge, skills, and

abilities than their subordinates, so their knowledge will assist subordinates in resolving confronting problems in the workplace. Thus, I introduce supervisor knowledge sharing, and found that supervisor knowledge sharing has a positive influence on subordinates' task performance.

Second, this study examines whether the effect of supervisor knowledge sharing on subordinates' task performance may vary in terms of the subordinates' expertise on their jobs. Interestingly, I found that high levels of subordinates' expertise rather inhibited knowledge transfer from supervisors to subordinates. In other word, a high level of subordinate expertise disconnected the positive association between supervisor knowledge sharing and their task performance. According to the theory of conceptual change, subordinates high in expertise will not accept the shared knowledge from supervisors since they are satisfied with their current knowledge.

Lastly, I investigate why the subordinates' expertise has the negative moderating effect on the relationship between supervisor knowledge sharing and task performance. To elaborate the underlying mechanisms, I introduce two concepts, subordinates' knowledge ownership and perceived usefulness of shared knowledge. However, the results of mediated moderation showed that only knowledge ownership transmitted the moderating effect of subordinates' expertise.

Through this study, I try to contribute to the knowledge as well as expertise literature by investigating unexplored research area in this literature. Also, with detailed theoretical models, I suggest several future research, which may be worthwhile to investigate.

**Keywords**: Supervisor Knowledge Sharing, Expertise, Knowledge Ownership, Perceived Usefulness of Shared Knowledge, Theory of Conceptual Change, Resource Allocation Theory.

**Student Number**: 2011-20505

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# I. INTRODUCTION

In this knowledge-based economy, knowledge is a crucial strategic resource (Wang & Noe, 2010) because it is valuable, unique, inimitable, and non-replaceable (Cabrera & Cabrera, 2002). Recognizing this, scholars and practitioners have paid increasing attention to knowledge management. Consequently, an increasing number of organizations have tried to equip knowledge management systems which best harnesses four characteristics – creating, storing, sharing, and applying organizational knowledge (Alavi & Leidner, 2001; Cabrera & Cabrera, 2002). Among these, knowledge sharing is arguably the most important since the other three functions are not viable without knowledge sharing (McLure Wasko & Faraj, 2000).

According to Nonaka's (1994) dynamic theory of organizational knowledge creation, knowledge sharing is the fundamental basis of new knowledge creation. In addition, as employees share knowledge with coworkers, the value of shared knowledge becomes exponentially amplified (Quinn, Anderson, & Finkelstein, 1996) without any loss (Cabrera & Cabrera, 2002). Due to these unique characteristics of knowledge sharing (the premise of new knowledge, exponential value growth, and no loss by sharing), many scholars affirm that long-term sustainability and organizational successes depend greatly on knowledge sharing (Nonaka & Takeuchi, 1995). Despite this increasing academic attention toward knowledge sharing, there are still many unanswered questions.

First, the majority of knowledge sharing research has been conducted at an organizational level although knowledge can exist comprehensibly on the level of the individual, group, and organization (Quigley, Tesluk, Locke, & Bartol, 2007). It is especially surprising that there is a paucity of knowledge sharing research conducted at the individual level considering that individuals are the primary sources of knowledge (Ipe, 2003) and the only agents capable of cognizing and analyzing it (Huber, 1991). In addition, among the few studies which do investigate knowledge sharing at the individual level (e.g., Van Woerkom & Sanders, 2010; Quigley et al., 2007), a large proportion of these studies have focused on the effects of *general* knowledge sharing on employee outcomes without defining the specific source of the knowledge. It is important to specify these sources since knowledge shared by different sources (e.g., supervisors or coworkers) are likely to have different effects on employee outcomes.

In addition, there are still unexplored areas in expertise literature despite extensive research efforts during the past three decades. Scholars studying expertise have directed most of their attention only to a few specific topics. First, the majority of expertise scholars have investigated the characteristics of experts which make distinction with novices (e.g., Farrington-Darby & Wilson, 2006; Hind, 1999). As a result of their efforts, several characteristics, which are mostly positive, of experts were revealed in various academic fields such as sports, chess, education, training, and ergonomics. Second, performance-differences between experts and novices have been

investigated. Although the results were quite equivocal regarding the excellence of experts' performance, experts in general seem to perform better than novices in their domains (Ericsson, Prietula, & Cokely, 2007). Third, knowledge or expertise transfer between experts and novices has been investigated. However, most of expertise scholars have studies expertise transfer within a fixed setting (i.e., knowledge providers are high in expertise while beneficiaries are low in expertise). On this wise, most of research efforts in expertise literature have focused on above mentioned topics; therefore, there have been calls for investigating other topics within expertise. For instance, more research efforts should be directed to the negative influence of expertise (Hind, 1999) as well as the possibility that a beneficiary's current level of knowledge can facilitate or disrupt the processes of expertise transfer (Strike & Posner, 1992). With these limitations in mind, the primary objectives of this study are to argue the following issues.

First, I investigated the positive effects of individual-level knowledge sharing on a beneficiary's task performance. I specifically focused on knowledge sharing carried out by supervisors. Supervisors in an organization are likely to have the most significant effects on the task performance of subordinates when compared with other entities (e.g., coworkers) considering that supervisors have the authority and positional powers (Yukl, 2010) to influence subordinates' day-to-day lives (Barsade, 2002). In addition to this, supervisor knowledge sharing will attract special attention from subordinates since subordinates can reasonably expect practical assistance from highly job-

relevant knowledge shared by their supervisors (Wagner, 1987). I thus introduce the concept of supervisor knowledge sharing and investigate it at the individual level.

Second, this study will examine a subordinate's expertise as moderators influencing the relationship between supervisor knowledge sharing and the subordinate's task performance. According to theory of conceptual change (Posner, Strike, Hewson, & Gertzog, 1982), the effectiveness of training and education, specific forms of knowledge sharing, depends largely on a beneficiary's current knowledge as well as a knowledge provider's levels of knowledge. To effectively absorb shared knowledge, the most important prerequisite condition is that the beneficiary should be dissatisfied with own knowledge before or right after the knowledge is shared. Furthermore, the shared knowledge needs to be seen intelligent, plausible, and fruitful by the beneficiary. Only after are all these conditions met in sequence, the beneficiary decides to accept the knowledge and actively applies the acquired knowledge to real world.

On the basis of this theory, I propose that subordinates' expertise will negatively moderate the relationship between supervisor knowledge sharing and task performance. The subordinates high in expertise have enough task-related knowledge for performing well in their domains (Ericsson, 2004; Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson & Lehmann, 1996; Ericsson, Nandagopal, & Roring, 2009; Ericsson et al., 2007). Therefore, they are not likely to feel any dissatisfaction with their current levels of knowledge because

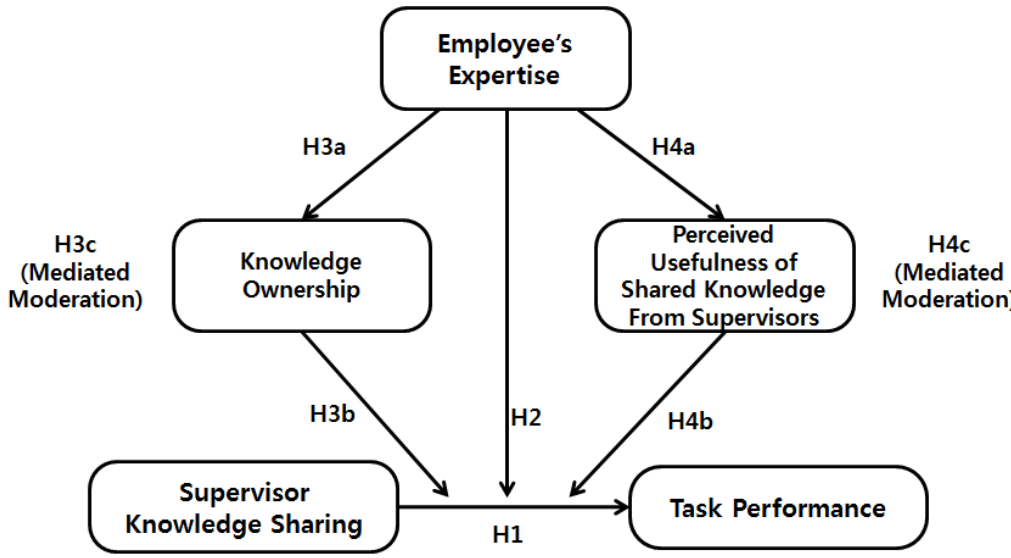
there are no differences between their abilities to perform tasks and the abilities the tasks require to them. According to the theory of conceptual change, employees, who are satisfied with current knowledge-level, are not motivated to embrace new knowledge. To make matters worse, supervisor knowledge sharing will rather inhibit subordinates' task performance when they hold high levels of expertise. Whether they want or not, the subordinates should anyway pay cognitive attention toward the shared knowledge from supervisors. This is because supervisors are the most important agent in organizations (Shanock & Eisenberger, 2006) who have authority to influence employees' day-to-day lives (Barsade, 2002). Therefore, the more supervisors share own knowledge, the more amounts of cognitive resources the employees, who are high in expertise, should consume to pay attention and to understand the shared knowledge without gaining useful knowledge.

Lastly, I will investigate the processes of the negative moderating effect of subordinates' expertise. In other word, this paper tries to find the reasons why subordinates' expertise would negatively moderate the relationship between supervisor knowledge sharing and subordinates' task performance. I directed my attention to subordinates' perceptions regarding both own knowledge and others' knowledge to explain the negative moderating effect of expertise. *Knowledge ownership*, representing perceptions of own knowledge, will partially explain why employees high in expertise react negatively toward a high level of supervisor knowledge sharing; and, *perceived usefulness of shared knowledge from supervisors*, reflecting employees' perception to others'

knowledge, will be described as another reason of the employees' negative reactions.

In what follows, I firstly develop theoretical explanation about the positive relationship between supervisor knowledge sharing and subordinates' task performance. Then, the moderating effect of subordinates' expertise and its mechanisms on the relationship between supervisor knowledge sharing and task performance will be described. I will test my hypotheses with data consisting of 109 supervisor-subordinate dyads at the software teams in Research and Development department in one of the largest Korean firms. Afterward, brief explanations regarding survey translation procedures, measures, methods, and discussion sections will follow. Figure 1 outlines the conceptual framework of this study.

Figure 1. Theoretical Framework.



# II. THEORETICAL DEVELOPMENT

## 1. KNOWLEDGE SHARING

### *1. 1. Knowledge*

Knowledge refers to the "information processed by individuals including ideas, facts, expertise, and judgments relevant for individual, team, and organizational performance" (Wang and Noe, 2010, p. 117). Scholars sometimes distinguish knowledge from information. For instance, Nonaka (1994) defined information as "a flow of messages" whereas knowledge refers to "justified true belief" (p. 15). Some other scholars argued that knowledge is a more general term which includes information such that knowledge incorporates information and know-how (Kogut & Zander, 1992; Zander & Kogut, 1995). However, a majority of knowledge scholars point out that the distinction between knowledge and information has little practical utility (e.g., Bartol and Srivastava, 2002 ; Ipe, 2003; Wang and Noe, 2010). Accordingly, I will use knowledge and information interchangeably.

Most of knowledge studies focus on the organization-level knowledge. This is mainly because several scholars believe knowledge is one of the important strategic resources which brings about organization-level benefits such as financial performance (Boisot, 1998). For instance, according to the resource-based view of the organization (Barney, 1991), organizational competitive advantage results from an unique combination of organizational

resources such as tangible, intangible, and human resources. However, such resources do not always have potentials to become core competences which refer to specific resources generating a competitive advantage for organizations. Core competence should possess four characteristics – value, rarity, inimitability, and non-substitutability (Barney, 1991).

Scholars have found that organizational knowledge has strong potentials to become the core competence which meets these four requirements (e.g., Bartol and Srivastava, 2002; Ipe, 2003). Cabrera and Cabrera (2002) provided specific reasons why knowledge meets these four requirements. First, knowledge is valuable since all products and services of an organization are derived from a unique combination of knowledge inside the organization (see also, Ipe, 2003). Second, knowledge is unique due to its path dependency. That is, each organization possesses its own history of internal integration and external adaptation. During this process of integration and adaptation, the organization develops its own knowledge base, which is, therefore, inherently different from that of other organizations. Third, knowledge is difficult to substitute considering that it has a "supra-individual character" and "is made up of co-specialized capabilities" (Cabrera & Cabrera, 2002, p. 690). Lastly, organizational knowledge is hardly imitated by other firms because of its causal ambiguity. In other words, the causes and effects of certain organizational knowledge are ambiguous since the mechanisms, how the knowledge is formed and what consequences the knowledge results in, are complicated thus, competitors may have difficulties to imitate the focal organization's knowledge.

Accordingly, knowledge can be a core competence of an organization in light of its value, rarity, inimitability, and non-substitutability. For these reasons, managers and scholars have put an increasing effort in establishing both a theoretically and practically effective *knowledge management system*, referring to managerial systems "that are implemented with the main (or sole) objective of creating, storing, disseminating and exploiting organizational knowledge" (Cabrera & Cabrera, 2002, p. 689).

Knowledge, however, resides on multiple levels in an organization (e.g., individual, group, and organization level) (Long & Fahey, 2000). Among the forms of knowledge at the various levels, many scholars have suggested that theh individual level knowledge is the most fundamental. For example, Senge (2006) noted that organizational and group knowledge is created by the communication and sharing of individual expertise and knowledge. Likewise, Huber (1991) argued that cognition and information processing cannot be conducted by groups or organizations since only individuals can possess and analyze knowledge. There are multiple scholars who have also addressed the importance of individual knowledge (e.g., Nonaka, 1994; Polanyi & Sen, 1983 ), but within the entire scope of knowledge literature, studies conducted at the individual-level knowledge are rare while the greater part of the studies have been conducted at the organizational level (Quigley et al., 2007). Acknowledging this deficit in the literature, this study will focus on knowledge sharing at the individual level.

### *1.2. Knowledge Sharing*

Knowledge sharing, referred to as "the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies or procedures" (Wang & Noe, 2010, p.117), is the most important part of knowledge management (Ipe, 2003) since an organization cannot create further knowledge and learn new perspectives without the sharing of individual knowledge (Bartol & Srivastava, 2002). Organizations can create new knowledge by facilitating the sharing and by combining together of existing knowledge that individual employees already possess (Nahapiet & Ghoshal, 1998). For this reason, a great number of organizations use information technology to create a digital space where employees are able to share knowledge (e.g., knowledge management systems) (Wang & Noe, 2010). When individuals share own knowledge within an organization, it gradually becomes available for the entire organization to use, which in turn may lead to the creation of new knowledge, which have a potential to be a competitive advantage, and become an organizational strategic asset (Cabrera & Cabrera, 2002). If individual members do not share knowledge, the knowledge merely resides within the individuals and remains only as an individually accessible asset. Nonaka's (1994) dynamic theory of organizational knowledge creation further argues that knowledge sharing plays critical roles generating new knowledge, which subsequently leads to successful resolution of employees' as well as an organization's confronting problems (i.e., enhancing performance).

Nonaka (1994) developed a widely used framework of knowledge creation, which describes how knowledge is developed by sharing processes. According to Nonaka, knowledge is created through tacit-explicit knowledge dynamics which consists of four stages: socialization, externalization, combination, and internalization. Tacit knowledge is the knowledge that is difficult to transfer to others in formal language, and it usually belongs to specific individuals, while explicit knowledge refers to codifiable knowledge easily transferred to others in formal language (Polanyi & Sen, 1983). According to Nonaka (1994), individuals are able to create new knowledge by combining their tacit knowledge, earned through professional experiences in the workplace (e.g., on-the-job trainings), with shared explicit knowledge residing within the organization. Individuals create their own tacit knowledge through shared experiences such as on-the-job-training (i.e., socialization). Individuals then translate his/her tacit knowledge into an explicit knowledge with the use of formal language (i.e., externalization). The shared explicit knowledge is combined with other explicit knowledge through "sorting, adding, recategorizing, and recontextualizing" (Nonaka, 1994, p. 19) processes, which then eventually become converted to new form of explicit knowledge (i.e., combination). Finally, individuals learn the new explicit knowledge (i.e., internalization), and form a new tacit knowledge by combining the learnt explicit knowledge with own tacit knowledge. Likewise, new knowledge, which have great potentials to be applied to resolve an organization's or employees' task-related problems, is generated by active transitions (or sharing

processes) between organizational and individual knowledge (Nonaka, 1994). Therefore, knowledge sharing is the prerequisite condition of the sustainable growth of organizations as well as individual successes.

### *1.3. Supervisor Knowledge Sharing*

Among various forms of individual-level knowledge sharing (e.g., supervisor-subordinate or coworker-coworker knowledge sharing), I specifically investigate the effects of supervisor knowledge sharing in dyadic relationships between supervisors and subordinates for two reasons. First, for subordinates, the supervisors are important representatives of an organization (Shanock & Eisenberger, 2006) who hold *authority* and positional powers provided by the organization. Authority refers to "the rights, prerogatives, obligations, and duties associated with particular positions in an organization or social system" (Yukl, 2010, p. 199). In an organization, supervisors with authority have the powers to make commands toward subordinates, and the subordinates have a duty to comply with the commands (Yukl, 2010). In addition, authority provides supervisors the powers to allocate resources of the organization such as money, equipment, and positions (Yukl, 2010). French and Raven (1959) called those powers, deriving from the authority, as positional powers consisting of legitimacy, reward, and coercive powers. That is, supervisors can greatly influence subordinates' lives in the workplace with means of threats, rewards, and the formal right to make requests. Therefore,

supervisors are very important individuals who can influence subordinates' day-to-day lives (Barsade, 2002) since supervisors hold formal authority and positional powers. Considering the importance of supervisors, subordinates might pay more attention toward knowledge sharing behaviors specifically derived from supervisors in comparison to knowledge sharing behavior from other agents in the workplace (e.g., coworkers).

Second, subordinates might reasonably expect practical assistance from shared knowledge by supervisors (e.g., using the shared knowledge to resolve given difficult tasks) since supervisors often have superior job-relevant knowledge and skills to the subordinates. According to human capital theory (Strober, 1990), individuals with longer tenures are expected to have more job-relevant knowledge and skills than those with shorter tenures because the former might have had more opportunities to undertake on-the-job-training. In turn, individuals with superior job-relevant knowledge and skills perform better than individuals with inferior knowledge and skills (Strober, 1990). Since supervisors in the workplaces generally hold more experience and longer tenures, knowledge shared by supervisors might be very helpful supports for the subordinates to perform better.

To sum up, supervisors are very important agents of the organizations who can critically influence the subordinates' day-to-day lives (Barsade, 2002), and that subordinates can reasonably expect practical assistances from the knowledge shared by supervisors. For these reasons, I decided to focus on the effects of supervisor knowledge sharing on subordinates' task performance

### *1.4. Supervisor Knowledge Sharing and Task Performance*

Previous studies have demonstrated that knowledge sharing is beneficial to the organization and its members, providing organizational economic value and competitive advantages (Hendriks, 1999), product success (Boland & Tenkasi, 1995), superior team performances (Mesmer-Magnus & DeChurch, 2009), and successful innovation (Armbrecht et al., 2001). I summarize the results of previous studies on the effects of knowledge sharing on organizational, group, and individual performance.

Table 1. Previous Studies on Knowledge Sharing-Performance Relationships.

| Authors | Level | Contents |
|---|---|---|
| Srivastava, Bartol, and Locke (2006) | Group | In this study, Srivastava et al. (2006) examined the underlying processes of the effect of empowering leadership on team performance. As a result of their hypotheses tests, they found that empowering leadership is positively related to team performance.<br>Furthermore, they found two crucial underlying mechanisms of the influence of empowering leadership: knowledge sharing and team efficacy. According to their analyses, those two mediators transmitted the effect of empowering leadership on team performance.<br>Although the research focus of this study was not to examine the relationship between knowledge sharing and team performance, this study clearly indicated that knowledge sharing is positively related to team performance ($\beta = .21$; $p < .05$). |
| Gray and Meister (2004) | Individual | This study examined the relationship between knowledge sourcing and individuals' learning outcomes consisting of three sub-measures: cognitive replication, cognitive adaptation, and cognitive innovation.<br>Knowledge sourcing refers to "the extent to which an individual accesses other employees' expertise, experience, insights, and opinions" (p. 821). |

| | | |
|---|---|---|
| | | That is, knowledge sourcing embraces the concepts of knowledge seeking and the receipt of knowledge sharing.<br>According to their analyses, knowledge sourcing was strongly related to individuals' effective learning ($\beta = .23$; $p < .01$). |
| Collins and Smith (2006) | Organization | In this study, Collins and Smith (2006) examined the relationship between knowledge exchange & combination and firm performance. To conceptualize firm performance, they used the combination of two concepts: sale growth and revenue from new products services.<br>As a result of hypotheses testing, they found that knowledge exchange and combination positively lead to revenue from new products and services ($\beta = .46$; $p < .01$) as well as one-year sales growth ($\beta = .43$; $p < .01$). |
| Mesmer-Magnus and DeChurch (2009) | Group | Mesmer-Magnus and DeChurch (2009) conducted comprehensive meta-analysis on the relationship between team information sharing and various team outcomes.<br>In this Meta-analysis, Mesmer-Magnus and DeChurch (2009) found that information sharing at the team level was significantly related to team performance, which is measured by both objective and subjective measures. Also, they found that team-level information sharing predicts high levels of team cohesion, team satisfaction and knowledge integration. |

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| | | Furthermore, they suggested various moderators such as uniqueness and openness of information sharing, discussion structure, and team task type. |

In addition to the studies mentioned in Table 1, a number of knowledge studies have implied the association between knowledge sharing and performance (Bartol & Srivastava, 2002; Bock, Zmud, Kim, & Lee, 2005; Cabrera, Collins, & Salgado, 2006; Cummings, 2004; Du, Ai, & Ren, 2007; Hendriks, 1999; Ipe, 2003; Lin, 2007; Matzler, Renzl, Müller, Herting, & Mooradian, 2008; O'Neill & Adya, 2007; Quigley et al., 2007; Siemsen, Roth, & Balasubramanian, 2008; Srivastava et al., 2006; Van Woerkom & Sanders, 2010; Wang & Noe, 2010; Webster et al., 2008; Weiss, 1999; Widén-Wulff & Ginman, 2004).

However, only few studies have provided clues regarding the positive relationship between knowledge sharing and performance on the individual level. For instance, Quigley et al. (2007) investigated the effects of knowledge sharing on individual performance. They hypothesized that knowledge sharing and self-set goals have interaction effects on individual performance such that individuals who receive high levels of shared knowledge and set higher self-set goals will perform better than individuals who carry out neither of these actions. They showed these result by conducting decision-making simulations. Furthermore, their study conducted additional analyses regarding the main effects of shared knowledge on individual performance and found that shared knowledge had significantly positive effects on the individual outcomes ($\beta = .29$, $p < .001$).

Van Woerkom and Sanders (2010) also examined the effects of knowledge sharing on individual performance although the main focus of their study was not to examine the relationship between knowledge sharing and performance. That is, they used knowledge sharing behavior as an underlying process elaborating the effects of disagreement and cohesiveness on individual performance. Interestingly, they conceptualized knowledge sharing behavior with two variables: asking and giving advice and openness for sharing opinion and suggestions. As a result of their analyses, they found that only the exchange of advice was positively related to individual performance ($\beta = .42$, $p < .01$) while openness for sharing opinion and suggestions had no effect on individual performance ($\beta = .11$, $p > .05$).

As such, shared knowledge in general enhances a beneficiary's task performance. However, to my knowledge, knowledge sharing studies have been investigated *general* knowledge sharing without specifying sources (e.g., supervisors, coworkers, and organizations) of knowledge sharing. Identifying the sources of knowledge is important because the qualities of shared knowledge might vary in terms of the sources. For instance, shared knowledge from nearby colleagues may have greater impacts on a focal employee's task performance than shared knowledge at the organization level (e.g., knowledge available through the manual books, knowledge management system, and intranet). This is because colleagues near the focal employee may better acknowledge the focal employee's current problems on his/her job, or elaborate

the shared knowledge in detail when they share own knowledge with the focal employee.

In this study, I suggest that knowledge sharing, specifically originating from the *supervisor*, will benefit the in-role performance of subordinates of this knowledge. According to decision making literature, task-relevant information in general leads to better decision making performance (e.g., Earley, 1985; Nystedt, 1974; Streufert, 1973). For instance, Earley (1985) found the importance of task-relevant information as a predictor of task performance. On the basis of experimental (study 1) and field studies (study 2), Earley (1985) argued that task-relevant information has unique positive influences on a beneficiary's task performance controlling for personal goals and ability.

Many scholars have noted that the more experience an individual (e.g., supervisor) has, the knowledge that this individual possesses is more job-relevant (e.g., Borman, Hansen, Oppler, Pulakos, and White, 1993; Hedlund et al., 2003). Thus, supervisors, who likely have longer tenures, generally have more job-relevant knowledge and skills than their subordinates. Also, this may be true in light of human capital theory (Strober, 1990). This theory argues that the more an individual have experiences on his/her job, the more he/she will have task-relevant knowledge, skills, and abilities. As mentioned above, since supervisors tend to have more tenure on their jobs than subordinates, the supervisors likely hold more task-relevant knowledge, skills, and abilities.

An example of this is Wagner's (1987) empirical study which examined the difference between job-relevant tacit knowledge possessed by managers in the field and that of students. The author compared job-relevant tacit knowledge in three groups – 64 managers in firms ranked among the top 40 in the Fortune 500, 25 graduate students, and 60 Yale undergraduate students. As a result of the field study, He found that managers hold the highest job-relevant tacit knowledge among these three groups.

Combining previous studies which indicate the positive relationship between job-relevant knowledge and task performance with the findings that supervisors hold superior job-relevant knowledge in comparison to subordinates, I predict that supervisor knowledge sharing will be positively related to subordinates' task performance.

*Hypothesis 1. Supervisor knowledge sharing is positively related to subordinates' task performance.*

## 2. MODERATING MECHANISMS OF EMPLOYEES' EXPERTISE

### *2.1. Subordinates' Expertise*

Expertise refers to the "specialized, deep knowledge and understanding in a certain field, which is far above average" (Bender & Fish, 2000, p. 126). During past three decades, expertise scholars have found a

variety of characteristics of experts. Table 2 shows the characteristic. However, the research focus of expertise literature has been limited to a few topics although scholars extensive research efforts.

*Table 2*. Characteristics of Experts

| Authors | Characteristics of Experts |
|---|---|
| Shanteau (1992) | 1. Extensive and up to date content knowledge<br>2. Highly developed perceptual / attentional abilities<br>3. Sense of what is relevant when making decisions<br>4. Ability to simplify complex problems<br>5. Ability to communicate<br>6. Handle adversity better<br>7. Experts are better at identifying and adapting to Exceptions<br>8. Self confidence in decision making<br>9. Adapt decision strategies to changing task conditions<br>10. Strong sense of responsibility and willingness to stand behind their recommendations<br>11. Willingness to make continuous adjustments in initial Decisions<br>12. Experts get help from others to make better decisions<br>13. Experts often make use of formal or informal decision Aids<br>14. Experts make small errors they try to aboid making large mistakes<br>15. They operate as though coming close is generally good Enough<br>16. Experts follow some sort of divide and conquer Strategy<br>17. Break problems down |
| Chi, Glaser, and Farr (1988) | 1. Experts excel mainly in their own domain<br>2. Experts perceive large meaningful patterns in their Domain |

| | |
|---|---|
| | 3. Experts are fast (faster than novices at performing the skills of their domain) and they quickly solve problems with little error<br>4. Experts have superior short term and long term memory<br>5. Experts see and represent a problems in their own domain at a deeper (more principled) level than novices; novices tend to represent a problem at a superficial level<br>6. Experts spend a great deal of time analyzing a problems Qualitatively<br>7. Experts have strong self-monitoring skills |
| Cellier, Eyrolle, and Mariné (1997) | 1. Experts have greater skill in producing inferences when monitoring the values of variables, in using covert variables in building up a representation during diagnosis and in using inference strategies during the executive control of processing and task completion. In other words they can see the meaning behind the information provided and the implications of their decisions and actions.<br>2. Experts have greater skill in anticipating. They process cues preventatively rather than reactively during disturbances. They make better predictions of process evolution and changes in a system.<br>3. Experts have a more global and functional view of a situation and take a wider range of data into account in diagnosis. They operate through a limited number of assumptions that include the most relevant information, and account for possible side or spin-off effects through inference and anticipation<br>4. Experts encode new information more quickly and completely.<br>5. Experts have more complete representations of the task |

| | |
|---|---|
| | domains.<br>6. Experts are considered to have a richer repertoire of strategies and appropriate mechanisms for assessing and applying strategies and the appropriate organization of knowledge |

*Note. This table is extracted from Farrington-Darby and Wilson's (2006) Table 1 with few modifications.*

First, expertise literature has been focused on the positive characteristics regarding experts which distinguish from novices (Hind, 1999). Scholars have believed that expertise brings a number of advantages in performing better in the workplace as Table 2 shows. However, recently there have been suggestions on the possibilities of negative aspects of expertise. For instance, on the basis of cognitive heuristic theory, Hind (1999) argued that expertise may have difficulty to accurately judge the performance of novices. In her paper, she suggested that experts are the poor judgers on predicting the performances of novices because the experts tend to show availability heuristic, anchoring, and oversimplification biases.

Furthermore, scholars have suggested the possible negative aspects of expertise in the literature on the curse of knowledge. The curse of knowledge refers to the tendency of experts that they cannot ignore their expertise on their jobs even when they conduct other tasks, not related to their jobs which they have expertise on (Birch & Bloom, 2007; Camerer, Loewenstein, & Weber, 1989; Heath & Heath, 2006; Kim, 1997; Nickerson, 1999). To make matters worse, an expert tends to expect that others also have such expertise that he/she holds (Newton, 1990). In this regard, some scholars have suggested the necessity of investigation on the negative influences of expertise (Birch, 2005; Birch & Bloom, 2007; Camerer et al., 1989; Heath & Heath, 2006; Hinds, 1999; Kim, 1997; Mueller & Kamdar, 2011; Nickerson, 1999).

The second stream of expertise literature is expertise transfer from experts to novices. Although, to my knowledge, scholars have not explicitly

investigated the direction of expertise transfer with specific variables, many scholars conducted their studies in the context of high expertise differences between expertise providers and beneficiaries. Specifically, many studies in education and training literature conducted research on the expertise transfer under the classroom settings. Broadly, studies on teacher effectiveness and effective learning in education literature belong to the category of expertise transfer from experts to novices.

Except for above mentioned topics, scholars have not actively conducted their research on other topics in expertise literature. In this regard, this study will examine the negative influences of expertise on the experts' task performance. Currently available studies on negative aspects of expertise, if any, mostly focus on the negative influences of expertise on *others or performances, not related to the experts' fields of specialization*. For example, Hind's (1999) research was on the experts' assessments of *others'* performance, and the literature on the curse of the knowledge is about *experts' performance in different domains*. With this limitation in mind, I will examine the negative influence of expertise on own performance.

### *2.2. Theory of Conceptual Change*

Although supervisor knowledge sharing would generally have the positive relationship with subordinates' task performance, the relationship may greatly vary in terms of supervisors' as well as subordinates' expertise. By

drawing on the theory of conceptual change, I hypothesize the negative moderating effects of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance.

The core tenet of theory of conceptual change is that an individual's learning is determined by interactions between newly shared knowledge and his/her current knowledge (Posner et al., 1982; Strike & Posner, 1992). When a beneficiary receives new knowledge, he/she analyzes the knowledge on the basis of *conceptual ecology*, referring to knowledge or concepts the beneficiary currently possesses (Posner et al., 1982). Then, the beneficiary develops four conditions determining whether or not he/she learns the new knowledge. The four conditions are 1) dissatisfaction with the existing conceptual ecology, 2) intelligence, 3) plausibility, and 4) fruitfulness of the new knowledge. These four conditions are proceeded sequentially; that is, the beneficiary will not proceed to the next condition if the former is not met (Strike & Posner, 1992).

First and foremost, to employ new knowledge, the beneficiary should be dissatisfied with his/her current knowledge. Only after the beneficiary views current knowledge with some dissatisfaction, is he/she likely to seek new knowledge which works better than current knowledge. Second, the shared new knowledge should be intelligible. The beneficiary comes to think the shared knowledge is intelligible when it is properly comprehended. Third, the new knowledge should have plausibility. That is, if the new knowledge is able to solve problems which the beneficiary's current knowledge could also solve, then the new knowledge achieves plausibility. Finally, the new knowledge

should have fruitfulness. The beneficiary believes the new knowledge fruitful when it can resolve past problems which could not have been solved, or possible future problems which he might encounter later. Only after *all* these conditions are met, the beneficiary finally accepts and learns the new knowledge (Strike & Posner, 1992).

Interestingly, theory of conceptual change also tells the possibility that high levels of subordinates' expertise can nullify the positive effect of supervisor knowledge sharing. According to the theory, subordinates high in expertise resist embracing newly shared knowledge from supervisors since the subordinates are likely satisfied with their current knowledge. Previous research has found that experts who hold deep knowledge in their own domain, can resolve task-related problems very quickly with little error, and possess a variety of strategies to perform tasks (see, for a review, Farrington-Darby & Wilson, 2006). Therefore, the subordinates may not feel dissatisfaction with their current knowledge because they feel no discrepancy between their current abilities and the abilities certain tasks require. Also, it is hard to expect that shared knowledge from supervisors is new enough to make those subordinates feel a sense of dissatisfaction because the subordinates likely know the shared knowledge already. Since the first condition for conceptual change (i.e., dissatisfaction with current knowledge) will not be met for those subordinates, they may not be willing to embrace shared knowledge from their supervisors.

Additionally, I suggest that the relationship between supervisor knowledge sharing and task performance would be even negative for a

subordinate high in expertise. According to Kanfer and Ackerman (1989), the amount of allocation of cognitive resources to current tasks decides the level of task performance. That is, the more the subordinate allocates own cognitive resources on current tasks, the better he/she perform in the tasks. Combining Kanfer and Ackerman's idea with theory of conceptual change, we expect that the subordinate high in expertise will not optimally perform own tasks if his/her supervisor actively participates in knowledge sharing. As explained before, a supervisor is a very important agent representing the organization, and has powers to influence a subordinate's day-to-day life in the organization (Yukl, 2010).

Therefore, the subordinate needs to pay much attention toward what the supervisor says whether the subordinate wants or not. A subordinate might enhance performance by paying attention to shared knowledge from a supervisor when the knowledge effectively and efficiently resolves the subordinate's task-related problems. In this case, the resource loss resulting from attention and analyzing the shared knowledge will be compensated by acquiring new useful knowledge for performing well in his/her tasks. However, in the worst case, the shared knowledge might be redundant and less useful for a subordinate. If so, the subordinate purely lose his/her cognitive resources without any gain of additional resources. This is especially true for a subordinate who has high levels of expertise and feel no problems to conduct current tasks. Therefore, high levels of supervisor knowledge sharing will

rather hamper a subordinate's task performance when the subordinate holds high levels of expertise.

In this study, I argue that above mentioned negative moderating effect of subordinates' expertise may exist regardless of the level of supervisors' expertise. As theory of conceptual change suggests, when subordinates hold a high level of expertise on their jobs, they will not be dissatisfied with their current level of knowledge. However, the subordinates do not necessarily come to have such dissatisfaction by comparing their current expertise with knowledge providers' expertise (i.e., supervisors' expertise). That is, although the knowledge providers' expertise is way beyond the level of beneficiaries' expertise, the beneficiaries may not dissatisfied with their current knowledge as far as their knowledge can resolve task-relevant problems.

However, *once the subordinates feel dissatisfied with their current levels of expertise,* it is highly possible that the beneficiaries' decision on whether they accept the shared knowledge from supervisors is influenced by the levels of supervisors' expertise. Drawing on the theory of conceptual change, I expect that supervisors' expertise will positively moderate the relationship between supervisor knowledge sharing and subordinates' task performance. In the workplace, it is definitely common that employees are dissatisfied with their knowledge since they frequently confront difficult problems which are seemingly impossible to resolve with current levels of task-related knowledge (Bakker & Demerouti, 2007; Bakker, Demerouti, de Boer, & Schaufeli, 2003; Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, &

Verbeke, 2004). Under this situation, supervisors high in expertise can effectively help employees by providing intelligent, plausible, and fruitful task-related knowledge.

Previous findings suggest that shared knowledge or feedback from experts is intelligible since experts can help beneficiaries fully understand and retain the shared knowledge (e.g., Porte, Xeroulis, Reznick, & Dubrowski, 2007). Also, as Farrington-Darby and Wilson (2006) argued in their review, experts hold deep and useful knowledge, and can persuade others to view the experts' knowledge as useful, and can resolve task-related problems quickly and precisely. Therefore, subordinates, who receive new knowledge from supervisors high in expertise, can reasonably expect the knowledge plausible and useful for resolving difficult task-related problems in the workplace (i.e., fruitfulness). As a result, those subordinates will be motivated to learn the shared new knowledge, and through the learning processes they may be able to successfully resolve task-related problems and perform better in workplaces.

Thus, according to theory of conceptual change, supervisors' expertise can influence the relationship between supervisor knowledge sharing and subordinates' task performance in terms of whether subordinates feel dissatisfied with their current levels of knowledge on their jobs. However, the primary objective of this study is not to examine the moderating effect of supervisors' expertise, but to examine the moderating effect of subordinates' expertise regardless of supervisors' expertise. Thus, I will control supervisors' expertise when I analyze my theoretical model, and the possibility of the

moderating effect of supervisors' expertise will be examined at the additional analyses at the discussion section.

> *Hypothesis2. A subordinate's expertise negatively moderates the relationship between supervisor knowledge sharing and task performance such that the relationship will be negative when the subordinate is high in expertise.*

### *2.3. Why the Two Underlying Mechanisms were Chosen?*

To shed light on the core psychological mechanisms of the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance, this paper investigate two underlying variables: knowledge ownership and perceived receipt of useful knowledge. The two mechanisms are chosen for following reasons.

First, this paper tries to examine how expertise influence the perception of *own knowledge*. Experts acquire their expertise, which is deep and specialized knowledge, through undergoing extensive and painful processes of learning and trainings (Ericsson, 2004; Ericsson et al., 1993; Ericsson & Lehmann, 1996; Ericsson et al., 2009; Ericsson et al., 2007). Then, what kinds of feeling or perception toward own knowledge and expertise do experts hold? Will the experts be willing to change their own expertise? Are they flexible to change own knowledge? Those are the very questions that I

would like to resolve through this study, and they are not yet empirically examined in knowledge or expertise literature. Therefore, this study will examine experts' perception of own knowledge as an important underlying mechanism elaborating the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance.

Second, this paper also tries to examine the association between expertise and perception of *others' knowledge*. To be specific, I will examine how subordinates perceive the usefulness of shared knowledge in terms of the level of their expertise. Is it possible that the perception of usefulness of the shared knowledge is varying in terms of the levels of own expertise? Will experts hold some biases when they perceive the usefulness of the shared knowledge? These questions will be examined in this study. To sum up, this paper simultaneously examine the influences of subordinates' expertise on the perception of own knowledge as well as the perception of others' knowledge by using those variables as two core mechanisms of the moderating effect of expertise.

### *2.4. Expertise and Knowledge Ownership*

Psychological ownership refers to "the feeling of possessiveness and of being psychologically tied to an object" (Pierce, Kostova, & Dirks, 2001, p. 299). According to Pierce et al. (2001), who developed theory of psychological ownership, the core factors of psychological ownership are feeling of

possessiveness and psychological connection with the objects people feel ownership. When a person feels strong possessiveness toward an object, he/she is likely to have psychological connection to the object. That is, the person regards the object as a living entity or even as an "extended self" (Pierce, Kostova, & Dirks, 2001, p. 299). The feeling of extended self is a very crucial component of psychological ownership. Pierce et al. (2001) explained the importance of extended self as following.

*"According to Dittmar (1992), it is common for people to psychologically experience the connection between self and various targets of possession, such as homes, automobiles, and other people. Possessions come to play such a dominant role in the owner's identity that they become part of the extended self (Belk, 1988; Dittmar, 1992). Sartre, in his treatise on "being and nothingness," notes that "to have" (along with "to do" and "to be") is one of the three categories of human existence and that "the totality of my possessions reflects the totality of my being.... I am what I have.... What is mine is myself" (1969: 591-592)" (Pierce et al., 2001, p. 299).*

Although the theory of psychological ownership explained that people can feel possessiveness to the certain *object (seemingly referring to only a tangible thing)*, the authors of this theory argues that people can have feelings of possessiveness and extended self toward intangible things such as

knowledge. Therefore, the object, mentioned in this paper, refers to both tangible and intangible thing.

Then, what makes people feel ownership toward certain objects? One of the most important antecedents of psychological ownership is the amount of investment of the self to acquire the object. In other word, people feel psychological ownership to a certain object when people have put much energy, time, attentions, and desires to acquire the object. For this reason, Pierce et al. (2001) propose that "There is a positive and causal relationship between the extent to which an individual employee invests himself or herself into the potential target of ownership and the degree of ownership the employee feels toward that target." (p. 302).

In this study, I introduce the concept of knowledge ownership which refers to psychological ownership toward own knowledge. On the basis of theory of psychological ownership, I propose that the more expertise employees hold, the more psychological ownership toward own knowledge they will have. Ericsson and his colleagues have argued that it requires significant amount of efforts, time, and energy to acquire expertise (Ericsson, 2004; Ericsson et al., 1993; Ericsson & Lehmann, 1996; Ericsson et al., 2009; Ericsson et al., 2007). They argued that expertise is a result of the deliberate practice, which refers to "practice that focuses on tasks beyond your current level of competence and comfort" (Ericsson et al., 2007, p.116). Surprisingly, their empirical study revealed that "even the most gifted performers need a minimum of ten years (or

10, 000 hours) of intense training before they win international competitions" (p. 119).

Although a decade of training or practices is not always required to equip expertise (Ericsson et al., 2009), it seems that intensive levels of efforts and significant amount of time to acquire high levels of expertise. Therefore, employees holding high levels of expertise might have strong feelings of psychological ownership toward own knowledge (i.e., knowledge ownership). This is because they need to put much effort and energy to acquire the advanced level of knowledge (Pierce et al., 2001), and such investment is positively related to a high level of psychological ownership on own knowledge and expertise (Pierce et al., 2001). Thus, I expect that subordinates' expertise will have positive relationship with knowledge ownership.

*Hypothesis 3a. Subordinates' expertise is positively related to knowledge ownership*

The core tenet of the theory of conceptual change is that individuals decide whether or not they embrace shared new knowledge in terms of interactions between their current knowledge and the new knowledge. Posner and his colleagues (Posner et al., 1982; Strike & Posner, 1992) introduced the concept of conceptual ecology, which refers to current concepts or knowledge

belong to a focal employee. Therefore, conceptual ecology is virtually identical to an individual's current levels of knowledge or concepts.

Conceptual ecology is important because the concreteness of and commitment to conceptual ecology determines whether a focal employee decide to accept shared new knowledge from his/her supervisors (Posner et al., 1982). In other word, if the focal employee holds concrete conceptual ecology (e.g., if he/she believes own knowledge is definitely true anduseful), he/she is less likely to accept the new knowledge. Also, the focal employee will not embrace the new knowledge when he/she is strongly committed to own knowledge (e.g., my knowledge is a part of myself). Thus, strong knowledge ownership will inhibit the focal employee to embrace shared knowledge from supervisors, which may cause changes of current knowledge.

Furthermore, with the same logic of Hypothesis 2, supervisor knowledge sharing will be rather negatively related to subordinates' task performance when the subordinates hold high levels of knowledge ownership. That is, the subordinates high in knowledge ownership might consume much cognitive resources to pay attention toward supervisors' knowledge sharing behaviors even though they are not willing to accept the shared knowledge. This is because the subordinates believe that their knowledge is useful, and they are highly committed to their own knowledge. Therefore, the subordinates high in knowledge ownership will not embrace the shared knowledge while consuming much of cognitive resources. In this regard, I expect that knowledge

ownership will make the connection between supervisor knowledge sharing and task performance negative.

> *Hypothesis 3b. Knowledge Ownership negatively moderates the relationship between supervisor knowledge sharing and subordinates' task performance. That is, the relationship becomes negative when subordinates hold high levels of knowledge ownership.*

By combining Hypothesis 3a and 3b, I expect that knowledge ownership transmit the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance. Some of expertise scholars have suggested this possibility although they did not empirically tested the mediating roles of knowledge ownership. Chi (2006) in his review suggested that experts might show poor performance since they are cognitively inflexible. Experts might be inflexible because they are strongly committed to own knowledge. Also, Posner et al. (1982) addressed that it is much easier for novices to absorb shared new knowledge than experts since novices do not have concrete convictions toward their knowledge and are less committed to own knowledge than experts are. As a result, novices' current knowledge (i.e., conceptual ecology) does not disrupt accepting new knowledge. Following passage is from Posner et al.'s (1982) argument.

*"Metaphysical beliefs and epistemological commitments form the basis on which judgements are made about new knowledge. Thus, a conceptual change will be rational to the extent that students have at their disposal the requisite standards of judgement necessary for the change. If a change to special relativity requires a commitment to the parsimony and symmetry of physical theories (as it did for Einstein), then students without these commitments will have no rational basis for such a change. Faced with such a situation, students, if they are to accept the theory, will be forced to do so on non-rational bases, for example, because the book or the instructors says it is "true." (p.224)".*

Therefore, I expect that knowledge ownership will transmit the effect of subordinates' expertise on the effect associating supervisor knowledge sharing with subordinates' task performance.

> *Hypothesis 3c. Knowledge Ownership mediates the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance.*

### *2.5. Expertise and Perceived Receipt of Useful Knowledge*

Now, I will turn my attention to the effect of expertise on the perception regarding shared knowledge from others. As I explained so far, employees are more likely to adhere to their own knowledge as their levels of expertise increase. This is because employees high in expertise feel attachment to their knowledge as well as strongly believe their knowledge is well representing truth. Then, what is the general tendency of experts on judging others' knowledge?

This study suggests that expertise might have negative relationship with perceived usefulness of shared knowledge from supervisors. On the basis of Levin and Cross's (2004) definition regarding *perceived receipt of useful knowledge*, I define *perceived usefulness of shared knowledge from supervisors* as the extent which knowledge, received from a supervisor, helps a subordinate to improve task performance. As I reviewed before, experts possess superior knowledge, skills, and abilities to those of novices in their domains, excellent short-term as well as long-term memory, quickly resolve confronting problems without errors, look into the deep structure of task-related problems as well as tasks themselves, anticipate possible future problems, and make effective strategies to resolve task-related problems (see, for a review, Farrington-Darby et al., 2006).

Many other studies also suggest that experts possess highly useful knowledge, skills, and abilities on their job, and have enough potential to

perform well in their domains (Arnold & O'Connor, 1999; Baer, 1986; Bender & Fish, 2000; Brandon & Hollingshead, 2004; Cellier et al., 1997; Chi, 2006; Chi et al., 1988; Chi, Glaser, & Rees, 1982; Ericsson et al., 1993; Ericsson & Lehmann, 1996; Ericsson et al., 2009; Ericsson et al., 2007; Faraj & Sproull, 2000; Farrington-Darby & Wilson, 2006; Haerem & Rau, 2007; Hinds, Patterson, & Pfeffer, 2001; Isaacs & Clark, 1987; Johnson, 1988; Kraiger, Ford, & Salas, 1993; Libby, Trotman, & Zimmer, 1987; Loyd, Phillips, Whitson, & Thomas-Hunt, 2010; McEnrue, 1984; Nickerson, 1999; Norman, Coblentz, Brooks, & Babcook, 1992; Shanteau, 1992; Shulman, 2000; Sonnentag, 1998; Tillema, 1994; Wiel, Szegedi, & Weggeman, 2004; Yamnill & McLean, 2001).

For these reasons, experts might not have any problems to resolve task-related problems in their domains. At least, they hold enough knowledge to resolve the problems even if they do not perform well due to lack of motivations to work. Therefore, the knowledge shared from their supervisors is likely redundant to current knowledge that subordinates high in expertise hold. In this case, the subordinates will not view the shared knowledge as useful one since the shared knowledge, which is redundant to their current knowledge, does not seem to further improve their performance on their jobs.

This possibility has been suggested by some scholars although, to my knowledge, there is no empirical study examining it. Specifically, Levin and Cross (2004) suggested that “respondents with expertise might not find additional knowledge from others to be so useful, or they might feel less need than novices to trust their knowledge sources” (p. 1483). For this reason, they

controlled the receiver's expertise when they conduct their research. Thus, it would be meaningful to empirically examine this possibility in this study. All in all, I expect that subordinates' expertise will have negative relationship with perceived usefulness of shared knowledge from supervisors.

*Hypothesis 4a. Subordinate's expertise is negatively related to perceived usefulness of shared knowledge from supervisors.*

According to the theory of conceptual change, a focal employee is likely to accept the shared knowledge when he/she expect that the shared knowledge is useful enough to enhance own task performance. This is because the employee will be dissatisfied with his/her current knowledge and regard the shared knowledge intelligible, plausible, as well as fruitful. First of all, when the employee perceives that the shared knowledge from supervisors is useful, he/she might be dissatisfied with current knowledge since the shared knowledge likely work better than his/her current knowledge. If the employee did not think that the new knowledge is better than current one, he/she might not perceive the knowledge is useful. That is, perception of useful knowledge itself represents the dissatisfaction with current knowledge.

Second, the perception of usefulness is virtually identical to the perception of intelligence, plausibility, and fruitfulness. The focal employee will judge the shared knowledge is useful because the knowledge is

comprehensible (i.e., intelligence), is likely to be applied to problems which current knowledge *can* resolve (i.e., plausibility), and is able to resolve problems which current knowledge *could not* resolve (i.e., fruitfulness).

For those reasons, when the focal employee feel the shared knowledge from supervisors is useful, it will be accepted to him/her without interruptions of current knowledge. However, when the focal employee feels the shared knowledge is not useful, he/she will not embrace the knowledge since the shared knowledge cannot make him/her be dissatisfied with current knowledge. In other word, if the shared knowledge from supervisors fails to provide additional value above and beyond the current knowledge of the focal employee (i.e., low levels of perceived usefulness of shared knowledge from supervisors), he/she will be simply satisfied with current knowledge and fall into the idle state which appropriate the current knowledge without absorbing the shared knowledge.

Furthermore, with the same logic of Hypothesis 2 and Hypothesis 3b, when subordinates feel the shared knowledge is not useful, the supervisors' knowledge sharing behaviors will rather distract subordinates' task performance. This is because those subordinates should allocate their cognitive resources to the supervisors' knowledge sharing behaviors while they gain nothing useful. All in all, I expect that when subordinates feel the shared knowledge from supervisors are not useful, the subordinates will perceive their supervisors' knowledge sharing behaviors as distractors potentially disrupting concentration of their cognitive resource on own tasks.

*Hypothesis 4b. Perceived usefulness of shared knowledge from supervisors moderates the relationship between supervisor knowledge sharing and subordinates' task performance. That is, this relationship becomes negative when subordinates possess low levels of perceived receipt of useful knowledge.*

Together with Hypotheses 4a and 4b, I further expect that perceived usefulness of shared knowledge from supervisors will transmit the effect of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance.

*Hypothesis 4c. Perceived usefulness of shared knowledge from supervisors mediates the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance.*

# III. METHOD

## 1. SAMPLE AND PROCEDURE

I collected longitudinal data at Research & Development department in one of the largest Korean company. This company has been elected one of Fortune 500 companies for a decade. Since this company focus on various products in Electrical and Electronics Engineering, the most important personnel are engineers. I distributed my survey to software engineers at this company. I selected software engineers based on the observation that the software engineers' tasks require a high level of expertise, and it is often that many entry-level engineers hold excellent software skills and knowledge. This is because the knowledge and skills on software system tend to change at a fast rate, so the entry-level engineers often have the-state-of-the-art knowledge on software coding. Therefore, it is highly likely that subordinates possess a high level of expertise on their jobs.

I visited this company on October 21$^{st}$ in 2012 to collect the first wave dataset. Within the software department, I randomly chose respondents, and distributed my survey to 162 supervisor-subordinate dyads. The subordinates rated supervisor knowledge sharing, own knowledge ownership, and perceived receipt of useful knowledge from supervisors. Supervisors rated the level of subordinates' expertise. Among 162 dyads, 157 dyads return my survey (response rate = 96.9%).

To collect second wave dataset, I visited this company again on November 27th in 2011. I distributed the survey only to the 157 supervisors who kindly completed my survey in the first wave. At this time, the respondents rated subordinates' task performance. Among the 157 respondents, 109 supervisors returned my survey. Therefore, to analyze my hypotheses, I used 109 supervisor-subordinate dyads.

**2. Survey Translation Procedures**

I followed the survey translation procedures recommended by Brislin (1990). First, myself, whose first language is Korean, translated the English version of survey items into Korean. Second, one faculty member who specializes in organizational behavior improved the translation. Third, five doctoral and master-degree students who are not involved in this study were asked to read through the Korean version of the survey items, and to compare the Korean with the English version. They were also asked to provide concerns, if any, regarding the Korean version survey items. Fourth, I repeated the above procedures until the five doctoral as well as master-degree students did not show any concerns regarding the items.

**3. Measures**

*Supervisor Knowledge Sharing*. I adapted and modified the seven-item scale of knowledge sharing developed from Srivastava, Bartol, and Locke (2006). This scale was originally developed for team knowledge sharing which led us to modify a few words from the seven items for the specific purpose of measuring supervisor knowledge sharing. Each item will be measured by the seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and rated by subordinates. The sample items are "My supervisor shares his/her special knowledge and expertise with others" and "My supervisor shares lots of information with others."

*Subordinates' Expertise*. I used six-item scale of expertise developed by Mayer and Davis (1999). Each item is measured by the 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and rated by subordinates' themselves. The sample items are "I am very capable of performing his/her own job" and "I am well qualified".

*Knowledge Ownership*. I developed the 8-item scale of knowledge ownership on the basis of Van Dyne and Pierce's (2004) psychological ownership measure. Each item is measured by the 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and rated by subordinates. The sample items are "I feel a very high degree of ownership of my knowledge" and "I consider my ideas as my own basic property".

*Perceived Usefulness of Shared Knowledge from Supervisors*. I modified the six-item scale of perceived usefulness of MIS system developed by Davis (1989) and Venkatesh, Brown, Maruping, and Bala (2008). Each item is measured by the 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and rated by subordinates. The questionnaire will ask employees about "Using shared knowledge from my supervisor would enable me to accomplish tasks more quickly" and "Using shared knowledge from my supervisor would improve my job performance."

*Task Performance*. Williams and Anderson's (1991) seven items of in-role performance are used to measure task performance. Each item is measured by the 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and rated by supervisors. The sample items are "This subordinate adequately completes assigned duties" and "This subordinate fulfills responsibilities specified in the job description."

*Control Variables*. I controlled for five demographic variables of subordinates which could possibly influence their task performance. These are age, gender, education, tenure with organization, and tenure with supervisor. Age, tenure with organization, and tenure with supervisor are measured in years. In addition, gender was measured as a dichotomous variable: 1 for male and 2 for female. Lastly, five types of education are measured: 1 for high school graduation, 2 for 2-year community college graduation, 3 for 4-year university graduation, 4 for graduates of master or Ph.D degree and 5 for etceteras. Tenure and education is especially important to be controlled since those two variables

will have high correlation with both expertise (moderator) and task performance (dependent variable). Furthermore, as mentioned above, I will control for supervisors' expertise since this variable may influence the two mediators (i.e., subordinates' knowledge ownership and perceived receipt of useful knowledge from supervisors). Table 3 shows all the measures I used in this study. I listed them in both Korean and English versions.

Table 3. Korean and English versions of Measures used in this study.

| Measure | English Version | Korean Version |
|---|---|---|
| Knowledge Ownership | 1. This is MY knowledge | 1. 내가 이 회사에서 근무하는 동안 얻은 지식은 "나의 것"이다. |
| | 2. I feel a very high degree of personal ownership of my knowledge | 2. 나는 내 지식에 대한 높은 수준의 소유욕을 느낀다. |
| | 3. I sense that this is MY knowledge | 3. 내 지식은 온전히 나의 것이라고 생각한다. |
| | 4. I consider my ideas as my own basic property | 4. 내 아이디어들은 내 사적인 소유물이나 마찬가지라고 생각한다. |
| | 5. Ideas I come up with on the job are my own | 5. 내가 업무를 수행하는 중에 창출해낸 아이디어들은 내 개인적인 소유물이다. |
| | 6. When all is said and done, I think my knowledge belongs to me. | 6. 모든 것을 고려해 볼 때, 나는 내가 이 회사에서 얻은 지식은 나에게 속하는 것이라 생각한다. |
| | 7. I do not feel any ownership of the knowledge I acquire in this organization | 7. 나는 내가 이 회사에서 얻은 지식에 대한 어떠한 소유욕도 느끼지 않는다 ® |
| | 8. My work-related knowledge is not mine since I acquire the knowledge while I am on the job | 8. 내 업무관련 지식은 내것이라고 볼 수 없다. 그 이유는 내가 이 회사에서 일하는 동안 얻은 것이기 때문이다. ® |
| Perceived Usefulness | 1. Using shared knowledge from my supervisor would enable me to accomplish tasks more quickly | 1. 상사의 지식은 내가 업무를 보다 신속히 처리하는데 도움이 될 것이다 |
| | 2. Using shared knowledge from my supervisor would improve my job performance | 2. 상사의 지식은 내 업무성과를 높여줄 것이다 |
| | 3. Using shared knowledge from my supervisor would increase my productivity | 3. 상사의 지식은 내 업무의 생산성을 향상시켜줄 것이다 |

| | | |
|---|---|---|
| | 4. Using shared knowledge from my supervisor would enhance my effectiveness on the job | 4. 상사의 지식은 내 업무를 성공적으로 수행하는 데 도움이 될 것이다 |
| | 5. Using shared knowledge from my supervisor would make it easier to do my job | 5. 상사의 지식은 내가 업무를 보다 쉽게 할 수 있도록 도와 줄 것이다. |
| | 6. I would find Using shared knowledge from my supervisor useful in my job | 6. 나는 상사의 지식이 내 업무에 유용하게 사용될 것이라 생각한다. |
| Supervisor Knowledge Sharing | 1. My supervisor shares special knowledge and expertise with me | 1. 나의 상사는 본인이 가지고 있는 특수한 지식이나 노하우를 나와 공유한다. |
| | 2. If my supervisor has some special knowledge about how to perform the task, he/she is likely to tell me about it. | 2. 나의 상사는 본인이 알고 있는 업무수행 방법을 나에게 기꺼이 알려준다. |
| | 3. My supervisor exchanges information, knowledge, and sharing of skills with me. | 3. 나와 상사는 서로 알고 있는 정보, 지식, 기술을 교환하고 공유한다. |
| | 4. My supervisor freely provides me with hard-to-find knowledge or specialized skills | 4. 나의 상사는 찾기 힘든 지식이나 전문적인 기술을 나에게 종종 제공한다. |
| | 5. My supervisor help me in developing relevant strategies | 5. 나의 상사는 업무수행 방식 또는 전략을 개발하는데 있어 나를 도와준다. |
| | 6. My supervisor share lot of information with me | 6. 나의 상사는 많은 정보를 나와 공유한다. |
| | 7. My supervisor offer lots of suggestions to me. | 7. 나의 상사는 나에게 많은 제안을 한다. |
| Supervisors' Expertise | 1. My supervisor is very capable of performing his/her job. | 1. 나의 상사는 자신의 업무를 수행하는데 충분한 능력을 갖추고 있다 |
| | 2. My supervisor is known to be successful at the things he/she tries to do. | 2. 나의 상사는 자신이 하는 일을 성공적으로 수행한다 |
| | 3. My supervisor has much knowledge about the work that needs done. | 3. 나의 상사는 자신이 수행해야 할 일에 대한 충분한 지식을 갖추고 있다 |
| | 4. I feel very confident about my supervisor's skills. | 4. 나는 상사의 업무관련 스킬이 높다고 생각한다. |

| | | |
|---|---|---|
| | 5. My supervisor has specialized capabilities that can increase our performance. | 5. 나의 상사는 팀성과를 높일 수 있는 업무관련 능력을 갖추고 있다. |
| | 6. My supervisor is well qualified. | 6. 나의 상사는 자신의 업무를 수행할 자격이 있다. |
| Task Performance | 1. The subordinate adequately completes assigned duties | 1. 이 직원은 주어진 업무를 적절하게 완성한다. |
| | 2. The subordinate fulfills responsibilities specified in job description | 2. 이 직원은 맡은 업무와 책임을 잘 이행한다. |
| | 3. The subordinate performs tasks that are expected of him/her | 3. 이 직원은 자신에게 기대되는 과업을 잘 수행하고 있다. |
| | 4. The subordinate meets formal performance requirements of the job | 4. 이 직원은 공식적으로 요구되는 업무요건을 잘 충족시킨다. |
| | 5. The subordinate engages in activities that will directly affect his/her performance evaluation | 5. 이 직원은 자신의 성과 평가에 직접적 영향을 미치는 활동을 잘 수행한다. |
| | 6. The subordinate neglects aspects of the job he/she is obligated to perform. ® | 6. 이 직원은 자신이 수행해야 할 업무를 소홀히 한다. ® |
| | 7. The subordinate fails to perform essential duties.(R) | 7. 이 직원은 요구되는 필수적인 책임과 의무를 잘 수행하지 못한다 ® |
| Subordinates' Expertise | 1. I am very capable of performing my job. | 1. 나는 내 업무를 수행하는데 충분한 능력을 갖추고 있다 |
| | 2. I am known to be successful at the things I tries to do. | 2. 나는 내가 하는 일을 성공적으로 수행해 왔다. |
| | 3. I have much knowledge about the work that needs done. | 3. 나는 내가 수행해야 할 일에 대한 충분한 지식을 갖추고 있다 |
| | 4. I feel very confident about my skills. | 4. 나는 업무관련 스킬이 높다고 생각한다. |
| | 5. I have specialized capabilities that can increase my teams performance. | 5. 나는 팀성과를 높일 수 있는 업무관련 능력을 갖추고 있다. |
| | 6. I am well qualified. | 6. 나는 내 업무를 수행할 자격이 있다. |

# IV. RESULTS

Table 4 provides the descriptive statistics, correlations, and reliabilities for the variables in this study. The average age of supervisors was 46.5 and that of subordinates was 34.6. The supervisors, on average, have work on their jobs for about 23.5 years, and mostly their gender was male (83%). In case of the subordinates, their average level of tenure with the organization was 8.1 years, and the proportion of male was 40%. Lastly, most of the software engineers in this company graduated at least undergraduate university (above 90%). This may be because developing software programs require high levels of skills and knowledge on software system, so they may needed to study advanced knowledge on Computer Science in their university.

I tested all the hypotheses with the hierarchical multiple regression analysis. Independent, mediating, and moderating variables were mean-centered. Table 2 and 3 show the results of the analysis. All the control variables (i.e., subordinates' age, gender, tenure with organization, education, tenure with supervisor, and supervisors' expertise) were put at the first step. At the second step, independent variables were entered, and I entered moderating variables at the last step.

Hypothesis 1 describes positive association between supervisor knowledge sharing and subordinates' task performance. As expected, the positive relationship was supported by regression analysis ($\beta = .31$, $p < .05$;

Table 3). Thus, in general, supervisors' knowledge sharing behaviors enhance subordinates' performance on their jobs.

In Hypothesis 2, I expected that subordinates' expertise will negatively moderate the relationship between supervisor knowledge sharing and subordinates' task performance such that the positive relationship becomes negative when subordinates' expertise is high. As a result of regression test in Table 3, I found negative moderating effects of subordinates' expertise. To better understand the result, I plotted the interaction effects between supervisor knowledge sharing and subordinates' expertise by using ± 1 standard deviation (Aiken & West, 1991) in Figure 2. When subordinates' expertise was low, the effects of supervisor knowledge sharing on subordinates' task performance were positive. However, unlike my expectation, this relationship was disappeared when subordinates' expertise is high. Thus, Hypothesis 2 is partially supported.

In table 2, the main effects of subordinates' expertise on the two mediators, perceived receipt of useful knowledge from supervisors and knowledge ownership, were presented. As expected in Hypothesis 3a, subordinates' expertise had positive relationship with their own knowledge ownership perception ($\beta = .14$, $p < .05$). However, the relationship between subordinates' expertise and perceived receipt of useful knowledge was negative ($\beta = .31$, $p < .01$). This result contradicts my expectation in Hypothesis 4a which predicted that subordinates high in expertise will devaluate shared

knowledge from supervisors. Therefore, Hypothesis 4a was not supported while Hypothesis 3a was supported.

Table 4. Descriptive Statistics, Correlations, and Reliability

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age [b] | 34.59 | 7.42 | | | | | | | | | | | |
| 2. Gender [b] | .42 | .53 | .15 | | | | | | | | | | |
| 3. Tenure [b] | 8.08 | 7.42 | .61** | .21* | | | | | | | | | |
| 4. Education [b] | 2.61 | .79 | -.22* | -.13 | -.39** | | | | | | | | |
| 5. Tenure with Supervisor [b] | 2.42 | 5.08 | -.06 | -.02 | .04 | -.17 | | | | | | | |
| 6. Supervisors' Expertise [b] | 5.42 | 1.01 | .13 | .04 | .16 | -.06 | -.17 | (.95) | | | | | |
| 7. Supervisor Knowledge Sharing [b] | 5.37 | .96 | .02 | -.16 | .09 | .24* | -.28** | .713** | (.95) | | | | |
| 8. Subordinates' Expertise [b] | 2.66 | .93 | -.10 | .19* | .01 | -.12 | .07 | -.21* | -.35** | (.94) | | | |
| 9. Perceived Usefulness [b] | 2.22 | .75 | .05 | .12 | .00 | .13 | -.10 | -.48** | -.41** | .37** | (.95) | | |
| 10. Knowledge Ownership [b] | 2.97 | .89 | -.15 | .06 | -.10 | .02 | .23* | -.73** | -.72** | .30** | .54** | (.84) | |
| 11. Task Performance [a] | 4.54 | .99 | .34** | .07 | .23* | -.09 | -.23* | .29** | .31** | -.25** | -.13 | -.39** | (.97) |

*Note*. N=109. The alpha internal-consistency reliability coefficients appear in parentheses along the main diagonal. [a] Supervisors measured these variables; [b] Subordinates measured these variables. Age (years); Gender (0 = male, 1 = female); Tenure (years); Tenure with Supervisor (years).

* $p < .05$. ** $p < .01$.

Table 5. Multiple Hierarchical Regression Analysis on Subordinates' Expertise and Two Mediators (Perceived Receipt of Useful Knowledge from Supervisor & Knowledge Ownership)

| Variables | Perceived Usefulness | | Knowledge Ownership | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| Control Variable | | | | |
| Age | .09 | .13 | -.10 | -.07 |
| Gender | .13 | .06 | .09 | .06 |
| Tenure | .06 | .05 | .06 | .05 |
| Education | .13 | .17* | .01 | .02 |
| Tenure with Supervisor | -.17 | -.17* | .10 | .10 |
| Supervisors' Expertise | -.53** | -.46** | -.72** | -.69** |
| Independent Variable | | | | |
| Subordinates' Expertise | | .31** | | .14* |
| F | 7.61** | 9.43** | 21.61** | 19.67** |
| Changes in F | 7.61** | 14.38** | 21.61** | 4.10* |
| $R^2$ | .31 | .40 | .56 | .58 |
| Changes in $R^2$ | .31 | .09 | .56 | .02 |

*Note*. N=109. Entries are standardized regression coefficients. [a] Supervisors measured these variables; [b] Subordinates measured these variables. Age (years); Gender (0 = male, 1 = female); Tenure (years); Tenure with Supervisor (years). .

* $p < .05$. ** $p < .01$.

Table 6. Mediated Moderation Analysis

| Variables | Task Performance | | | |
|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| Control Variable | | | | |
| Age | .27* | .31** | .30** | .22 |
| Gender | .01 | .06 | .08 | .10 |
| Tenure | .02 | -.04 | -.03 | .06 |
| Education | -.03* | -.12 | -.11 | -.11 |
| Tenure with Supervisor | -.18 | -.15 | -.17 | -.27** |
| Supervisors' Expertise | .21* | .00 | -.03 | -.02 |
| Independent Variable | | | | |
| Supervisor Knowledge Sharing (SKS) | | .31* | .34* | .33 |
| Moderating Variables | | | | |
| Subordinates' Expertise (S-EXP) | | | -.08 | -.12 |
| SKS*S-EXP | | | -.21* | -.08 |
| Knowledge Ownership (KO) | | | | -.19 |
| SKS*KO | | | | -.32* |
| Perceived Usefulness (USE) | | | | .12 |
| SKS*USE | | | | .12 |
| F | 4.31** | 4.43** | 4.45** | 4.04** |
| Changes in F | 4.31** | 4.32* | 3.69* | 2.51* |
| $R^2$ | .20 | .24 | .29 | .36 |
| Changes in $R^2$ | .20 | .03 | .05 | .07 |

*Note*. N=109. Entries are standardized regression coefficients. [a] Supervisors measured these variables; [b] Subordinates measured these variables. Age (years); Gender (0 = male, 1 = female); Tenure (years); Tenure with Supervisor (years).
* $p < .05$. ** $p < .01$.

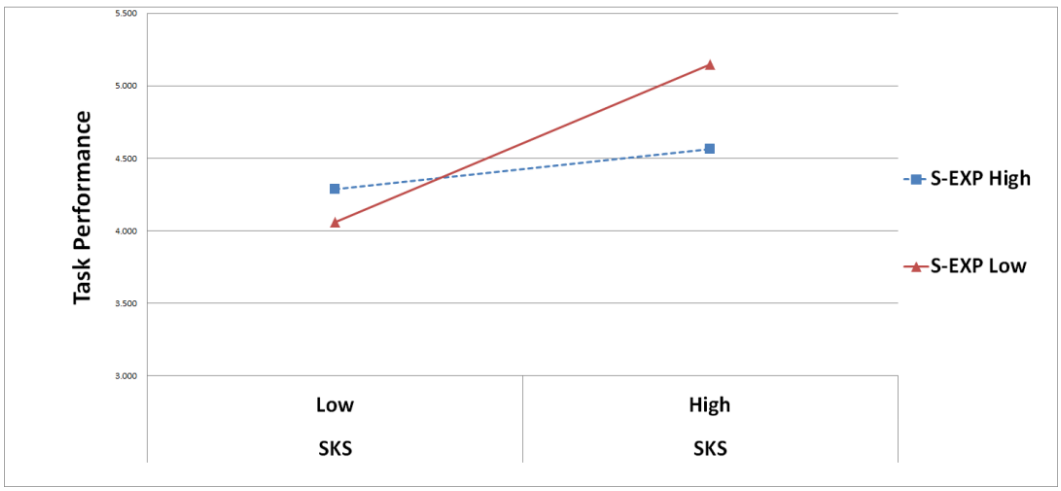
Table 7. Interaction Analysis between Supervisor Knowledge Sharing and Supervisors' Expertise

| Variables | Task Performance | | |
|---|---|---|---|
| | Model 1 | Model 2 | Model 3 |
| Control Variable | | | |
| AGE | .24* | .28* | .30** |
| GENDER | .05 | .08 | .11 |
| TENURE | .06 | -.02 | -.03 |
| EDU | -.07 | -.13 | -.14 |
| TENURE w/ Supervisor | -.21* | -.15 | -.24* |
| Independent Variable | | | |
| Supervisor Knowledge Sharing (SKS) | | .25* | .32* |
| Moderating Variables | | | |
| Supervisors' Expertise (L-EXP) | | | .04 |
| SKS*L-EXP | | | .23* |
| F | 4.45** | 4.91** | 4.80** |
| Changes in F | 4.45** | 6.30* | 4.72* |
| $R^2$ | .21 | .25 | .32 |
| Changes in $R^2$ | .21 | .05 | .07 |

*Note*. N=109. Entries are standardized regression coefficients. [a] Supervisors measured these variables; [b] Subordinates measured these variables. Age (years); Gender (0 = male, 1 = female); Tenure (years); Tenure with Supervisor (years). .

* $p < .05$. ** $p < .01$.

*Figure 2.* Moderating Effects of Subordinates' Expertise on Supervisor Knowledge Sharing and Subordinates' Task Performance.

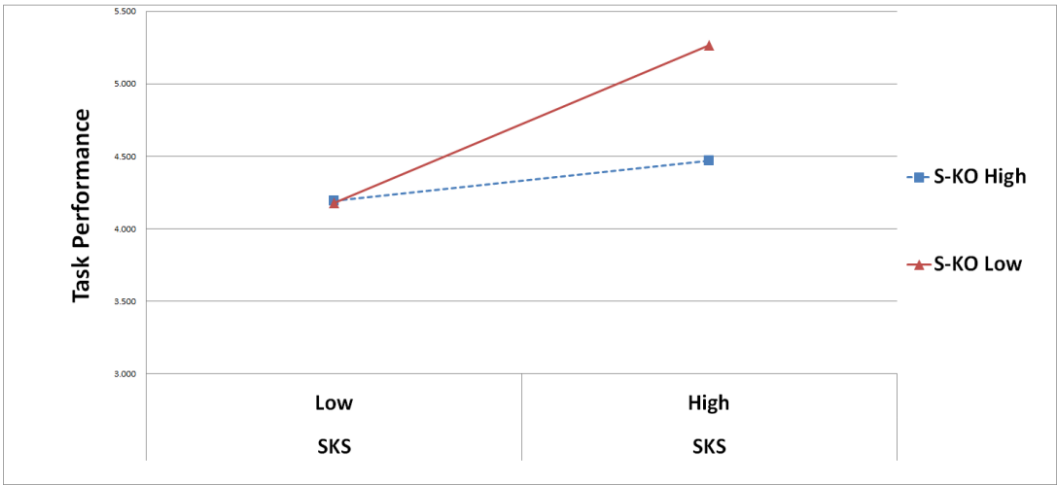



*Note*. SKS = Supervisor Knowledge Sharing, S-EXP = Subordinates' Expertise

To complete the test of Hypothesis 3 and 4, I followed the moderated path analysis suggested by Edwards and Lambert (2007). First, the interaction between supervisor knowledge sharing and subordinates' expertise on task performance was significant (Hypothesis 2). Second, subordinates' expertise significantly predicted knowledge ownership (Hypothesis 3a) while it did not predicted perceived receipt of useful knowledge from supervisors in the expected ways (Hypothesis 4a). For this reason, the path, perceived receipt of useful knowledge transmits the moderating effects of subordinates' expertise, was not supported. Thus, Hypothesis 4b and 4c were not supported.

Third, the mediating variable, knowledge ownership, positively moderated the relationship between supervisor knowledge sharing and subordinates' task performance ($\beta$ = -.32, $p < .05$). Furthermore, I found that presence of the mediating variables eliminated the moderating effect of subordinates' expertise (Table 3, Model 3 and 4), thereby those mediators transmitted –and eliminated- the moderating effect of the original moderator. I plotted the moderating effects of subordinates' knowledge ownership in Figure 3. Simple slope tests revealed that the relationship between supervisor knowledge sharing and task performance was positive when subordinates' knowledge ownership was low. However, this relationship was disappeared when subordinates hold high levels of knowledge ownership. This is not the expected pattern in Hypothesis 3b which predicted negative relationship between supervisor knowledge sharing and subordinates' task performance when knowledge ownership is high. Therefore, Hypothesis 3b is partially confirmed.

*Figure 3.* Moderating Effects of Knowledge Ownership on Supervisor Knowledge Sharing and Subordinates' Task Performance.



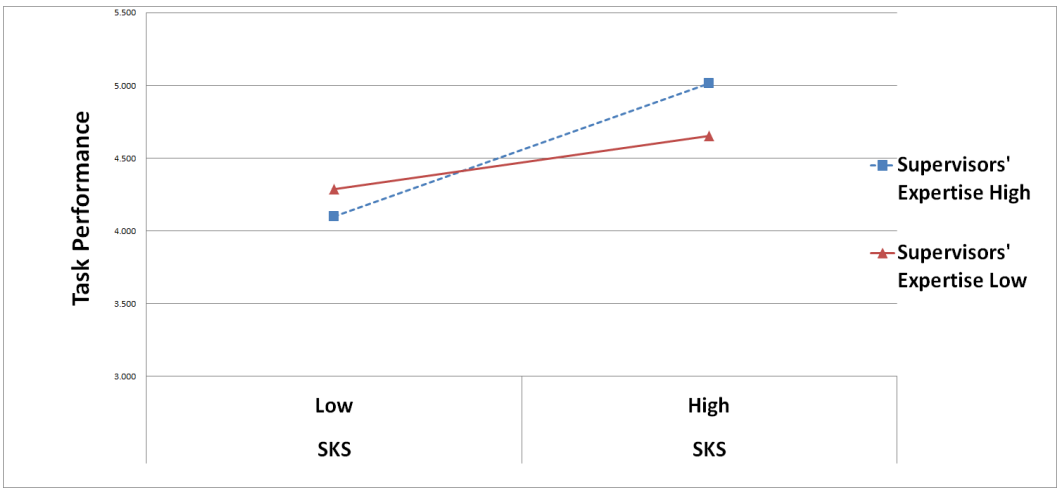

*Note*. SKS = Supervisor Knowledge Sharing, S-KO = Subordinates' Knowledge Ownership

As the last step of mediated moderation analysis, I conducted a bootstrap analysis with bias-corrected confidence intervals by drawing 1,000 random samples with replacement from the full sample. The size of the indirect effects of subordinates' knowledge ownership was .05, and the 95% confidence interval from the bootstrap analysis excluded zero (-.45, -.02). Thus, Hypothesis 3c is supported. Overall, Hypothesis 3 was partially supported while Hypothesis 4 was not supported.

Additionally, with the dataset I used above, I examined if supervisors' expertise has a moderating effect on the relationship between supervisor knowledge sharing and subordinates' task performance. Table 7 shows the

results of the additional analyses. The control variables are the same to the previous tests except for supervisors' expertise. Since I need to use supervisors' expertise as a moderator, I eliminated this variable at the first step.

*Figure 4.* Moderating Effects of Supervisors' Expertise on Supervisor Knowledge Sharing and Subordinates' Task Performance.




*Note*. SKS = Supervisor Knowledge Sharing

In line with Hypothesis 1, supervisor knowledge sharing was positively related to the subordinates' task performance ($\beta = .25$, $p < .05$). Also, the moderating effect of supervisors' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance was positive ($\beta = .23$, $p < .05$). As Figure 4 shows, the relationship between supervisor

knowledge sharing and subordinates' task performance was positive when supervisor hold high levels of expertise on their jobs. However, under the situation low in supervisors' expertise, the relationship was nullified. Although I did not formally hypothesize the moderating effect of supervisors' expertise, it does have significant moderating effects positively associating supervisor knowledge sharing with subordinates' task performance.

# VI. GENERAL DISCUSSIONS AND FUTURE RESEARCH

Knowledge is one of the most important strategic resources which leads organizations to constant growth (Wang & Noe, 2010). As a result, scholars have put their most efforts to develop knowledge literature. However, even though individuals are the only agent to cognize and analyze knowledge (Huber, 1991), knowledge research at the individual-level is still sparse (Quigley et al., 2007). This study introduces new concept, supervisor knowledge sharing, to investigate the effects of knowledge sharing at the individual level, and by specifying a provider (i.e., a supervisor) and a beneficiary (i.e., a subordinate), this study is designed to examine the detailed mechanisms how the relationship between supervisor knowledge sharing and subordinates' task performance is varying in terms of the beneficiary's characteristics. However, since many of my hypotheses did not supported by my longitudinal dataset, I will propose alternative theoretical models for the future research.

First of all, I hypothesized that supervisors' knowledge sharing will enhance their subordinates' task performance. Task-relevant knowledge in general contribute for an employee to resolve task-related problems (Quigley et al., 2007) since it can provide useful knowledge which the focal employee did not aware of. Considering that supervisors hold better and more task-related knowledge (Earley, 1985), the shared knowledge from them might be highly useful for resolve problems that the focal employee experiences.

As a result of hypothesis test, I found that supervisor knowledge sharing did enhance subordinates' task performance. This is mainly because supervisors tend to have longer tenure and high levels of expertise earned through abundant experiences on tasks. Interestingly, this result is found even when the supervisors' expertise is controlled. That is, shared knowledge from supervisors generally enhances subordinates' task performance regardless of supervisors' expertise-levels. It is possible that shared knowledge itself stimulates beneficiaries' learning motivation. Subordinates in the workplace tend to experience high levels of job demands since it is common that they have lack of expertise on their job (Bakker et al., 2003). Therefore, they are motivated to reduce such job demands through figuring out any value from the shared knowledge regardless of the quality of shared knowledge from supervisors.

Furthermore, it would be possible that the shared knowledge from supervisors may still critically help subordinates successfully resolve confronting problems even in the case of low levels of supervisors' expertise. That is, supervisors, low in expertise, may still have enough knowledge and skills which can assist subordinates in reducing burdens. This is because the fact, that supervisors are low in expertise, does not mean their expertise is lower than that of subordinates.

As an example, the dataset, used to test my hypotheses, provides some clues on this. In Table 4, there are information regarding means and standard deviations of both supervisors' expertise and subordinates' expertise. If I

conceptualize “low in expertise” as “Mean – 2 Standard Deviation”, I can calculate the low level of supervisors’ expertise. That is, the low level of supervisors’ expertise is 3.4 out of 7.0 (because I used 7-point Likert Scale). On the other hand, the average level of subordinates’ expertise is 2.66. Thus, this dataset implies that the low level of supervisor expertise is still higher than the average level of subordinate expertise. For these reasons, the supervisors’ knowledge sharing behaviors may enhance subordinates’ task performance even though the supervisor expertise is statistically controlled.

In addition, this study examines the effectiveness of supervisor knowledge sharing on subordinates’ task performance in terms of different levels of expertise. According to theory of conceptual change (Duit & Treagust, 2003; Pintrich, Marx, & Boyle, 1993; Posner et al., 1982; Strike & Posner, 1992; Vosniadou, 2007), a knowledge beneficiary is motivated to learn the shared knowledge only when the following four conditions are met.

First, the beneficiary needs to have a high level of dissatisfaction with his/her current levels of knowledge. Second, the shared knowledge should be intelligible. The beneficiary becomes to perceive the shared knowledge is intelligible if it is properly comprehensible. Third, the shared knowledge should have plausibility. That is, the beneficiary should be able to resolve problems which he/she can resolve with the current level of knowledge. Finally, the new knowledge should have fruitfulness. The beneficiary perceived the shared knowledge fruitful when it can solve past problems which could not have been resolved, or possible problems in the future which he/she may confront later.

The beneficiary goes over those conditions in the sequential manner, and the beneficiary eventually embrace the new knowledge only after *all* the conditions are met (Strike & Posner, 1992).

In this regard, I hypothesized that when the subordinates have high levels of expertise on their jobs, they will not accept the shared knowledge from supervisors. Moreover, I further assumed that the relationship between supervisor knowledge sharing and task performance would be rather negative. This is because they need to allocate their cognitive resources to supervisors' knowledge sharing behaviors even though they get nothing. According to resource allocation theory (Kanfer & Ackerman, 1989), people have limited amount of cognitive resources that they can allocate. Since supervisors are the most important agents in organizations, who can influence employees' daily lives in the workplace (Barsade, 2002), subordinates cannot help paying attention to supervisors' every behavior in the workplace. Thus, subordinates high in expertise too need to consume a certain amount of their cognitive resources toward supervisors' knowledge sharing behaviors although they will not get anything. For this reason, such subordinates will be greatly distracted if their supervisors excessively involve into knowledge sharing behaviors.

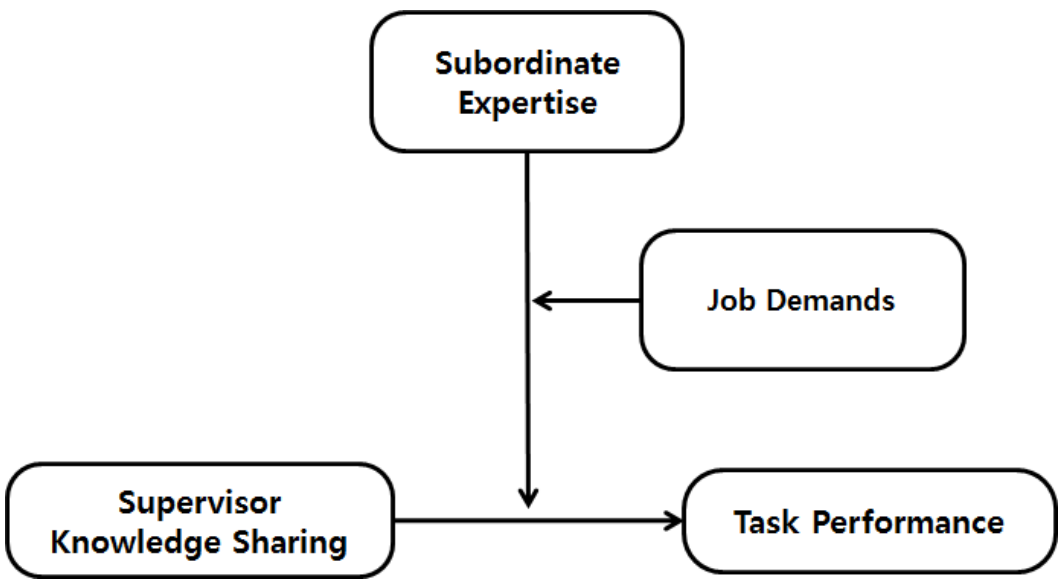
As expected, there was the positive relationship between supervisor knowledge sharing and subordinates' task performance when subordinates possess low levels of expertise. And, for subordinates high in expertise, the knowledge sharing was not related to their task performance. However, this relationship did not become negative.

This finding is at least in line with the theory of conceptual change (Duit & Treagust, 2003; Pintrich et al., 1993; Posner et al., 1982; Strike & Posner, 1992; Vosniadou, 2007). This theory suggests that people who have high levels of expertise will not be motivated to absorb shared knowledge since they have currently no problem to conduct their tasks. As a result, such people simply ignore the shared knowledge according to this theory. Unfortunately, the results did not support my expectation based on the resource allocation theory (Kanfer & Ackerman, 1989). It is my opinion that the subordinates, who are high in expertise, still have enough cognitive resources to conduct their tasks even though their supervisors excessively shared own knowledge, which is not relevant to the subordinates. Thus, it would be possible that the subordinates, high in expertise on their jobs, will be distracted by their supervisors' excessive knowledge sharing under the situation of high job demands. To design this proposition into a theoretical model, it would be the following model.

Second, I hypothesized that knowledge ownership, referring to a high level commitment to and strong feeling of possessiveness to own knowledge, will partially transmit the moderating effect of subordinate expertise. According to psychological ownership theory (Avey, Avolio, Crossley, & Luthans, 2009; Pierce et al., 2001; Rudmin, 1986; Van Dyne & Pierce, 2004), people feel a high level of ownership toward a certain object with proportion to the investments (e.g., time, energy, money, and so on) to acquire the object. Also, Pierce et al. (2001), who developed this theory, argued that such object does not necessarily be a tangible thing. It can be intangible and abstract matter such as

knowledge.

*Figure 5.* Alternative Model #1: Three-way Interaction Effects of Supervisor Knowledge Sharing, Subordinates' Expertise, and Subordinates' Job Demands on Subordinates' Task Performance.




In addition, according to the theory of deliberate practice (Ericsson, 2004; Ericsson et al., 1993; Ericsson & Lehmann, 1996; Ericsson et al., 2009; Ericsson et al., 2007), Ericsson and his colleagues have argued that it takes much efforts and time to acquire expertise in a certain domain. Thus, considering both theories, psychological ownership theory and theory of deliberate practice, I set hypotheses such that subordinates' expertise will be positively related to the knowledge ownership.

Also, I expected that high levels of knowledge ownership will be negatively moderate the relationship between supervisor knowledge sharing and subordinates' task performance. A person, who is highly attached and committed to their own knowledge, is not willing to change his/her own knowledge (Duit & Treagust, 2003; Pintrich et al., 1993; Posner et al., 1982; Strike & Posner, 1992; Vosniadou, 2007). Thus, such a person is not likely to embrace the shared knowledge from supervisors while he/she needs to pay cognitive resources to the knowledge sharing from supervisors. All in all, I hypothesized that knowledge ownership transmit the moderating effect of subordinate expertise on the relationship between supervisor knowledge sharing and task performance.

As expected, the knowledge ownership was a crucial underlying process which elaborates the moderating effect of subordinate expertise. Thus, I may conclude that high levels of subordinates' expertise disconnect the relationship between supervisor knowledge sharing and subordinates' task performance. However, unlike my proposition, the subordinates' expertise did not make the effect of supervisor knowledge sharing on task performance negative. As I mentioned before, this result supports the theory of conceptual change, but does not support the resource allocation theory.

Third, I hypothesized that perceived usefulness of shared knowledge from supervisor will transmit the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance. Many scholars studying expertise have suggested that experts

possess a high level of knowledge on their jobs (Arnold & O'Connor, 1999; Baer, 1986; Bender & Fish, 2000; Brandon & Hollingshead, 2004; Cellier et al., 1997; Chi, 2006; Chi et al., 1988; Chi et al., 1982; Ericsson et al., 1993; Ericsson & Lehmann, 1996; Ericsson et al., 2009; Ericsson et al., 2007; Faraj & Sproull, 2000; Farrington-Darby & Wilson, 2006; Haerem & Rau, 2007; Hinds et al., 2001; Isaacs & Clark, 1987; Johnson, 1988; Kraiger et al., 1993; Libby et al., 1987; Loyd et al., 2010; McEnrue, 1984; Nickerson, 1999; Norman et al., 1992; Shanteau, 1992; Shulman, 2000; Sonnentag, 1998; Tillema, 1994; Wiel et al., 2004; Yamnill & McLean, 2001). In fact, the abundant knowledge, skills, and abilities on own job is the definition of expertise.

Thus, those subordinates high in expertise might not find additional values from the shared knowledge by their supervisors because they already possess sufficient and valuable knowledge in their domains. For this reason, I hypothesized that subordinates' expertise will be negatively related to perceived usefulness of shared knowledge, and the perceived usefulness will transmit the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and subordinates' task performance.

However, the result of hypotheses testing was directly opposite to my hypotheses. In other word, the result showed that subordinates' expertise rather positively related to the perceived usefulness of shared knowledge from supervisors. This stunning result may base its ground on one of experts' characteristics; experts can find meaningful patterns in their specialized fields (Farrington-Darby & Wilson, 2006). Therefore, subordinates high in expertise

might find hidden values from the shared knowledge even though the shared knowledge is seemingly redundant to their own knowledge.

In spite of this, there is still a theoretical possibility that expertise is negatively related to perceived usefulness of shared knowledge considering the theoretical grounds mentioned above. Thus, I believe that the relationship between subordinates' expertise and perceived usefulness of shared knowledge from supervisors might be theoretically inconsistent. In the future research, it would be meaningful to examine the mediating mechanisms or possible moderators to elaborate this relationship.

To sum up, the negative moderating effects of subordinates' expertise are found to be transmitted through knowledge ownership, but not through the perceived receipt of useful knowledge from supervisors. Interestingly, the relationship between subordinates' expertise and perceived receipt of useful knowledge was rather positive which is opposed to my expectation. I summarized the results of hypotheses testing in Table 8.

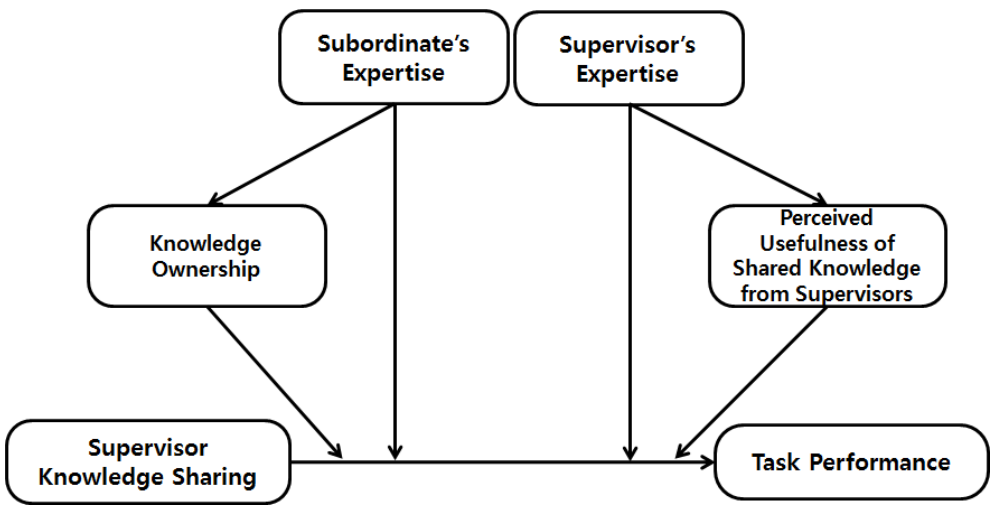
Table 8. Hypotheses Testing Results

| | Hypothesis | Test Results |
|---|---|---|
| H1 | Supervisor knowledge sharing is positively related to subordinates' task performance | Supported |
| H2 | Subordinates' expertise negatively moderates the relationship between supervisor knowledge sharing and subordinates' task performance. That is, the relationship becomes negative when subordinates' expertise is high | Partially Supported |
| H3 | H3a ) Subordinates' expertise is positively related to knowledge ownership<br>H3b) The relationship between supervisor knowledge sharing and subordinates' task performance becomes negative when subordinates hold high levels of knowledge ownership.<br>H3c) Knowledge ownership partially mediates the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance. | Partially Supported |
| H4 | H4a ) Subordinates' expertise is negatively related to perceived usefulness of shared knowledge from supervisors<br>H4b) The relationship between supervisor knowledge sharing and subordinates' task performance becomes negative when subordinates hold low levels of perceived usefulness of shared knowledge from supervisors<br>H4c) Perceived usefulness of shared knowledge from supervisors partially mediates the moderating effect of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance. | Not Supported |

## VII. ALTERNATIVE MODEL

Since the results of hypotheses testing were quite disappointing, I propose some alternative models that might be worthwhile to investigate in the future.

*Figure 6*. Alternative Model #2: Dual Path Model




In the model depicted in Figure 6, I propose that each of the knowledge beneficiary's expertise and the knowledge provider's expertise will have opposite and unique moderating path, which differently associates supervisor knowledge sharing with subordinates' task performance.

When supervisors hold high levels of expertise on their job, the subordinates likely perceive the shared knowledge from the supervisors useful; and, if the subordinates perceive so, they will be motivated to accept the shared

knowledge from the supervisors. Therefore, the supervisor expertise may positively moderate the relationship between supervisor knowledge sharing and the subordinates' task performance.

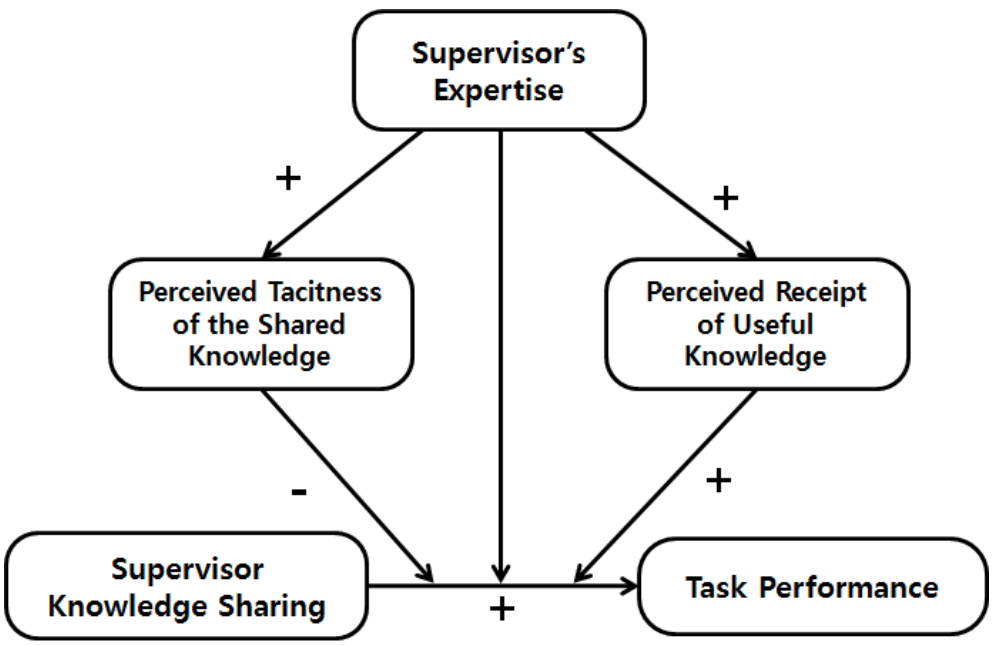
Then, does the supervisor expertise always have positive moderating effects associating supervisor knowledge sharing with task performance? According to Hind (1999) and the curse of knowledge literature, it is highly possible that the supervisor expertise also have a negative influence on the relationship between supervisor knowledge sharing and the subordinates' task performance.

Hind (1999) found that experts often misjudge a novice's performance. That is, experts tend to overestimate the capabilities of a novice, so they expect higher performance than the novice actually can perform. Also, the curse of knowledge literature also suggests this possibility. Since experts are too much used to their own knowledge, they are likely to forget how hardly they earned such a high level of knowledge on their fields. For this reason, they often overestimate the capabilities of novices. The experts, for instance, might use difficult jargons in their fields when they share own knowledge with the novice without considering the current level of the novice.

Therefore, it is possible that the shared knowledge from supervisors, who have high levels of expertise, is not decodable for the subordinates, who have relatively lower expertise that their supervisors. In other word, there are high possibilities that some variables such as difficulty of the shared knowledge

or knowledge tacitness can mediate the negative moderating effect of supervisor expertise. In this regard, I suggest a theoretical model, which Figure 7 shows.

*Figure 7.* Alternative Model #3: Positive as well as Negative Paths of the Moderating Effects of Supervisor Expertise on the Relationship between Supervisor Knowledge Sharing and Subordinates' Task Performance




Also, I found an interesting result of regression analyses in my study. The main effect of supervisors' expertise on subordinates' task performance was very high ($\beta = .21$, $p < .05$; Table 6). On the other hand, the main effect of subordinates' expertise on task performance was not significant ($\beta = -.08$, $p > .05$; Table 6), although this information may not accurate considering that Table 6 was not to examine the main effect of subordinates' expertise on their task performance. What is more astonishing is that the main effect of

subordinates' expertise on own task performance is even negative. This may be because the subordinate expertise is rated by subordinates themselves.

Thus, I tested the main effect of subordinates' expertise rated by themselves and by supervisors and supervisor expertise on subordinates' task performance. Table 9 shows the results.

Table 9. Additional Analyses

| Variables | Task Performance | | | | | |
|---|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Control Variable | | | | | | |
| AGE | .31** | .27* | .31** | -.07 | .31** | -.07 |
| GENDER | .02 | .06 | .02 | -.02 | .02 | .00 |
| TENURE | .05 | .02 | .05 | .21* | .05 | .21* |
| EDU | .01 | -.02 | .01 | .06 | .01 | .05 |
| Independent Variable | | | | | | |
| Supervisors' Expertise | | .21* | | .15* | | .14* |
| Subordinates' Expertise Rated by Themselves | | -.19* | | | | -.09 |
| Subordinates' Expertise Rated by Supervisors | | | | .70** | | .69** |
| F | 3.69** | 4.66** | 3.69** | 23.21** | 3.69** | 20.32** |
| Changes in F | 3.69** | 5.92** | 3.69** | 54.81** | 3.69** | 37.45** |
| $R^2$ | .12 | .21 | .12 | .57 | .12 | .58 |
| Changes in $R^2$ | .12 | .09 | .12 | .45 | .12 | .46 |

*Note*. N=109. Entries are standardized regression coefficients. [a] Supervisors measured these variables; [b] Subordinates measured these variables. Age (years); Gender (0 = male, 1 = female); Tenure (years); Tenure with Supervisor (years). .

* $p < .05$. ** $p < .01$.

As a result of additional tests in Table 9, I found that supervisor expertise has strong positive relationship with subordinates' task performance ($\beta = .21$, $p < .05$; $\beta = .15$, $p < .05$; $\beta = .14$, $p < .05$). This result led me to another question: why is supervisor expertise positively related to subordinates' task performance? Perhaps, it would be quite difficult to explain this result without additional mediators or moderators because those two variables seem theoretically too far from each other. Thus, future researchers may investigate certain behaviors of supervisors as mediators or moderators to connect supervisor expertise with subordinates' task performance.

Interestingly, the relationship between subordinates' expertise and their task performance varies in terms of the sources of rating (i.e., supervisor vs. themselves). When subordinates rated own expertise, the relationship between expertise and task performance was significantly negative ($\beta = -.19$, $p < .05$) while supervisor-rated expertise was positively related to subordinates' task performance. More interestingly, the correlation between supervisor-rated subordinates' expertise and self-rated expertise was significantly negative (correlation coefficient = -.18, $p < .05$).

It is my opinion that these results show the biases in terms of responding sources. That is, subordinates may answer more positively to the questions on their expertise than the actual levels of their expertise. However, this explanation might not sufficient to elaborate the negative correlation coefficient. This correlation represents the possibility that subordinates rate

their expertise more positively as their actual (or, say, objective) expertise gets lower if I assume that supervisor-rated expertise is the objective measure. It would be interesting if future research further explain this phenomenon.

As such, it would be very meaningful to examine various dynamics between supervisor knowledge sharing, subordinate expertise, and supervisor expertise. The three theoretical models I suggested above may be examples which can shed light on the future study on these dynamics.

## VIII. LIMITATIONS

This study has some limitations as is the case with most studies. First of all, I conducted a longitudinal study, but it does not allow me to conclude the causal relationship between independent variable (i.e., supervisor knowledge sharing) and dependent variable (i.e., subordinates' task performance). To confirm causality, research design should meet following three conditions (Chadwick & Dabu, 2009; Wright, Gardner, Moynihan, & Allen, 2004). First condition is time order. The occurrence of independent variable should be in advance to the occurrence of dependent variable. In general, cross-sectional research design has its weakness on this condition since with the cross-sectional design researchers cannot make sure whether the independent variable presented before the dependent variable. Since this study was designed to the longitudinal study, this study is relatively robust in comparison with the cross-sectional research design.

Second, the correlation between the independent variable and dependent variable should be significant. This condition can be proven by descriptive statistical information (in case of this study, the descriptive statistics were presented in Table 4) or the statistical significance of regression coefficients (e.g., Table 5, 6, and 7). Since I tested my hypotheses with the statistical significance of regression coefficients, I can tell that the second condition is met.

The last condition is non-spurious relationship between the independent variable and the dependent variable. In other word, third-party variables should not influence the dependent as well as independent variables (i.e., non-spurious relationship). If those two variables are strongly related to a third-party variable, it is highly possible that the dependent variable does not vary in terms of the variation of the independent variable, but in terms of the variation of the third-party variable. To reduce the possibility of spurious relationships, researchers put many control variables at the first step of regression analyses to statistically control as many third-party variables as possible. However, this method is not flawless because it is always possible that researchers are unaware of other critical third-party variables. Also, it is also possible that if researchers put too many control variables, the main analyses of the regression may have flaws since too many control variables eliminate a high portion of explanation powers of variables, which are used in the main analyses. It is known that an experimental design is the best option to examine non-spurious relationship between independent and dependent variables. However, this study is the field study, not the experimental study; thus, I admit that I could not eliminate the possibility of spurious relationship between independent and dependent variables.

In addition, there is a multicolinearity issue. As Table4 shows, I found that the correlation between subordinates' knowledge ownership and supervisor knowledge sharing is too high (correlation coefficient = -.72, $p < .01$). This correlation implies that subordinates high in knowledge ownership tend to

underrate the levels of their supervisors' knowledge sharing behaviors. Also, the correlation between supervisor knowledge sharing and supervisors' expertise is very high (correlation coefficient = .71, $p < .01$). This means that supervisors high in expertise tend to actively involve into knowledge sharing activities, or if supervisors actively shared own knowledge with subordinates, the subordinates are likely to report that their supervisors have a high level of expertise.

Whatever the cases are, multicolinearity causes some problems. The biggest problem is that the researchers may not ensure their hypotheses testing results since the variables, highly correlated with one another, offset the explanation powers. Therefore, the regression results may result from the small portion of variables whose larger parts are offset by other variables. However, considering that the typical standard of mulicolinearity is the correlation coefficient .08, the variables in this study may not have such problems resulting from the multicolinearity.

# IX. CONCLUSION

Since Nonaka's (1994) ground breaking theory, the dynamic theory of organizational knowledge creation, was introduced, many scholars have investigated the positive effects of knowledge sharing or shared knowledge (Bartol & Srivastava, 2002; Bock et al., 2005; Cabrera et al., 2006; Ipe, 2003; Lin, 2007; Matzler et al., 2008; O'Neill & Adya, 2007; Siemsen et al., 2008; Srivastava et al., 2006; Weiss, 1999; Widén-Wulff & Ginman, 2004). However, most of their efforts have been focused on the organization-level or group-level consequences of knowledge sharing (Quigley et al., 2007).

However, considering that individuals are the only agents, who are able to cognize and analyze the knowledge (Huber, 1991), the lack of knowledge studies at the individual level may be the huge unfilled hole in knowledge literature (Quigley et al., 2007). In this regard, this study firstly examines the effectiveness of knowledge sharing from supervisors on their subordinates' task performance.

Furthermore, the proposition, that the effectiveness of knowledge sharing on a beneficiary's performance greatly vary in terms of the beneficiary's expertise, has been suggested by some scholars (e.g., Levin & Cross, 2004) or existing theories (Posner et al., 1982; Strike & Posner, 1992). However, this proposition has not been empirically tested yet. Thus, this study investigates whether knowledge sharing from supervisors always has positive

effects on subordinates' task performance or the effects vary in terms of the beneficiaries' expertise. In addition, if the effects of supervisor knowledge sharing is varying, this study examine why the subordinates' expertise moderates the relationship between supervisor knowledge sharing and task performance.

I tested my hypotheses with dataset I collected from software engineers at one of the largest electronics companies in Korea. As a result of hypotheses testing, I found that supervisor knowledge sharing is positively related to the subordinates' task performance. Moreover, this relationship was negatively moderated by subordinates' expertise. However, unlike my hypothesis, the subordinates' expertise did not make the relationship negative.

Lastly, I examined the underlying mechanisms of the moderating effects of subordinates' expertise on the relationship between supervisor knowledge sharing and task performance. I introduced two concepts as the mechanisms: 1) subordinates' knowledge ownership and 2) perceived usefulness of shared knowledge from supervisors. The results only supported the knowledge ownership path as an actual process, transmitting the moderating effect of subordinates' expertise. On the other hand, another path, perceived usefulness of shared knowledge from supervisors, was not mediated the moderating effect. Rather, opposite to my expectation, the result showed that a subordinate, who has a high level of expertise, tend to judge the shared knowledge as highly valuable and useful.

Since some of my hypotheses were not supported by field data, on the basis of current results, I suggested several theoretical models which might be worthwhile to pursue in the future research.

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## APENDIX

**(秘) 본 조사의 내용은 통계법 33조에 의거하여 비밀이 보장되며, 통계목적 외에는 사용되지 않습니다**

# 설 문 지 (부하)

(Form S)

안녕하세요?
저는 서울대학교 경영대학원에서 인사조직 석사과정에 재학중인 김연준입니다. 바쁘신 중에도 이렇게 귀중한 시간을 내 주셔서 대단히 감사합니다.

본 설문은 석사과정 졸업논문에 사용하기 위한 목적으로 설계되었습니다. 제가 중점을 두어서 연구하고자 하는 부분은 다음과 같습니다.

1. 조직 내 지식공유의 효과성 2. 개인의 전문성과 성과의 관계

귀하의 응답내용은 오직 저만 볼 것이고, 또한, 익명으로 처리되므로 특정 개인이나 기업(조직)의 특성은 절대로 노출되지 않습니다. 그리고, 제가 직접 방문하여 설문을 실시 한 후 곧장 수거해 하므로 설문 응답자의 신분, 소속, 이름은 결코 공개될 염려가 없습니다. 즉, 귀하나 소속기업(조직)에 대한 어떠한 정보도 공개되지 않으며, 이로 인한 불이익도 없을 것 임을 약속 드립니다.

귀하의 응답은 학술 연구를 위한 소중한 자료로 쓰일 것입니다. 부디 성실한 작성을 부탁 드립니다.

**1. 정답은 없습니다. 바람직한 것이 아니라 귀하의 실제 느낌이나 생각을 솔직하게 응답해 주시면 됩니다.**
**2. 긍정적 질문과 부정적 질문이 혼재되어 있습니다. 질문을 잘 읽고 응답해 주시길 부탁 드립니다.**
**3. 연구설계로 인해 유사하게 반복되는 질문이 있습니다. 빠짐없이 모든 문항을 응답해 주시길 부탁 드립니다.**
**4. 설문을 작성하신 후, 제공된 봉투에 넣으셔서 봉하신 후, 설문은 저에게 전달해 주시기 바랍니다.**
**5. 설문에 관한 의문사항은 아래 연락처로 문의하여 주시면, 성심껏 답변해 드리겠습니다.**

좋은 하루 되세요!

연구자: 서울대학교 경영대학원 경영학과 김연준 드림
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(전화: 02-880-6935)

PART1. 다음은 당신의 성향에 관한 질문입니다. 모범답안은 없으니 솔직한 답변을 부탁 드립니다.

| 항목 \ 정도 | 전혀 그렇지 않다 | 그렇지 않다 | 별로 그렇지 않다 | 보통이다 | 약간 그렇다 | 그렇다 | 매우 그렇다 |
|---|---|---|---|---|---|---|---|
| **1-1. 아래의 질문들은 당신이 <u>이 회사에서 근무하는 동안 얻은 "지식"에 대한 "소유욕"</u>과 관련된 질문들입니다.** | | | | | | | |
| 1. 내가 이 회사에서 근무하는 동안 얻은 지식은 "나의 것"이다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 나는 내 지식에 대한 높은 수준의 소유욕을 느낀다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 내 지식은 온전히 나의 것이라고 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 내 아이디어들은 내 사적인 소유물이나 마찬가지라고 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 내가 업무를 수행하는 동안 창출해낸 아이디어는 내 개인적인 소유물이다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 모든 것을 고려해 볼 때, 나는 내가 이 회사에서 얻은 지식은 나에게 속하는 것이라 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. 나는 이 회사에서 얻은 지식에 대한 어떠한 소유욕도 느끼지 않는다 ® | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. 내 업무관련 지식은 내 것이라고 볼 수 없다. 그 이유는 내가 이 회사에서 일하는 동안 얻은 것이기 때문이다. ® | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **1-2. 전문성** | | | | | | | |
| 1. 나는 업무를 수행하는데 충분한 능력을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 나는 내가 하는 일을 성공적으로 수행해 왔다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 나는 자신이 수행해야 할 일에 대한 충분한 지식을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 나는 나의 업무관련 스킬이 높다고 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 나는 팀 성과를 높일 수 있는 업무관련 능력을 갖추고 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 나는 내 업무를 수행할 자격이 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

PART1. 다음은 당신의 상사에 관한 질문입니다. 모범답안은 없으니 솔직한 답변을 부탁 드립니다.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **2-1. 상사지식의 유용성** | | | | | | | |
| 1. 상사의 지식은 내가 업무를 보다 신속히 처리하는데 도움이 될 것이다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 상사의 지식은 내 업무성과를 높여줄 것이다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3. 상사의 지식은 내 업무의 생산성을 향상시켜줄 것이다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 상사의 지식은 내 업무를 성공적으로 수행하는 데 도움이 될 것이다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 상사의 지식은 내가 업무를 보다 쉽게 할 수 있도록 도와줄 것이다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 나는 상사의 지식이 내 업무에 유용하게 사용될 것이라 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **2-2. 상사 지식 공유** | | | | | | | |
| 1. 나의 상사는 자신의 특수한 지식이나 노하우를 나와 공유한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 나의 상사는 본인이 알고 있는 업무수행 방법을 나에게 기꺼이 알려준다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 나와 상사는 서로 알고 있는 정보, 지식, 기술을 교환하고 공유한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 나의 상사는 찾기 힘든 지식이나 전문적인 기술을 나에게 종종 제공한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 나의 상사는 업무수행 방식 또는 전략을 개발하는데 있어 나를 도와준다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 나의 상사는 많은 정보를 나와 공유한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. 나의 상사는 나에게 많은 제안을 한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **2-3. 상사의 전문성** | | | | | | | |
| 1. 나의 상사는 자신의 업무를 수행하는데 충분한 능력을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 나의 상사는 자신이 하는 일을 성공적으로 수행해 왔다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 나의 상사는 자신이 수행해야 할 일에 대한 충분한 지식을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 나는 상사의 업무관련 스킬이 높다고 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 나의 상사는 팀 성과를 높일 수 있는 업무관련 능력을 갖추고 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 나의 상사는 자신의 업무를 수행할 자격이 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

※ 다음 항목들은 응답자의 분포를 확인하여 통계처리하기 위한 것들입니다. 통계적 목적으로만 사용되며, 통계법 제 33 조에 따라, 외부로 절대 유출되지 않음을 알려드립니다.

| | | | |
|---|---|---|---|
| **1. 연 령** | 만 (  ) 세 | **2. 결혼유무** | ① 기혼  ② 미혼 |
| **3. 성 별** | ① 남  ② 여 | **4. 근속 기간** | 만 (  ) 년 (  ) 개월 |
| **5. 학 력** | ① 고등학교 졸업  ② 전문대학 졸업  ③ 4 년제 대학 졸업  ④ 대학원 졸업  ⑤ 기타 | | |
| **6. 직 급** | ① 사원급  ② 대리급  ③ 차장급  ④ 부장급  ⑤ 상무급 이상  ⑥ 기타 | | |
| **7. 직 종** | ① 사무관리직 ② 영업직  ③ 생산기술직 ④ 연구개발직 ⑤ 전문직  ⑥ 기타 | | |
| **8. 고용 형태** | ① 임시직  ② 계약직  ③ 정규직  ④ 기타 | | |
| **9. 상사와 근무기간** | 만 (  ) 년 (  ) 개월 | | |
| **10. 연봉** | ① 월급: 세전  만원<br>② 연봉: 세전  만원<br>③ 보너스 (성과급 등): 세전  만원 | | |

***수고하셨습니다! 응답해주신 귀중한 자료는 연구를 위해 소중히 사용하겠습니다!***

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**(秘) 본조사의 내용은 통계법 33조에 의거하여 비밀이 보장되며, 통계목적 외에는 사용되지 않습니다**

# 설 문 지

## (Form L)

안녕하세요?
저는 서울대학교 경영대학원에서 인사조직 석사과정에 재학중인 김연준입니다. 바쁘신 중에도 이렇게 귀중한 시간을 내 주셔서 대단히 감사 드립니다.

본 설문은 석사과정 졸업논문에 사용하기 위한 목적으로 설계되었습니다. 제가 중점을 두어서 연구하고자 하는 부분은 다음과 같습니다.

1. 조직 내 지식공유의 효과성 2. 개인의 전문성과 성과의 관계

귀하의 응답내용은 오직 저만 볼 것이고, 또한, 익명으로 처리되므로 특정 개인이나 기업(조직)의 특성은 절대로 노출되지 않습니다. 그리고, 제가 직접 방문하여 설문을 실시 한 후 곧장 수거해 하므로 설문 응답자의 신분, 소속, 이름은 결코 공개될 염려가 없습니다. 즉, 귀하나 소속기업(조직)에 대한 어떠한 정보도 공개되지 않으며, 이로 인한 불이익도 없을 것 임을 약속 드립니다.

귀하의 응답은 학술 연구를 위한 소중한 자료로 쓰일 것입니다. 부디 성실한 작성을 부탁 드립니다.

**1. 정답은 없습니다. 바람직한 것이 아니라 귀하의 실제 느낌이나 생각을 솔직하게 응답해 주시면 됩니다.**
**2. 긍정적 질문과 부정적 질문이 혼재되어 있습니다. 질문을 잘 읽고 응답해 주시길 부탁 드립니다.**
**3. 연구설계로 인해 유사하게 반복되는 질문이 있습니다. 빠짐없이 모든 문항을 응답해 주시길 부탁 드립니다.**
**4. 설문을 작성하신 후, 제공된 봉투에 넣으셔서 봉하신 후, 설문은 저에게 전달해 주시기 바랍니다.**
**5. 설문에 관한 의문사항은 아래 연락처로 문의하여 주시면, 성심껏 답변해 드리겠습니다.**

좋은 하루 되세요!

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**PART1. 다음은 당신의 부하에 관한 질문입니다. 모범답안은 없으니 솔직한 답변을 부탁 드립니다.**

| 정도 / 항목 | 전혀 그렇지 않다 | 그렇지 않다 | 별로 그렇지 않다 | 보통 이다 | 약간 그렇다 | 그렇다 | 매우 그렇다 |
|---|---|---|---|---|---|---|---|
| **1-1. 부하의 성과** | | | | | | | |
| 1. 이 직원은 주어진 업무를 적절하게 완성한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 이 직원은 맡은 업무와 책임을 잘 이행한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 이 직원은 자신에게 기대되는 과업을 잘 수행하고 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 이 직원은 공식적으로 요구되는 업무요건을 잘 충족시킨다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 이 직원은 자신의 성과 평가에 직접적 영향을 미치는 활동을 잘 수행한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 이 직원은 자신이 수행해야 할 업무를 소홀히 한다. Ⓡ | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. 이 직원은 요구되는 필수적인 책임과 의무를 잘 수행하지 못한다 Ⓡ | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| **1-2. 부하의 전문성** | | | | | | | |
| 1. 이 부하는 자신의 업무를 수행하는데 충분한 능력을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. 이 부하는 자신이 하는 일을 성공적으로 수행해 왔다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. 이 부하는 자신이 수행해야 할 일에 대한 충분한 지식을 갖추고 있다 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. 나는 이 부하의 업무관련 스킬이 높다고 생각한다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. 이 부하는 팀 성과를 높일 수 있는 업무관련 능력을 갖추고 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. 이 부하는 자신의 업무를 수행할 자격이 있다. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

※ 다음 항목들은 응답자의 분포를 확인하여 통계처리하기 위한 것들입니다. 통계적 목적으로만 사용되며, 통계법 제 33 조에 따라, 외부로 절대 유출되지 않음을 알려드립니다.

| | | | |
|---|---|---|---|
| **1. 연 령** | 만 ( ) 세 | **2. 결혼유무** | ① 기혼 ② 미혼 |
| **3. 성 별** | ① 남 ② 여 | **4. 근속 기간** | 만 ( ) 년 ( ) 개월 |
| **5. 학 력** | ① 고등학교 졸업 ② 전문대학 졸업 ③ 4 년제 대학 졸업 ④ 대학원 졸업 ⑤ 기타 | | |
| **6. 직 급** | ① 사원급 ② 대리급 ③ 차장급 ④ 부장급 ⑤ 상무급 이상 ⑥ 기타 | | |
| **7. 직 종** | ① 사무관리직 ② 영업직 ③ 생산기술직 ④ 연구개발직 ⑤ 전문직 ⑥ 기타 | | |
| **8. 고용 형태** | ① 임시직 ② 계약직 ③ 정규직 ④ 기타 | | |
| **9. 부하와 근무기간** | 만 ( ) 년 ( ) 개월 | | |

| | |
|---|---|
| **10. 연봉** | ① 월급: 세전 만원<br>② 연봉: 세전 만원<br>③ 보너스 (성과급 등): 세전 만원 |

***수고하셨습니다! 응답해주신 귀중한 자료는 연구를 위해 소중히 사용하겠습니다!***

## 국문초록

# 상사의 지식공유와 부하과업성과의 관계에 대한 부하전문성의 조절 메커니즘에 관한 연구

**서울대학교 대학원**

**경영학과 인사조직전공**

**김 연 준**

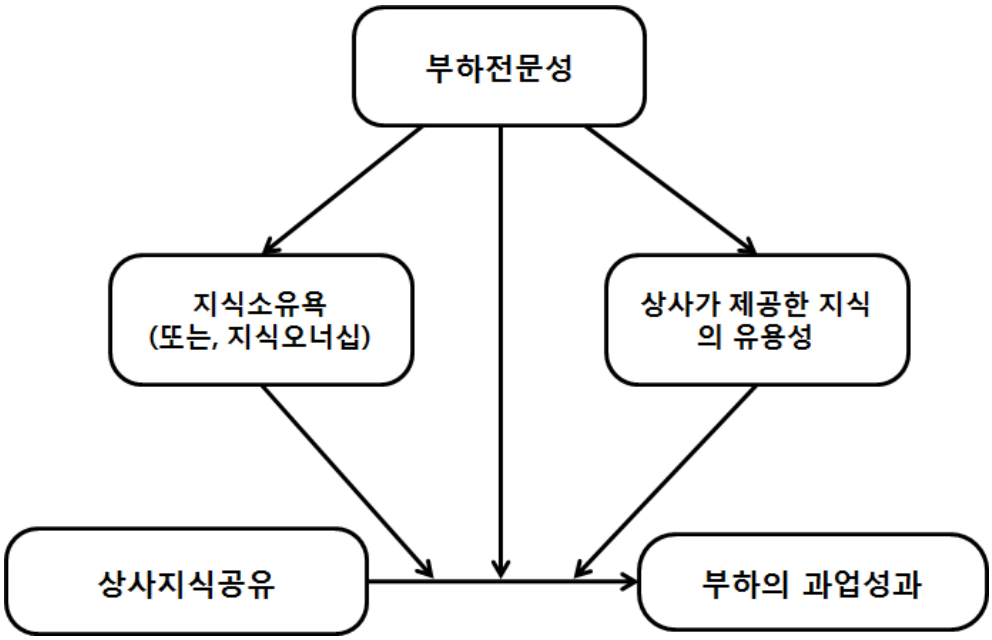
조직 내 활용 가능한 지식은 현대 기업들의 경쟁우위의 원천이다. 이는 지식이 갖고 있는 고유한 네 가지 특성에 기인한다. 즉, 지식은 가치 있고(Valuable), 독특하며(Unique), 모방이 어렵고(Inimitable), 대체가 어렵다(Non-replaceable). 이러한 특성들 때문에 단순히 외부에 있는 지식을 한 기업이 채택한다고 해서 그것이 기업의 성장에 기반이 되는 지식이 될 수는 없으며, 기업의 성장에 기반이 되는 지식은 많은 경우 기업 내부에서 생산된다. 그렇다면, 지식이 생산되기 위한 전제 조건은 무엇인가? 그것은 바로 지식공유이다. 즉, 기업 내부 종업원들이 자신의 지식을 공유할 때 그것은 비로소 조직의 지식이 된다. 그리고, 이러한 지식의 공유의 주체는 기업 내부의 “개인”들이다.

개인 수준에서의 지식공유가 갖는 이러한 중요성에도 불구하고, 지금까지는 개인수준보다 조직 또는 집단 수준에서 지식연구가 수행되어 왔다. 그리고 적으나마 존재하는 기존의 개인수준의 지식연구들은 그

지식의 원천(예를 들어, 상사, 동료, 친구 등)을 명시하지 않고 연구되어 왔다. 이러한 한계점을 보완하기 위해, 본 연구는 개인수준에서 상사가 제공하는 지식이 부하의 성과에 어떠한 영향을 미치는 지 확인하였다.

뿐만 아니라, 본 연구는 이러한 상사지식공유의 영향이 지식수혜자(즉, 부하)의 현재 지식수준에 따라서 어떻게 달라지는지를 확인하였다. 본 저자가 주장하고자 하는 것은, 부하가 높은 수준의 전문성을 갖고 있을 경우, 상사지식공유가 부하의 과업성과에 갖는 영향은 오히려 부정적일 것이라는 점이다. 그리고, 부하의 전문성이 이렇게 부정적인 조절효과를 보이는 이유는, 크게 두 가지가 있다고 보았다. 첫 번째 이유는 전문성이 높은 부하들은 자신의 지식에 대해서 너무 많은 애착을 갖고 있기 때문에 상사가 제공하는 다른 지식을 받아들이려 하지 않을 것이라는 점이다. 두 번째 이유는 전문성이 높은 부하들은 상사가 제공하는 지식이 자신들에게 그다지 유용하지 않을 것이라고 생각할 것이라는 점이다.

하지만, 부하들은 상사가 제공하는 지식을 단순히 외면하고 지나갈 수는 없다. 부하들은 그 지식을 받아들일 지 여부를 판단하기 전에 상사의 지식공유 행동에 주의를 집중 해야만 하고, 일정 수준의 인지적 자원을 소비해야 한다. 따라서, 본 저자는 전문성이 높은 부하들에게 상사가 과도할 정도의 지식공유를 할 경우, 이것은 오히려 부하들의 과업 성과를 떨어뜨릴 것이라고 생각하였다. 이러한 맥락에서 본 논문에서는 다음과 같은 연구모형을 검증해 보았다.




본 연구모형을 검증하기 위해 저자는 대한민국의 가장 큰 전자회사들 중의 한군데에서 데이터를 수집하였다. 그리고, 그 데이터는 해당 기업의 소프트웨어 개발자들만을 대상으로 하였다. 그 이유는, 소프트웨어의 경우 개발자들의 지식의 수명주기가 매우 짧기 때문이다. 소프트웨어 지식의 수명주기가 짧다는 것은 신입사원 혹은 직급의 낮은 종업원도 높은 수준의 지식을 갖고 있을 수 있다는 것을 의미한다. 그들이 회사에 들어오기 전에 배운 소프트웨어 지식이 오히려 기존 개발자들보다 더 최신의 지식일 가능성이 높기 때문이다. 그리고, 이러한 점은 부하전문성에 더 많은 변화(Variation)를 주기 때문에 본 모형에 대한 연구가 보다 더 용이해 진다.

가설 검증 결과, 예상했던 대로 상사지식공유는 일반적으로 부하의 과업성과를 높이는 것으로 드러났다. 그리고, 부하전문성은

이러한 관계를 부정적으로 조절하였다. 하지만, 예상과는 달리, 부하전문성이 상사지식공유와 과업성과의 관계를 음으로 만들지는 못하였고 상사지식공유와 과업성과의 양의 관계를 없애는 결과를 보였다. 즉, 전문성이 높은 부하들에게 상사지식공유는 아무런 효과가 없었다. 그리고, 매개조절효과를(Mediated Moderation)를 검증한 결과, 부하전문성의 부정적 조절효과의 원인은 전문성이 높은 부하들의 경우 자신의 지식에 대한 애착이 너무 강하기 때문이라는 결과를 얻었다. 하지만 예상과는 달리, 전문성이 높은 부하들이 상사가 제공한 지식은 낮게 평가하기 때문은 아니었다.

본 연구의 결과를 종합하면, 상사의 지식공유는 일반적으로 부하들의 성과를 높이지만, 이러한 지식공유의 효과성은 전문성이 높은 부하들에게는 전혀 존재하지 않았다. 그리고, 그 이유는 전문성이 높은 부하들이 자신의 지식에 대한 애착이 너무 강하기 때문인 것으로 나타났다.

**키워드**: 상사지식공유, 부하전문성, 지식소유욕, 상사지식의 유용성, 과업성과

**학번**: 2011-20502