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促進焦點、分享機制與知識分享：跨層次架構

Promotion Focus, Sharing Mechanisms, and Knowledge Sharing: A Cross-Level Framework

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摘 要

過去研究指出激勵因子及組織分享機制能成功促進知識分享。然而少有實證研究以跨層次角度來探討影響個人知識分享傾向的前置因素。基於理性行為理論 (TRA) 建立本研究之理論模型，探討組織層次的正式和關係分享機制對個人層次的促進焦點與員工知識分享傾向、知識分享行為間關係的跨層次影響。本研究預期組織層次的正式與關係分享機制會干擾促進焦點與知識分享傾向間的關係。以台灣 33 家上市公司的 239 個知識工作者的問卷調查蒐集資料，並以階層線性模式 (HLM) 驗證本研究的觀念架構。實證結果顯示：在個人層次，促進焦點對知識分享傾向有正向顯著的影響；組織層次的正式與關係的分享機制對知識分享傾向有直接的正向影響；在跨層次效果方面，組織的正式與關係分享機制會減弱促進焦點與知識分享傾向的正向關係；知識分享傾向對知識分享行為有正向顯著的影響。而後本研究提出理論與實務意涵。

【關鍵字】知識分享機制、促進焦點、知識分享傾向

Abstract

Researchers claimed that motivational factors and organizational sharing mechanisms can facilitate successful knowledge sharing. However, few empirical studies have investigated the cross-level determinants of knowledge sharing intentions of individuals. Based on the Theory of Reasoned Action (TRA), this theoretical framework examines the cross-level effects of organizational formal and relational sharing mechanisms on the relationships between employee's promotion focus, knowledge sharing intentions and knowledge sharing behavior. In this study, we expect that organizational formal and relational sharing mechanisms can moderate the relationship between promotion focus and knowledge sharing intentions. Based on a survey of 239 knowledgeable workers from 33 public manufacturing firms in Taiwan, this study applies the Hierarchical Linear Modeling (HLM) to test the conceptual framework. Results showed that, at the individual level, promotion focus was positively related to knowledge sharing intentions. Also, organizational formal and relational sharing mechanisms have positive effects on knowledge sharing intentions. Still, more organizational formal and relational sharing mechanisms would lower the positive relationship between promotion focus and knowledge sharing intentions. Knowledge sharing intention was positively related to knowledge sharing behavior. Finally, theoretical and practical implications are discussed.

【Keywords】knowledge sharing mechanism, promotion focus, knowledge sharing intention

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1. Introduction

Because knowledge is a firm's most valuable and inimitable asset, managing it effectively determines whether an organization can foster a competitive advantage (Cummings, 2004). However, managers find it rather challenging to access, archive, transfer, and apply the implicit knowledge that resides within individuals (Bock, Zmud, Kim, and Lee, 2005). Moving and exchanging knowledge across individuals and into organizational routines ultimately depend on employee's knowledge sharing behavior. As an important pillar of a firm's knowledge management efforts, knowledge sharing is also recognized as a major focus for knowledge management (Hendriks, 1999).

Knowledge sharing is defined as the provision and receipt of task information, know-how and feedback related to products and procedures (Hansen, 1999). Knowledge sharing mechanisms (i.e., choosing organizational mechanisms that can influence the processes of using, sharing, integrating, and creating knowledge in preferred directions at preferred levels) should help communities of people to work together, facilitate the exchange of their knowledge, enhance organizational learning capacity, and increase their ability to achieve individual and organizational goals (Dyer and Nobeoka, 2000; Foss, Husted, and Michailova, 2010). Knowledge sharing mechanisms include training and development programs, socialization techniques (Foss et al., 2010), informal communication channels (e.g., chatting in the cafeteria, hallway conversation), social activities, joint exercises, organization intranet, organization-wide repositories, and documentation (Boh and Wong, 2013). These mechanisms are adopted with the expectation that influencing the conditions of individual behaviors in a certain manner will enable individuals to achieve superior organizational outcomes, which can be categorized into formal mechanisms (more tangible and explicit incentives to boost knowledge sharing) and relational mechanisms (ways to build trusting relationships with employees and provide them with an opportunity to broaden their relationships). An important aspect of a formal mechanism is the instrumentality that boosts knowledge sharing. Relational mechanisms increase the level of trust among employees and give them the opportunity and motivation to strengthen their relationships, which help them to exchange information and knowledge.

Although the majority of previous researches reveal the positive relationship among knowledge sharing mechanisms, knowledge sharing intentions, and knowledge sharing behavior (e.g., Furuya, Stevens, Bird, Oddou, and Mendenhall, 2009), some empirical works reported insignificant or negative relationships (e.g., Bock et al., 2005; Björkman, Barner-

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Rasmussen, and Li, 2004; Quigley, Tesluk, Locke, and Bartol, 2007; Ryu, Ho, and Han, 2003; Wasko and Faraj, 2005). Therefore, the relationship between knowledge sharing mechanisms and knowledge sharing remains inconsistent and under-researched. No coherent, integrated, theoretical frameworks have been developed to explain the effects of motivation factors on the knowledge sharing behaviors of knowledge providers (Quigley et al., 2007).

Through a careful review of the literature, this study identifies two major research gaps. First, individual differences may lead to different responses to knowledge sharing mechanisms, which have been neglected by previous studies. Knowledge is created through interactions among individuals at different organizational levels, and knowledge sharing can occur individually and organizationally (Ipe, 2003). On the individual level, knowledge sharing communicates the need for all employees to cooperate more effectively and efficiently while fulfilling organizational responsibilities; on the organizational level, knowledge sharing focuses on capturing, organizing, reusing, and transferring experiences based on organizational knowledge and makes that knowledge accessible to everyone who needs it (Lin, 2007). Even individuals who are presented with clear organizational goals tend to shy away from contributing knowledge because they are not intrinsically motivated to engage in knowledge sharing. The knowledge sharing mechanism concerns the factors that motivate individuals in an organization to share knowledge that they have acquired or created with other employees (Bock et al., 2005). Employees who are willing to share their knowledge openly increase the effectiveness of knowledge management. Foss et al. (2010), a review of knowledge sharing research reported in the top 13 academic and practitioner-oriented publications from 1996-2006 showed that the literature has neglected micro-/individual-level constructs. However, understanding how individual differences affect knowledge sharing is necessary.

The motivational antecedents of individual knowledge sharing are based on motivational orientation, which is often referred to as regulatory focus (Higgins, 1998). According to the Regulatory Focus Theory (RFT), two basic modes of self-regulation are promotion focus and prevention focus. Individuals who have promotion focus are guided by a need for nurturance and growth, a desire to reach their ideal goals and aspirations, and a motivation to achieve gains. Individuals who have prevention focus strive to achieve safety and security, fulfill their duties and obligations, and avoid losses (Higgins, 1998). According to RFT, these self-regulatory systems can be situationally induced (Freitas, Liberman, and Higgins, 2002). The most important current context is that RFT posits individuals have

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different predominant, chronic, and self-regulatory orientations (Keller and Pfattheicher, 2013). Several measures have been developed to assess individual differences in self-regulatory orientation (e.g., Regulatory Focus Questionnaires) (cf. Higgins, Friedman, Harlow, Idson, Ayduk, and Taylor, 2001; Keller and Bless, 2008). Keller and Pfattheicher (2013) posited that these two self-regulation modes can be conceptualized as distinct constructs. Thus, prevention-focused self-regulation does not represent the opposite pole of promotion-focused self-regulation. This implies that it is possible that one of the two modes is associated with a certain psychological phenomenon, whereas the other mode is not.

Since knowledge sharing is an extra role behavior, knowledge sharing mechanisms can promote or discourage knowledge transfer (Huang, Chiu, and Lu, 2013). Organizational mechanisms such as power, reward, and punishment can convert extra roles into obligations and have been proven effective for motivating employees with prevention focus (i.e., those who avoid undesired end-states by minimizing possible risks or losses) to demonstrate extra-role compliance behavior (Neubert, Wu, and Roberts, 2013). However, no empirical studies highlighted the knowledge sharing mechanisms that strengthen or weaken the sharing intentions of employees who have a high promotion focus.

Second, organizational level studies make it difficult to directly examine specific mechanisms that influence actual knowledge exchange and use (Quigley et al., 2007). However, most work on the knowledge-organization nexus has been mono-level, with a macro bias (Foss, 2009). Single-level approaches potentially overlook important multilevel relationships, such as the effects of organizational factors (e.g., knowledge sharing mechanisms) on the individual-level motivational orientation of knowledge providers. Although some studies suggest that individual motivation has a strong association with knowledge sharing (Foss, 2009), relatively few studies addressed the effect of knowledge sharing on the interaction between individual motivation and organizational mechanisms. Since Foss (2009) suggested that the constructs of the knowledge-related collective level must have a secure foundation in individual actions and interactions, a multi-level analysis of the links between organizational variables, individual variables, and organizational knowledge sharing would be worthwhile (Foss et al., 2010). Therefore, this study conducts an empirical analysis of the cross-level effects of organizational mechanisms on employees who have promotion focus.

To address these two research gaps, we examine the effects of promotion focus and knowledge sharing mechanisms on knowledge sharing. The collective effects of promotion focus and knowledge sharing mechanisms on knowledge sharing were also considered. The

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overall objective was to identify sharing mechanisms and their effects on the knowledge sharing intentions of employees who have a distinct promotion focus. This study extends the previous research (Bock et al., 2005; Lin, 2007) in three ways. First, echoing the multi-level arguments of Foss (2009), Foss et al. (2010), and Crossan, Maurer, and White (2011), this study simultaneously accesses organization- and individual-level determinants rather than only individual-level determinants. Employees are embedded in organizations, so it is necessary to detect which factor has a more significant impact on the effect of transforming individual knowledge into organizational knowledge (Foss et al., 2010). This study also measures extrinsic motivation (i.e., the organizational sharing mechanisms in this study) based on the perceptions of supervisors rather than on perceptions of employees. This study also collects data from supervisors and employees to decrease concerns about common method variance (Podsakoff, Mackenzie, and Podsakoff, 2003). Finally, this study investigates not only how organizational sharing mechanisms and promotion focus directly impact knowledge sharing intentions, but also the interacting effects of these factors. Managers can use the analytical results of this study to understand how to plan and design organizational sharing mechanisms that motivate employees who have varying promotion focus.

The remainder of this paper is organized as follows: first, we review the existing literature and develop our research hypotheses; second, we describe our research methodology; third, we show our empirical results; finally, we discuss our findings and conclusions. We also comment on the limitations of our research and present possible topics for future research.

2. Theoretical Overview and Hypotheses Development

2.1 Theoretical Development

The relevant literature has recognized different influences on employee knowledge sharing, including individual, organizational, and technology factors (Connelly and Kelloway, 2003; Taylor and Wright, 2004). Regarding the individual dimension, most studies conclude that knowledge sharing depends on individual characteristics, including experience, values, motivation, and beliefs. Wasko and Faraj (2005) suggested that individual motivators may encourage employee willingness to share knowledge. Motivated employees tend to believe that knowledge sharing is beneficial. Anticipated individual benefits can thus promote employees to share their knowledge with colleagues.

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Furthermore, with respect to the organizational dimension, organizational climate is considered a soft mechanism to support organization strategy (Saleh and Wang, 1993). As for knowledge sharing, various aspects of an organizational climate are major impetuses of knowledge sharing, including reward systems linked to knowledge sharing (Bartol and Srivastava, 2002; Menguc, Auh, and Kim, 2011), management support (Rahab, Sulistyandri, and Sudjono, 2011), and norms (Menguc et al., 2011). Therefore, this study examines how knowledge sharing motivators (i.e., individual and organizational factors) and knowledge sharing are related.

The Theory of Reasoned Action (TRA) of Fishbein and Ajzen (1975) posits that the multiple factors that influence individual behavior include beliefs, attitudes, and intentions. These authors hypothesized that a person's behavioral intentions are determined by attitudinal and normative components. Personal attitude toward behavior refers to a person's judgment of being in favor of or against performing the behavior. A subjective norm is a perception of the social pressure to perform a particular behavior. Thus, the basic paradigm of the TRA model is that behavior is affected by behavioral intentions, which in turn are affected by attitudes and subjective norms. The first component, attitude toward an action, is a function of the perceived consequences that people associate with a behavior and their evaluation of those consequences. The second component, subjective norms, is represented as a function of beliefs about a person's expectations of important referent others and his/her motivations for complying with those referents. Subjective norms consist of normative beliefs (the perception of others as agreeing that a particular behavior is important) and the motivation for compliance (i.e., the degree to which an actor's behavior conforms to the opinions of others) (Shu and Chuang, 2011).

2.2 Knowledge Sharing Intentions and Behavior

Knowledge sharing consists of behaviors related to information exchange and transfer and task-related communication (Hendriks, 1999). In practice, knowledge sharing cannot be forced; it can only be encouraged and facilitated (Gibbert and Krause, 2002). According to the TRA (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975), individuals are willing to perform actions when their knowledge sharing intention is supported by both positive attitudes and subjective norms. That is, organizations can begin to manage knowledge resources effectively only when employees are willing to share knowledge with their colleagues (Lin, 2007).

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Based on the TRA, a central factor that encourages knowledge sharing is an individual's intention to perform a particular behavior (Ajzen, 1991). Knowledge sharing intentions assumedly capture the motivational factors that affect knowledge sharing behavior. This assumption indicates how hard determined individuals are willing to try and how much of an effort they are planning to invest. Thus, a stronger knowledge sharing intention implies a greater likelihood of performing a knowledge sharing behavior. Based on Bock and Kim (2002), who showed that knowledge sharing intentions and knowledge sharing behaviors are positively related, we hypothesize the following:

H1: Knowledge sharing intention is positively related to knowledge sharing behavior.

Knowledge sharing concerns the willingness of individuals in an organization to share knowledge that they have acquired or created (Gibbert and Krause, 2002). Since intentions are known to be a key determinant of knowledge sharing behaviors (Bock et al., 2005; Lin, 2007), the factors that promote or impede employee willingness to engage in such behaviors must be identified. The TRA recognizes that knowledge sharing is inherent and its core involves collective action: an individual's personal attitude is posited to directly influence intention to share and organizational knowledge sharing mechanisms influencing an individual's perception of the social pressure to share knowledge are posited to directly influence intention to knowledge share.

2.3 The Role of Promotion Focus in Knowledge Sharing

The application of Self-Regulation Theory to understand motivated behavior in organizations has recently attracted significant interest (Vancouver and Day, 2005). Self-regulation is a process that includes setting goals, monitoring current status, comparing current status with goals, and taking action to balance out discrepancies. The process is continuous because goals are set and adjusted following the receipt of feedback that signals either the attainment or failure to attain a desired end (Vancouver and Day, 2005). Regulatory Focus Theory is a Theory of Self-Regulation that proposes two distinct basic motives: promotion focus and prevention focus (Higgins, 1997). This study explores the impact of personal attitude (promotion focus) on knowledge sharing intention. Employees who are promotion-focused eagerly pursue gains or successes. Focusing on accomplishments and achievements, employees are oriented toward fulfilling their ideals, and they scrutinize the surrounding environment for information related to their chances of success (Lockwood, Jordan, and Kunda, 2002).

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According to the TRA, an individual's personal attitude is posited to directly influence intention. Regulatory focus has implications for knowledge sharing within an organization. The literature has established that self-related concepts are powerful determinants of individual motivation and behavior (Markus and Wurf, 1987). Individuals with a promotion focus are unlikely to hesitate when trying to extract any knowledge from their colleagues, whereas individuals with a prevention focus may not demonstrate such a proclivity. Employees with a promotion focus undertake all possible measures to acquire knowledge that will help them to achieve a positive outcome, whereas employees with a prevention focus attempt to prevent a negative outcome at all costs (Das and Kumar, 2011).

Individuals with a strong promotion focus are strategically inclined to approach positive outcomes that satisfy their goals and have a positive reference value toward an organizational desired end-state (Higgins, 1997). Inspired by promotion focus, employees should intensify their motivation in chasing opportunities to accomplish their goals (Higgins, 1997). Individuals with a high promotion focus, in contrast to those with a low promotion focus, approach regulation in reference to desired end-states such as achievement and pleasure. Individuals with a high promotion focus are willing to invest effort and time in knowledge sharing to accumulate relational capital and satisfy an individual need for achievement. Achievement has an important role in motivation to sharing knowledge. People with high achievement motive enjoy a sense of competition, challenge, and accomplishment of goals to gain a feeling of competence (Wu and Sukoco, 2010). In an organization, by sharing information and discussing problems waiting to be solved, individuals can satisfy their achievement motives. Thus, due to the self-regulation of approaching positive outcomes and achievement, promotion focus drives motivational intensity and promotes intentions toward knowledge sharing. We thus hypothesize the following:

H2: Promotion focus is positively related to knowledge sharing intentions.

2.4 The Role of Organizational Sharing Mechanisms in Knowledge Sharing

The TRA posits that organizational knowledge sharing mechanisms, which directly affect individual perceptions of the social pressure to share knowledge, affect knowledge sharing intention. Chai, Gregory, and Shi (2003) defined knowledge sharing mechanisms as the methods, procedures, or processes involved in knowledge sharing within organizations. Pedersen, Petersen, and Sharma (2003) reported that when knowledge is acquired from the outside, written documents are preferred as a transfer mechanism. However, daily face-to-face communication is preferred for the transfer of knowledge generated internally through

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individual experience. Alavi and Leidner (2001) classified knowledge sharing mechanisms into four types: informal versus formal and personal versus impersonal mechanisms. Cho, Li, and Su (2007) illustrated that informal mechanisms include unscheduled meetings, informal seminars, or coffee-break conversations. Formal sharing mechanisms include training sessions and plant tours. Personal mechanisms include apprenticeships and personnel transfers. Impersonal mechanisms are represented by knowledge repositories. This study focuses on organizational sharing mechanisms to increase the understanding of employee behavior in terms of knowledge sharing, including formal and relational sharing mechanisms.

The formal and relational sharing mechanisms of an organization are assumed to encourage extrinsic motivation due to the perceived value and benefits of knowledge sharing (Bock and Kim, 2002). The literature agrees that knowledge sharing as a social behavior initiated by employees in response to the organizational context in which they operate (Constant, Kiesler, and Sproull, 1994). The pertinent literature has identified several contextual factors that affect employee behavior. Because organizations are responsible for taking steps to achieve specific goals, they can provide resources to support or inhibit certain employee actions (Lu, Leung, and Koch, 2006). Organizational context provides opportunities for employees to interact with each other; thus, individuals can have interpersonal relationships of various natures and degrees (Lu et al., 2006). Bhave, Kramer, and Glomb (2010) posited that individuals understand and shape their needs, values, and perceptions based on interactions with others. Langdridge, Sheeran, and Connolly (2007) posited that social relations refer to beliefs about the likelihood of and importance attached to one particular social consequence of performing a behavior; namely, friendship formation. Employees may evaluate the quality of their relationships with colleagues by reference to the resources and opportunities provided by their organizations.

Organizations design and develop various practices to encourage the sharing and transfer of knowledge (Foss and Pedersen, 2002). Formal sharing mechanisms emphasize institutional structures and formulate policies, standards, and regulations, including rewards for knowledge sharing or knowledge management systems (Bock et al., 2005). However, managers design and create “soft” environments and the climate for knowledge sharing as relational sharing mechanisms, for instance, by building up leisure time or organizing social activities to increase opportunities to interact and exchange opinions (Gomez and Sanchez, 2005).

The extrinsic motivation of employees to share knowledge typically depends on the

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perceived value of being associated with knowledge exchange (Bandura, 1977; Osterloh and Frey, 2000). Since knowledge sharing always incurs costs, a personal belief that its anticipated benefits equal or exceed its costs is likely to be a major determinant of knowledge sharing behavior. Formal sharing mechanisms are a way in which management provides useful instruments (e.g., database system) for knowledge sharing. These mechanisms not only help employees share knowledge easily, they also communicate the expectations of managers. According to the TRA (Fishbein and Ajzen, 1975), these mechanisms affect individual perceptions of the pressure by managers (subjective norms) to share knowledge. Thus, formal sharing mechanisms provide employees with specific regulations and advocate a positive attitude toward knowledge sharing and exchange, which leads employees to believe that sharing knowledge is encouraged and supported (Bock et al., 2005; Lin, 2007). Formal sharing mechanisms should cause employees to believe in the importance of knowledge sharing, to nurture and enhance that belief, and thus, to be more willing to share personal knowledge with colleagues. We thus hypothesize the following:

H3: Formal sharing mechanisms are positively related to knowledge sharing intentions.

In addition to formal sharing mechanisms, organizations also focus on informal practices and create an environment conductive to knowledge exchange (Gomez and Sanchez, 2005). The knowledge management literature heavily emphasizes the importance of using information systems to manage organizational knowledge.

According to the Social Exchange Theory (Blau, 1964), employees tend to share knowledge when they have good relations. Knowledge is tacit and resides within an individual cognitive framework, which can only be shared through social interaction (Lagerström and Andersson, 2003). Moreover, knowledge sharing is instant and direct when individuals are closely tied (Ruuska and Vartiainen, 2005). Organizations that develop the social norm of knowledge sharing by establishing a lounge and/or organizing outside social activities (i.e., relational sharing mechanisms) can initiate face-to-face communication and enhance the close relationships among employees.

Employees who understand each other deeply are not threatened by the loss of knowledge distinctiveness through social interaction, and in response, strengthen their willingness to engage in knowledge sharing. We thus hypothesize the following:

H4: Relational sharing mechanisms are positively related to knowledge sharing intentions.

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2.5 Moderating Effects of Organizational Sharing Mechanisms

Professionals may perceive formal rewards as demeaning. Ipe (2003) argued that the use of tangible rewards alone as incentives will not help to sustain knowledge sharing in the long run. Based on the Situational Strength Theory (Mischel, 1973), this study develops our interaction hypotheses. According to that theory, the strength of a situation (e.g., organizational practices) determines the degree to which individual factors affect behavior. This theory also suggests that with a strong/weak organizational sharing mechanism, individuals rely less/more on personal factors to drive behavior. The reason for this is mainly because in a strong situation, uniform and unambiguous expectations are formed, which then dictate how individuals should behave. When confronted under strong circumstances, these circumstances take dominance over individual and idiosyncratic differences, and individuals construe a similar mental model of desired behaviors. This phenomenon mainly occurs because under strong circumstances, individuals uniformly encode cues in their environment, thus creating a consensus regarding appropriate behavior. Thus, the role of individual factors such as promotion focus is limited and constrained under strong organizational sharing mechanisms (Kankanhalli, Tan, and Wei, 2005).

Therefore, in an organization with weak formal sharing mechanisms, knowledge sharing intention is mainly driven by employee promotion focus because without a social legitimization mechanism (e.g., organizational formal sharing mechanisms), employees rely on their intrinsic motivation to engage in knowledge sharing. Conversely, when an organization's formal sharing mechanisms are strong, promotion focus affects knowledge sharing to a lesser extent because even employees who lack a high promotion focus can still engage in knowledge sharing when such sharing is both anticipated and desired in their organization. In an organization with strong formal sharing mechanisms, even employees with a low promotion focus perceive that knowledge sharing is the "right thing to do" and that everyone is better off when knowledge is shared (Wasko and Faraj, 2005).

Moreover, Cognitive Evaluation Theory (CET) (Deci and Ryan, 1985), which is considered a sub-theory of Self-determination Theory, has argued that external events such as rewards, threats, communications, directives, and competition pressure, shifting people from an internal to an external perceived locus of causality, which can undermine intrinsic motivation because people experience them as controllers of their behavior. Based on Self-determination Theory, the assumption of passive and compliant employees is unrealistic given that employees can choose to do otherwise, despite attempts to manipulate or control their knowledge sharing behavior (Malhotra, 2002). Due to the tacit nature of knowledge,

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knowledge sharing should be managed and controlled mainly by self-control or intrinsic motivation rather than by organizational controls. Using formal sharing mechanisms (i.e., a series of controllers from management) thus lessens the intrinsic motivation of employees who have promotion focus. We thus hypothesize the following:

H5: Formal sharing mechanisms negatively moderate the effect of promotion focus on knowledge sharing intentions such that the positive relationship between promotion focus and knowledge sharing intentions is weakened under conditions of strong formal sharing mechanisms.

Similar reasoning applies to the moderating effect of organizational relational sharing mechanisms on knowledge sharing. Based on the Situational Strength Theory (Mischel, 1973) and Cognitive Evaluation Theory (Deci and Ryan, 1985), with weak organizational relational sharing mechanisms, knowledge sharing depends on employees' promotion focus because workers who have promotion focus are likely to be receptive to sharing both information and new ideas. Consequently, even with weak relational sharing mechanisms, knowledge sharing can be motivated by a high promotion focus. Conversely, with strong relational sharing mechanisms, an environment supportive of knowledge sharing can take on the role of promotion focus for employees. Strong relational sharing mechanisms provide encouragement and opportunities for knowledge sharing among employees. Employees are thus reassured that sharing knowledge is relatively easy and that loss of power and fear of exploitation from knowledge sharing are minimized. We thus hypothesize the following:

H6: Relational sharing mechanisms negatively moderate the effect of promotion focus on knowledge sharing intentions such that the positive relationship between promotion focus and knowledge sharing intention is weakened under conditions of strong relational sharing mechanisms.

Figure 1 is the theoretical model developed in this study, which reflects a multi-level view of knowledge sharing. The set of hypotheses considered in this research framework is discussed above.

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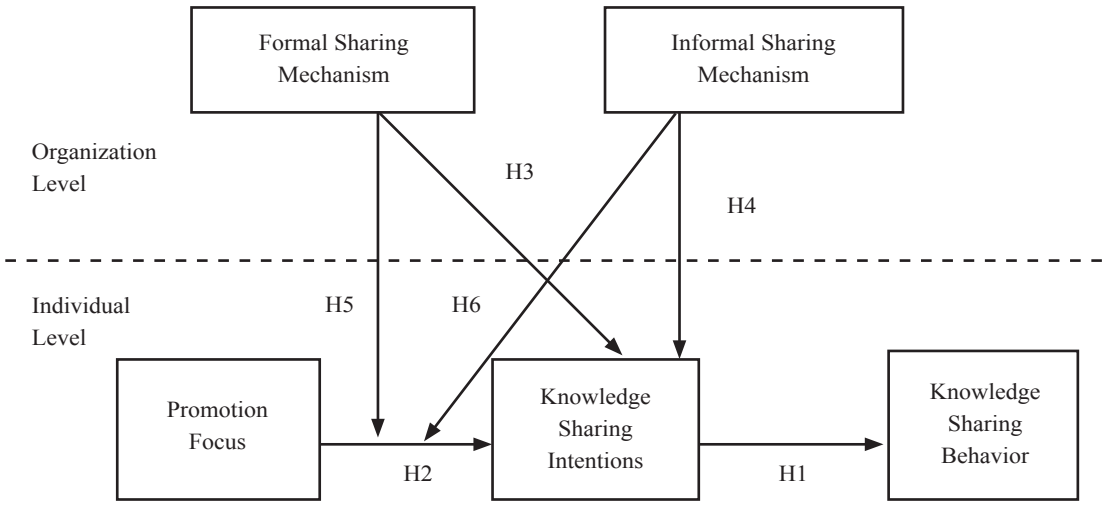


Figure 1 Research Framework

3. Method

3.1 Sample and Data Collection Procedure

Data were collected from high-tech and manufacturing corporations that were located in Hsinchu Science Park and Central Taiwan Science Park and had capital exceeding $6.5 million. This study investigated the knowledge sharing of employees who were classified as knowledge workers. The term "knowledge workers" was defined as employees with the motivation and capacity to create new insights and to communicate, coach, and facilitate the implementation of new ideas (Lin and Joe, 2012). Since effective knowledge sharing was strong in Research and Development (R&D) departments and in industrial engineering divisions, the respondents selected for this study were R&D engineers and industrial engineers at the individual level.

Data were collected in two stages. First, each corporation was contacted by e-mail or telephone to explain the purpose of the survey and to invite the HR manager to participate in this study. Thirty-five companies agreed to participate. During the second stage, questionnaires were delivered to employees of companies that agreed to participate. To fulfill HLM requirements, at least five engineers were surveyed in each company. The final sample includes 33 companies and 239 engineers. Notably, this study tested for a nonresponse bias by comparing the early and late respondents in terms of organizational demographics (i.e., size) and actual responses to model variables. For each variable, a t-test revealed no significant differences, indicating that early respondents did not differ from late respondents.

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Most (75 percent) participants were male. The engineer's average age was 33 (SD = 5.19), and the average organizational tenure was 5.2 (SD = 4.82) years. The organization-level questionnaire was completed by human resource managers because they were assumedly the most familiar with organizational formal and relational sharing mechanisms. Sixty percent of the organizational respondents were male. Their average age and tenure were 36.6 (SD = 7.9) and 7.4 (SD = 8), respectively.

3.2 Measurement

Appendix 1 presents the questionnaire items associated with the five constructs of the theoretical model. All items were rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) and were scored such that a higher score indicated higher agreement on the measure.

3.2.1 Formal Sharing Mechanism

Formal sharing mechanisms were measured using 4 items modified from the research (Goh, 2002; Björkman et al., 2004; Hsu, 2006). Sample items included the following: "the extent of knowledge sharing is an important performance criterion in this company" and "our company has established databases for knowledge sharing". The Cronbach's alpha was .76.

3.2.2 Relational Sharing Mechanism

Relational sharing mechanisms focus on the creation and maintenance of employee interaction and communication. Thus, the study measured this construct using 3 items modified from the research (Björkman et al., 2004; Cabrera and Cabrera, 2005; Goh, 2002; Ruuska and Vartiainen, 2005). Sample items included the following: "our company has set up physical environments for encouraging employees' face-to-face communication, such as chat rooms or lounges" and "our company has established informal communities for employee interaction". Cronbach's alpha was .77.

3.2.3 Promotion Focus

Individuals differ in their predominant, chronic, self-regulatory orientations (Keller and Pfattheicher, 2013). Six items adopted from Higgins et al. (2001) were used to measure employee promotion focus. Sample items included the following: "Do you often do well at different things that you do?" and "I feel like I have made progress toward being successful in my life". Cronbach's alpha was .70.

3.2.4 Knowledge Sharing Intentions

Four items adopted from Ryu et al. (2003) were used to measure employees' knowledge sharing intentions. Sample items included the following: "I often intend to share knowledge

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with my colleagues, if they ask" and "I make an effort to share knowledge with my colleagues". Cronbach's alpha was .85.

3.2.5 Knowledge Sharing Behaviors

Four items adopted from Bock and Kim (2002) were used to measure the knowledge sharing behaviors of employees. This measurement focused on the agreement that employees participate in knowledge sharing activities, such as sharing personal experiences, know-how and expertise from training. The Cronbach's alpha was .89.

3.3 Reliability and Validity

Confirmatory Factor Analysis (CFA) was used to examine the dimensional structure of the complete items and evaluate whether those factors were appropriate (Liden, Wayne, Zhao, and Henderson, 2008). Since organizational-level data were gathered from only 33 companies, individual-level variables (promotion focus, knowledge sharing intentions, and knowledge sharing behaviors) were used to test goodness of fit. The fit indices indicate that the three-factor model fits the data well (χ^2 [66] = 66.78, χ^2/df = 1.01; GFI = .99; AGFI = .95; NFI = .95). The CFA result indicates acceptable model fit for our measurement. Our composite reliability values range from 0.96 to 0.98. Table 1 shows the means, standard deviations, and correlations of all variables included in this study.

Table 1 Descriptive Statistics and Correlation Matrix

Variables	Means	SD	1	2	3
Individual-level					
1. Promotion Focus	4.89	.77	(.70)		
2. Knowledge Sharing Intentions	5.67	.79	.37***	(.85)	
3. Knowledge Sharing Behavior	5.31	.91	.23***	.74***	(.89)
Organizational-level					
1. Formal Organizational Practices	5.75	.76	(.76)		
2. Informal Organizational Practices	5.27	.99	.30*	(.77)	

Note: *p < .05; **p < .01; ***p < .001.

Common Method Variance (CMV) is considered a serious issue if a systematic and pervasive inflation of observed relationships appear (James, Gent, Hater, and Corey, 1979). Since variables based on self-reports from the same source increases the risk of CMV (Podsakoff et al., 2003), this study collected data from both supervisors and employees. The high correlation (r = .74) between knowledge sharing intention and knowledge sharing

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behavior may increase the CMV concern. However, the independent variable was not highly correlated with the mediator (r = .37) or with the dependent variable (r = .23). Therefore, CMV was not problematic in this study.

4. Results

This HLM was used for hypothesis testing. First, a null model without predictors at either level 1 (individual level) or level 2 (organizational level) was used to compute the knowledge sharing behavior variance into within- and between-organizations components. Second, knowledge sharing intentions and behavior were regressed on group-mean-centered promotion focus and knowledge sharing intentions at level 1. During the next step, in the level 2 analysis, this investigation utilized intercepts-as-outcomes models to assess the main effects of the organization-level factors. In the last step, we used the slopes-as-outcomes models to survey cross-level interaction effects. Table 2 reports the empirical results.

4.1 Null Model

The HLM was used to test whether both individual- and organizational-level variables relate significantly to employees' knowledge sharing intentions. The null model evaluated the significance of between-organization variance. The Chi-square value ($\chi^2 = 78.80$, df = 31) showed significant variance among group components. The ICC (1) was .15, indicating that 15 percent of the variance in employees' knowledge sharing intentions resides between organizations and that 85 percent of the variance resides within organizations. The independent variable has significant variance among organizations, so we could able to continue to discuss the relationship among other predictive variables and dependent variables.

4.2 Random Coefficient Regression Model

Random coefficient regression was used to assess whether there is significant variance between groups in their intercepts and slopes. The γ_{10} provides evidence that the relationship between the independent variable (knowledge sharing intentions and promotion focus) and the dependent variable (knowledge sharing behavior and knowledge sharing intentions) is significant (Wech and Heck, 2004). According to Table 2, the random coefficient model (1) indicates that knowledge sharing behavior is significantly influenced by knowledge sharing intentions ($\gamma_{10} = .80$, t = 14.34, $p < .001$). The random coefficient model (2) reports that

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promotion focus has a positive effect on knowledge sharing intentions (γ_{10} = .35, t = 3.08, p < .001). Therefore, both H1 and H2 are supported.

According to the result for τ_{00} (χ^2 = 71.67, df = 31, p < .001), the variable for promotion focus indicates significant variance in knowledge sharing intentions. Promotion focus has a direct effect on knowledge sharing intentions; there is sufficient intercept variance for promotion focus. Thus, the intercepts-as-outcome model was utilized to discuss the direct effect of the contextual effect.

Table 2 Results of Hierarchical Linear Model

Dependent Variable		Knowledge Sharing Behavior	Knowledge Sharing Intentions		
	Null Model	Random Coefficient Model (1)	Random Coefficient Model (2)	Intercepts-as-outcome Model	Slopes-as-outcome Model
Level-1					
Intercept	5.30*** (0.09)	5.29*** (0.09)	5.63*** (0.07)	5.62*** (0.05)	5.62*** (0.05)
Promotion Focus			.35** (0.11)	.35** (0.11)	.42*** (0.1)
Knowledge Sharing Intentions		.80*** (0.05)			
Level-2					
Formal Mechanisms				.22* (0.09)	.22* (0.09)
Informal Mechanisms				.21** (0.06)	.21** (0.06)
Cross-level Interaction					
Formal Mechanisms ×Promotion Focus					-.28* (0.09)
Informal Mechanisms ×Promotion Focus					-.48*** (0.13)
τ_{00}	.16	.22	.10	.03	.03
Model Deviance	530.16	410.72	461.02	448.40	440.53

Note: (1) Sample size for employees is 239; the number of firms is 33; (2) Entries are estimates of the fixed effects (γ^s) with robust standard errors. Estimation of the random variance components (τ^s) are in parentheses. The τ^s for the intercepts represent the between-firms variance in employees' knowledge sharing intentions; besides the random coefficient model (1), the τ^s represent the between-firms variance in employees' knowledge sharing behavior. *p < .05; **p < .01; ***p < .001.

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4.3 Intercepts-as-outcomes Model

Because there was significant variance across organizations in level-1 intercepts, this study advanced to test cross-level effects. Formal (γ_{01} = .22, t = 2.40, p < .05) and relational sharing mechanisms (γ_{02} = .21, t = 3.52, p < .005) have a cross-level main effect associated with knowledge sharing intentions in support of H3 and H4. Because τ_{00} is significant (χ^2 = 40.33, df = 29, p < 0.05), there still remains an important variable on level 2 that could be explained by additional organizational level variables (Wech and Heck, 2004). Therefore, we proceeded with a sloped-as-outcomes analysis.

4.4 Slopes-as-outcomes Model

There is significant organizational variance in the slopes that reside in the random coefficient regression model. The slopes-as-outcomes analysis showed that organizational formal (γ_{11} = -.28, t = -2.11, p < .05) and relational sharing mechanisms (γ_{11} = -.48, t = -3.80, p < .001) moderate the relationship between promotion focus and knowledge sharing intentions, respectively. The obligatory precondition depends on the significant random variance for the formal (χ^2 = 41.22, df = 29, p < .10) and informal (χ^2 = 42.88, df = 29, p < .05) sharing mechanisms in the moderation model. The graphs in Figs. 2-3 clarify this moderating relationship. The moderators of formal and informal organizational practices weaken the positive relationship between promotion focus and knowledge sharing intentions. That is, the positive relationship becomes lower as the formal and informal organizational sharing mechanisms become higher. Therefore, both H5 and H6 are supported.

5. Discussion

Based on the TRA, RFT, and CET, this study explores how the direct and interactive effects of promotion focus and formal and relational organizational sharing mechanisms effect knowledge sharing intentions. Our framework contributes to the stream of intra-organizational knowledge sharing literature by examining how employees' promotion focus effects their knowledge sharing intentions. We further extend this literature theoretically and empirically to show that formal and relational sharing mechanisms weaken the positive effects of employees' promotion focus on knowledge sharing intention. These findings contribute significantly to our understanding of the cross-level effects organizational knowledge sharing mechanisms on the relationship between promotion focus and employees' knowledge sharing intentions.

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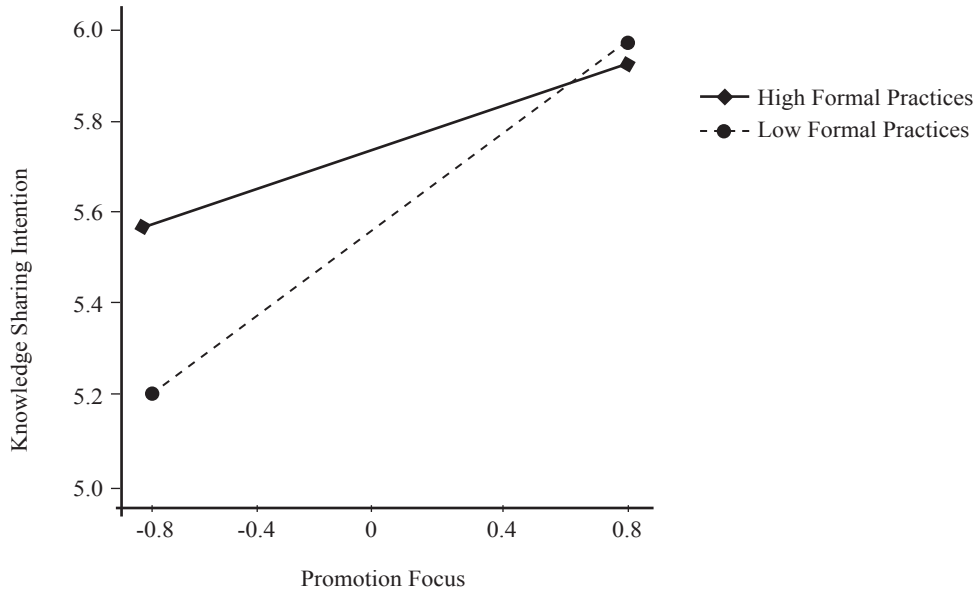


Figure 2 Interactive Effects of Formal Practices upon the Relationship between Promotion Focus and Knowledge Sharing Intention

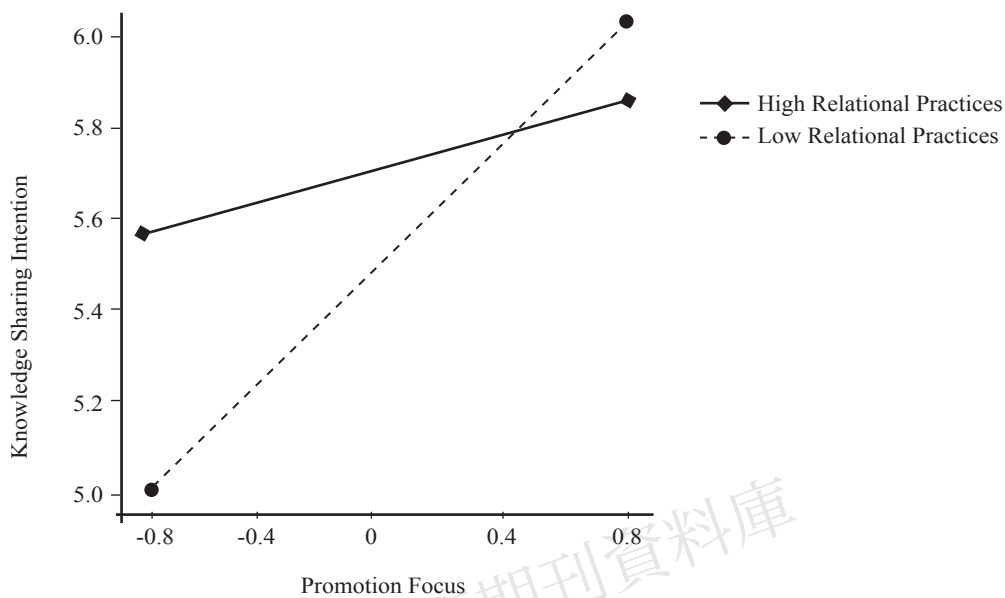


Figure 3 Interactive Effects of Relational Practices upon the Relationship between Promotion Focus and Knowledge Sharing Intention

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This study makes several major contributions. First, the model reveals the association between individual promotion focus with knowledge sharing intentions and echoes the growing acknowledgement of the need for additional research on the micro-foundations of knowledge sharing to complement the macro-research (Michailova and Mustaffa, 2012). Besides, compared to past research (e.g., Cabrera, Collins, and Salgado, 2006; Vaughn, Baumann, and Klemann, 2008), this study extends the notion that motivation is also an important determinant of intention to share knowledge. Hereafter, the term "promotion focus" refers to approach motivation and an attempt to reduce discrepancies between current states and desired end-states (Elliot and Harackiewicz, 1996). According to the RFT (Higgins, 1997), promotion focus generated from nurturance-related regulation causes individuals to concentrate on attaining accomplishments or fulfilling hopes and aspirations. Moreover, promotion focus involves sensitivity to positive outcomes in terms of advancement, growth, and accomplishment; an inclination to approach positive outcomes matching desired end-states is the natural strategy for promotion-regulation. Restated, employees with a promotion focus should regulate themselves to share knowledge with their colleagues because knowledge sharing assists in self-growth and fulfills the need for achievement.

Second, few studies have reported a significantly positive relationship between formal organizational sharing mechanisms and knowledge sharing intentions (Bock et al., 2005; Lin, 2007). However, our analytical results demonstrate that formal organizational sharing mechanisms are positively associated with knowledge sharing intentions. From an institutional structure perspective (De Long and Fahey, 2000), organizations should be able to shape individual belief structures regarding knowledge sharing by designing acceptable practices and norms. This study supports these arguments with the results indicating that formal organizational sharing mechanisms initiate the willingness to share within organizations. Since knowledge sharing takes substantial time and effort (Gibbert and Krause, 2002), employees only engage in knowledge exchange based on a cost-benefit analysis by comparing the reward anticipated from an exchange with the effort involved in that exchange (Lin, 2007). As for formal organizational sharing mechanisms, employees perceive the importance of knowledge exchange and increase their knowledge sharing intention.

Third, from an extrinsic motivational perspective, individual behavior is driven by its own perceived value and the perceived benefits of an action. According to Social Exchange Theory (Blau, 1964), knowledge sharing can be initiated through interaction and

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communication among employees (Lagerström and Andersson, 2003). The analytical results of this study also demonstrate that relational organizational sharing mechanisms significantly and positively influence employee intentions toward knowledge sharing. Organizations create an opportunity for employees to exchange and share knowledge by developing social norms and a climate of knowledge sharing (Bock et al., 2005). Employees are more likely to share personal knowledge with colleagues with respect to relational sharing mechanisms because of the expectation of future reciprocity (Bock and Kim, 2002; Cabrera and Cabrera, 2005). Thus, this study simultaneously examines the positive effects of formal and relational organizational practices related to knowledge exchange on individual intentions regarding sharing, while emphasizing that managers can design both "hard" and "soft" approaches to encourage knowledge exchange within organizations.

Fourth, rather than focusing on only the individual or organizational levels (e.g., Bock et al., 2005; Lin, 2007), this study simultaneously examines the individual- (promotion focus) and organizational- (formal and relational sharing mechanisms) level determinants of knowledge sharing intentions. The analytical results show that employees with a high promotion focus are more willing to share knowledge with colleagues than employees with a low promotion focus. Additionally, intention to share knowledge is higher in employees of organizations that adopt formal and relational sharing mechanisms to encourage knowledge sharing. Moreover, employees with a high promotion focus are more willing to share knowledge when formal and relational organizational sharing mechanisms are less-frequently adopted.

As expected, this study finds that moderating effects of formal and relational organizational sharing mechanisms exist. Promotion focus leads to greater knowledge sharing intentions, particularly when formal or relational organizational sharing mechanisms are low. These findings are consistent with the arguments of CET (Charms, 1968), which posits that employee's intrinsic interest in knowledge sharing is decreased when an extrinsic motivation is introduced. The analytical results revealed that the moderating role of formal and relational organizational sharing mechanisms (i.e., the extrinsic motivator) weakened the positive relationship between promotion focus (i.e., the intrinsic motivation) and knowledge sharing intentions. This finding reveals that employees experience a loss of control over their own attitudes and behaviors, thus diminishing previous intrinsic motivations. Furthermore, eliminating organizational sharing mechanisms can produce a shift (i.e., from an external to an internal explanation) in employees' perceptions with respect to why they share and exchange knowledge with their colleagues. According to a substantial amount of psychology

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literature, cognitive framing may strongly impact motivation (Lindenberg, 2003). If specific organizational types, including high-powered performance incentives and extensive monitoring, are perceived as controlling, this can reduce intrinsic motivation and, in particular, intrinsic motivation to share knowledge. Thus, as a result of framing effects, perception and motivation are related (Foss et al., 2010).

Fifth, in addition to considering the determinants of knowledge sharing, this study also examined the outcome of knowledge sharing intentions. The analytical results indicated that knowledge sharing intentions are positively related to behaviors associated with knowledge sharing. In addition to highlighting the importance of knowledge sharing intentions and behaviors, this finding also incorporates knowledge sharing intentions and behaviors into the TRA.

Finally, an important theoretical as well as methodological contribution of this research is the recognition of multilevel nature of the relationships among organizational mechanisms, employee characteristics and knowledge sharing intention. Most research on the knowledge management in organizational contexts has been single-level, which may have macro or nested bias concerns (Foss, 2009). Some knowledge sharing literatures note the importance of individual- and organizational-level issues in understanding knowledge sharing intention (e.g., Bartol and Srivastava, 2002; Hendriks, 1999; Quigley et al., 2007). This investigation proposes a cross-level framework that considers the hierarchical nature in analytic levels and shows the direct and interactive relationships on the individual- and organizational-level antecedents of knowledge sharing intentions. This conceptual model highlights a way for researchers to have future research with multi-level considerations in understanding employees' knowledge sharing behaviors.

This study extends the results of previous research by integrating both organizational (i.e., formal and relational sharing mechanisms) and individual (i.e., promotion focus) determinants of knowledge sharing intentions. The empirical research on individual knowledge sharing behavior does not comprehensively address organizational mechanisms (Foss et al., 2010). Accordingly, since this study integrates a motivational perspective into the TRA, cross-level determinants also correspond with the role of extrinsic (i.e., organizational sharing mechanisms) and intrinsic (i.e., promotion focus) motivators in explaining employees' knowledge sharing intentions. Furthermore, the analytical results provide a theoretical basis and empirical evidence of interactive models to explain how organizational practices ultimately moderate the relationship between promotion focus and intentions with respect to knowledge sharing.

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5.1 Practical Implications

From a managerial perspective, this study has several practical implications for managers in terms of facilitating knowledge sharing within organizations. From the perspective of recruitment and selection, managers can use the extent of promotion focus as a selection tool. According to the analytical results, employees with a promotion focus are more willing to share and exchange knowledge with their colleagues than those who do not have a promotion focus. To increase knowledge sharing, managers should thus consider applicants with a high promotion focus during the selection process. Additionally, organizations should establish a reward system and create interactive environments to encourage employees to share and exchange knowledge that they own individually.

However, organizations should use the appropriate selection tool or reward system for the particular circumstances. Organizations that have selected applicants with a promotion focus can lessen the implementation of formal and informal organizational sharing mechanisms because such mechanisms lower employees' knowledge sharing intentions. However, organizations that have not used promotion focus as a selection tool should focus on organizational mechanisms of knowledge sharing.

5.2 Limitations and Future Research

Despite its contributions, this study has several limitations. First, this study is the ambiguity of the causal inference caused by the cross-sectional design. However, from a theoretical perspective, reversed causality inferences are less plausible in the proposed model. That is, it is not plausible to infer that employee knowledge sharing behaviors lead to intentions that subsequently change organizational sharing mechanisms. Although this limitation does not change our findings, we believe that future research should address this issue by using a longitudinal design.

Second, future studies can expand these findings by considering how prevention and promotion focus separately affect employees' intentions related to knowledge sharing. Promotion focus reflects an approach tendency; prevention focus reflects a tendency to avoid negative outcomes and a concern over protection, safety, and responsibility (Higgins, 1997). Employees with prevention focus might be less willing to share knowledge due to fear of leaking personal knowledge. However, formal and relational organizational sharing mechanisms might reverse this negative relationship.

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6. Conclusion

This study sheds light on individual (i.e., promotion focus) and organizational (i.e., formal and relational sharing mechanisms) determinants of knowledge sharing intentions and the moderating effects of organizational sharing mechanisms on the relationship between promotion focus and knowledge sharing intention. The findings provide general support for direct and interactive effects to explain knowledge sharing. With respect to direct effects, promotion focus and sharing mechanisms directly influence knowledge sharing intentions. With respect to interactive effects, knowledge sharing mechanisms moderate the effect of promotion focus on knowledge sharing. Promotion focus reveals positive effects on knowledge sharing under weak knowledge sharing mechanisms. This finding is consistent with the Situational Strength Theory. Hopefully, this preliminary study provides a foundation for future research by facilitating understanding of how and when knowledge sharing flourishes.

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Appendix 1 Survey Items Used to Measure Constructs

Constructs	Items	Reference
Formal Mechanisms	• Knowledge sharing is a performance evaluation criterion within the organization. • The organization supports educational and training classes for employees. • The organization transfers knowledge through documentation. • The organization has established databases for knowledge sharing.	Goh (2002); Björkman et al. (2004); Hsu (2006).
Relational Mechanisms	• The organization provides suitable environment, e.g., chat room or lounges, for employees to engage in private face-to-face communication. • The organization arranges trips or visits so that employees can associate with each other. • The organization has established scientific or interested communities for employees to enhance interaction.	Björkman et al. (2004); Cabrera and Cabrera (2005); Goh (2002); Ruuska and Vartiainen (2005).
Promotion Focus	• Compared to most people, I typically am unable to get what I want in my life. (reversed). • I have accomplished things that got "psyched" to work even harder. • I often do well at different things that I try. • When it comes to achieving things that are important to me, I find that I do not perform as well as I ideally would like to do. (reversed). • I feel that I have made progress toward being successful in my life. • I have very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. (reversed).	Higgins et al. (2001).
Knowledge Sharing Willingness	I am willing to share the knowledge with my colleagues: • I plan to share knowledge with my colleagues. • I try to share knowledge with my colleagues. • I make an effort to share knowledge with my colleagues. • I intend to share knowledge with colleagues if they ask.	Ryu et al. (2003).
Knowledge Sharing Behavior	I share the following knowledge with my colleagues: • Manuals, methodologies, models. • Best practices. • Experience, know-how. • Expertise from education and training.	Bock and Kim (2002).

Note: All items were rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

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