

## RESEARCH ARTICLE

# Two facets of conscientiousness and the knowledge sharing dilemmas in the workplace: Contrasting moderating functions of supervisor support and coworker support

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## Funding information

Ministry of Education of the Republic of Korea and the National Research Foundation of Korea, Grant/Award Number: NRF-2018S1A5B5A07073261; Institute of Industrial Relations, Seoul National University, South Korea

## Summary

This study adopts self- and other-centered approaches to explain how the two facets of conscientiousness (i.e., dutifulness and achievement striving) distinctly resolve knowledge sharing dilemmas among employees. It also explores how the critical social surroundings of employees (i.e., supervisor support and coworker support) neutralize or activate the effects of dutifulness and achievement striving on knowledge-sharing behavior. Our analysis of the data collected from 150 employee-supervisor dyads corroborates that the other-centered facet of conscientiousness (dutifulness) is positively related to knowledge-sharing behavior, whereas the self-centered facet (achievement striving) is negatively related to the same behavior. The analysis also affirms that the positive effect of dutifulness and the negative effect of achievement striving on knowledge sharing are strengthened when supervisor support is low and coworker support is high. This study offers theoretical and practical implications relevant to knowledge management in organizations, distinct roles of facet-specific personalities toward knowledge sharing, and contrasting personality-situation interactions by situation strength and trait activation in shaping employee behavior.

## KEYWORDS

achievement striving, conscientiousness, coworker support, dutifulness, knowledge-sharing behavior, situation strength, social dilemma, supervisor support, trait activation

## 1 | INTRODUCTION

Knowledge serves as the foundation of a firm's competitive advantage and, ultimately, the primary driver of its value (Grant, 1996). An organization's capability to effectively leverage its knowledge depends on its employees because individuals are the primary holders and movers of knowledge (Nonaka, 1994). Previous studies have contended that the benefit of the stock or amount of knowledge is limited unless such knowledge is shared across the members of a group or organization (Sung & Choi, 2012, in press). Knowledge sharing represents a paradigmatic social exchange situation known as a "social dilemma" because this action can benefit the collective but may undermine the position and advantage of knowledge contributors (Cabrera & Cabrera, 2002). In this mixed motivation situation,

individuals must select between sharing knowledge for the collective interest and hiding it to secure the resources necessary for their own success. The knowledge sharing literature has generally focused on the social and organizational contexts and the incentive structures surrounding the task and situation (Wang & Noe, 2010). Although the motivational dilemma involving knowledge sharing may also be affected by enduring individual dispositions, relatively few studies have focused on such possibility (e.g., Matzler, Renzl, Muller, Herting, & Mooradian, 2008; Lee, Yoo, & Yun, 2015). Thus, this study identifies the critical personality dimensions underlying the knowledge-sharing behavior of individuals and examines their social contextual boundary conditions.

Enduring dispositional characteristics may shape an individual's sensemaking and interpretation of a dilemmatic situation by

highlighting either the cost or the benefit of knowledge sharing. In terms of individual dispositions, scholars have identified goal orientations (Swift, Balkin, & Matusik, 2010), exchange ideology (Lee et al., 2015), and evaluation apprehension (Bordia, Irmer, & Abusah, 2006) as the determinants of knowledge-sharing behavior. In regard to personality traits, previous studies have used the five-factor model (i.e., extraversion, emotional stability, agreeableness, openness to experience, and conscientiousness), which has been considered a robust taxonomy of personality attributes (Costa & McCrae, 1992) and reported its significant association with knowledge-sharing behavior (Matzler et al., 2008; Mooradian, Renzl, & Matzler, 2006). Among the big five personality factors, conscientiousness has exhibited the most consistent predictive relationship with job performance across various task settings; thus, conscientiousness has been highlighted as a desirable characteristic of employees in general (Judge, Rodell, Klinger, Simon, & Crawford, 2013). In this study, we elaborate on and provide an in-depth understanding of conscientiousness as a predictor of knowledge sharing.

Although conscientiousness has been treated as a unidimensional, broad trait in previous studies, personality researchers proposed and validated that conscientiousness is not a monolithic construct but rather comprises two separate dimensions with disparate effects on individual behavior and outcomes (Dudley, Orvis, Lebiecki, & Cortina, 2006; Hough, 1992; Moon, 2001). Thus, we consider two facets of conscientiousness, namely, dutifulness (or dependability) and achievement striving, as distinct personality dimensions. Ignoring this dimensionality can be fairly misleading and costly as explained by Judge and Zapata.

*The unexpected negative effect of attention to detail requirements on the validity of conscientiousness is due to the opposite effects at the facet level, with the factor with the negative effect (achievement-orientation) being more common in our dataset than the facet with the positive effect (dutifulness/order). (p. 1,167)*

Similarly, although conscientiousness generally has positive implications for task performance, its two underlying dimensions may have disparate implications for the dilemmatic social exchange of knowledge sharing (Moon, Kamdar, Mayer, & Takeuchi, 2008). Given that dutifulness and achievement striving represent the other- and self-centered dimensions that underlie conscientiousness, respectively, they may lead to different interpersonal motives and behaviors toward others. Differentiating the opposing interpersonal implications of the two facets of conscientiousness is critical given the prevailing appreciation of conscientiousness in organizations.

This study also explores the possibility of the personality-situation interaction involving the two conscientiousness facets and surrounding interpersonal contexts (Barrick, Mitchell, & Stewart, 2003). Context refers to “situational opportunities or constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables” (Johns, 2006, p. 386). By focusing on the role of situational contexts in shaping the effects of personality traits, trait activation theory (TAT) suggests that contextual factors catalyze or neutralize the effects of individual characteristics on behavior (Tett & Burnett, 2003). This study focuses

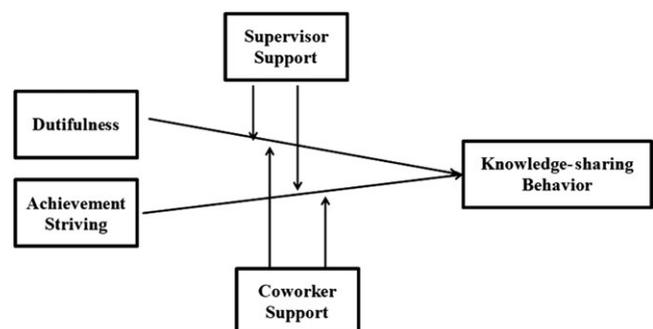
on a person's interaction pattern or relationship quality with key workplace actors, including his or her supervisor and coworkers (Chiaburu, Lorinkova, & Van Dyne, 2013). Specifically, we isolate supervisor support and coworker support as the situational contexts that moderate the effects of the two facets of conscientiousness on knowledge sharing. Strong support from supervisors and coworkers may create a strong situation that obligates employees to engage in knowledge sharing regardless of their personality characteristics (cf. situation strength, Mischel, 1977; Meyer, Dalal, & Hermida, 2010). Thus, support from supervisor and coworkers will neutralize the effects of the two facets of conscientiousness on knowledge-sharing behavior because such strong situations may constrain the activation of individual traits (Kamdar & Van Dyne, 2007; Lee et al., 2015).

Overall, we propose that the two facets of conscientiousness have distinct implications on the knowledge-sharing behavior of employees and that their effects are moderated by their social relational contexts (see Figure 1 for the overall theoretical framework). Given that conscientiousness has been acknowledged as a favorable trait for employee performance, an in-depth understanding of its facet-specific effects on critical interpersonal behaviors, such as knowledge sharing, has theoretical and practical importance beyond its broad conceptualization (Moon, 2001; Moon et al., 2008). Moreover, the trait-activating or trait-neutralizing social situations that may shape the behavioral manifestation of individual differences must be understood to obtain comprehensive insights into the complexities of work behavior (Judge & Zapata, 2015; Tett & Burnett, 2003), especially for knowledge-sharing behavior, which is often risky and characterized by mixed motivation (cf. free riding, Cabrera & Cabrera, 2002). The theoretical framework is validated by using the field data collected from 150 employees and their supervisors.

## 2 | THEORETICAL FRAMEWORK AND HYPOTHESES

### 2.1 | Knowledge sharing as a social dilemma

Knowledge-sharing behavior is defined as “the individual behavior of sharing organizationally relevant information, ideas, suggestions, and expertise with one another” (Bartol & Srivastava, 2002, p. 65). This behavior has long been understood as a form of social exchange in which people share their knowledge and skills with their colleagues,



**FIGURE 1** Conceptual framework

who may reciprocate in return (Brock, Zmud, Kim, & Lee, 2005). Any system involving a social exchange can be viewed as a social dilemma because such system allows an individual to exploit the contributions of others, and such form of exploitation is a classic feature of social dilemmas (Olsen, 1965). Participating in a social exchange requires each actor to provide resources at some time and receive some benefits in return (Brock et al., 2005). However, what one party receives from the other is not directly contingent on or proportional to what he or she gives to another owing to the inherent uncertainty in whether, when, or to what degree others will reciprocate one's favor; this mechanism is similar to the public good dilemma (Cabrera & Cabrera, 2002; Wasko & Faraj, 2000).

Essentially, knowledge-sharing behavior is akin to and also a part of a broad notion of collaboration and citizenship or extra-role behavior, which has also been conceived of as social exchange (Cabrera & Cabrera, 2002; Chan Kim & Mauborgne, 1998; Lee, Kim, & Yun, 2018). Unlike the general phenomenon of collaboration and citizenship that involves the exchange of practically any resources (e.g., personal favor, courtesy, emotional support, backup effort, and time), knowledge sharing involves the exchange of knowledge, which becomes increasingly important for one's status and privilege and job performance and creativity (Cabrera, Collins, & Salgado, 2006; Lee et al., 2018). Compared with other resources, knowledge is particularly prone to induce the motivational dilemma because, unlike emotional support or work-related assistance, which can be repeatedly offered with similar value, knowledge tends to considerably lose its value or privilege, if not completely, once shared (Park, Chae, & Choi, 2017; Renzl, 2008). Given the increasing importance of knowledge and its special property, exploring the predictive mechanisms toward the knowledge-sharing behavior of employees in contemporary organizations instead of simply drawing on and extrapolating the findings from studies on general collaboration and citizenship is crucial. To understand the choices of employees under the dilemmatic situation involving knowledge sharing, we focus on the two facets of conscientiousness that may engender different estimations of the costs and benefits associated with knowledge sharing.

## 2.2 | Two facets of conscientiousness: Dutifulness and achievement striving

Personality researchers have identified dutifulness and achievement striving as the two distinct facets of conscientiousness (Costa & McCrae, 1992). Dutifulness reflects self-restrictive caution and conventionality, whereas achievement striving reflects self-expansive striving (Schneider, Hough, & Dunnette, 1996). Hence, dutifulness represents a concern for others, whereas achievement striving reflects a concern for oneself; this differentiation resonates the growing focus on self-orientations and other orientations in personality theories (De Dreu & Nauta, 2009; Grant & Wrzesniewski, 2010).

In line with the distinction between self-orientations and other orientations, Moon (2001) corroborated that achievement striving was positively related to the escalation of commitment to save one's face and interests at the expense of wasted organizational resources, whereas dutifulness was positively related to the de-escalation of

commitment to a losing course of action that saves organizational resources at the expense of self-image. Similarly, Tangirala, Kamdar, Venkataramani, and Parke (2013) affirmed that employees with high dutifulness speak up because they focus on fulfilling their obligations to the organization rather than on the risks to their self-image, whereas achievement-striving employees remain silent. Moreover, the interpersonal relationships of dutiful individuals tend to be other centered and prosocial and perceive helping as part of their task role, whereas the interpersonal engagements of achievement-striving individuals are driven by a self-centered agentic orientation, which pushes them to only help others reluctantly to serve their self-interests (Marinova, Moon, & Kamdar, 2013). Previous studies support the distinction between self-concerns and other concerns that underlie achievement striving and dutifulness, respectively. Thus, we isolate the two facets of conscientiousness as meaningful individual dispositions for solving social dilemmas, such as knowledge sharing.

### 2.2.1 | Positive effect of dutifulness on knowledge sharing

Dutiful employees are dependable and trustworthy (Hough, 1992); thus, they are less prone to self-serving behaviors and are driven to contribute to the collective (Moon et al., 2008). Dutifulness drives employees to work for the good of the organization without being preoccupied with personal costs (Marinova et al., 2013). They are motivated to take actions that contribute to the welfare of other people and the organization even if doing so might expose them to negative feedback that threatens their ego and self-image (Korsgaard, Meglino, & Lester, 1997). Dutiful individuals tend to be less calculating in terms of the implications of their behaviors to their personal gains. Accordingly, they may engage in behaviors that benefit others, such as knowledge sharing, which can be risky and costly for them (Tangirala et al., 2013).

Grant and Wrzesniewski (2010) validated that dutifulness was other oriented and associated with guilt toward or gratitude from others depending on the extent to which one's performance obligations to others are fulfilled. This tendency may motivate dutiful employees to perceive others as allies, thereby highlighting the benefits of cooperating with others. Dutiful employees act supportively because they genuinely care about the welfare of others because of their strong normative sense of responsibility to others (Moon et al., 2008). Consequently, they view knowledge sharing as an avenue to fulfill their dispositional tendency to transcend their self-interest and contribute to the collective. Therefore, we propose the following:

**Hypothesis 1.** *Dutifulness is positively related to knowledge-sharing behavior.*

### 2.2.2 | Negative effect of achievement striving on knowledge sharing

Compared with dutiful individuals, achievement-striving individuals are less likely to share knowledge because they are more concerned about themselves than others and believe that sharing knowledge can diminish their distinct competitive advantage over others. Achievement striving is a self-centered construct that urges

individuals to constantly monitor the extent to which their behaviors maximize their advancement and performance (Marinova et al., 2013). They become unwilling to share their knowledge if they perceive any possibility that they would lose their position or that others would outperform them by using the shared knowledge (Moon et al., 2008). Thus, consistent with their concern for themselves, achievement strivers tend to act in accordance with their best self-interest instead of sharing their knowledge and speaking up to benefit others and the organization (Tangirala et al., 2013). Accordingly, they depreciate the benefits of knowledge sharing (cf. social loafing, Hart, Karau, Stasson, & Kerr, 2004).

Achievement striving also intensifies one's focus on being competitive and outperforming others (Marinova et al., 2013). The core of achievement striving is "the desire to win in interpersonal situations" (Smither & Houston, 1992, p. 408). Thus, achievement-striving individuals focus more on personal performance and less on the well-being and benefit of others. When individuals focus on competing with and outperforming others, they believe that they can only be successful if others cannot attain their goals (Ng & Lucianetti, 2016; Sitzmann & Bell, 2017). Consequently, achievement-striving individuals consider their coworkers to be potential competitors. The fear of losing their knowledge advantage and their doubts regarding the potential rewards from contributing knowledge may discourage them from sharing knowledge. Therefore, we propose the following:

**Hypothesis 2.** *Achievement striving is negatively related to knowledge-sharing behavior.*

### 2.3 | Supervisor support and coworker support as contextual boundary conditions

Knowledge sharing is a form of social exchange that cannot be explained solely by individual dispositions of employees because this behavior is also affected by the social surroundings. To theorize the interactions between individual dispositions and social context, we draw on the notion of trait activation based on TAT, which refers to "the process by which individuals express their traits when presented with trait-relevant situational cues" (Tett & Burnett, 2003, p. 502). Relevant social situations can prompt or deactivate the effect of traits on individual behaviors. In the work context, supervisors and coworkers are critical sources of task-related support (e.g., information and feedback) and social resources (e.g., care and encouragement) that promote goal accomplishments and well-being in the workplace (Chiaburu et al., 2013; Judge & Zapata, 2015). Thus, we assume that the way dutifulness and achievement striving affect knowledge-sharing behavior is shaped by a person's social relationships with core interaction partners in the workplace, including his or her supervisor and coworkers.

Tett and Burnett (2003) proposed that the powerful reward contingencies in specific situations can dampen the effects of individual dispositions; thus, dispositional effects on behavior can be activated in the absence of such strong situational contingencies. Support from the supervisor and coworkers may generate powerful social and normative contingencies for employees to reciprocate favors and additional resources they received, thereby reducing

behavioral variations based on their personality traits (cf. situation strength, Meyer et al., 2010; Mischel, 1977). Thus, the effects of dutifulness and achievement striving on knowledge-sharing behavior are likely activated when the social context lacks such strong situational or normative cues, thereby enabling individual dispositions to affect behavior. Kamdar and Van Dyne (2007) confirmed that high-quality social exchange relationships between a leader and other members can neutralize the effects of certain individual characteristics, such as conscientiousness and agreeableness, on task performance and helping behavior. Similarly, Lee et al. (2015) has recently proven that a high coworker support weakens the negative effect of exchange ideology and the positive effects of learning goal orientation on knowledge-sharing behavior. Drawing on TAT (Tett & Burnett, 2003) and the notion of situation strength (Mischel, 1977), we propose that supervisor support and coworker support have trait-neutralizing moderating effects on the relationship between the two facets of conscientiousness and knowledge-sharing behavior.

#### 2.3.1 | Trait-neutralizing moderation by supervisor support

Supervisors exert substantial influence over their subordinates by virtue of their legitimate authority and control over the resources (e.g., budget and scheduling) and outcomes (e.g., performance appraisal and salary) that are important for employees (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002). They are also in charge of creating and managing expectations, norms, and reward systems to achieve collective outcomes (Dineen, Lewicki, & Tomlinson, 2006). Accordingly, the strong support from supervisors can be a powerful situational contingency that constrains the expression of individual differences and induces consistent behaviors across employees (Meyer et al., 2010).

Supervisor support offers distinct resource advantages to a focal member over his or her coworkers. Given that members in a group form distinct exchange relationships with their supervisor, they view supervisor support as a desirable yet limited resource (Dineen et al., 2006). Therefore, when individuals receive a favorable treatment and preferential access to task-related guidance offered by their supervisor, they tend to appraise the situation as resource abundant and feel indebted. Consequently, a high supervisor support may reduce the differences in the knowledge-sharing behavior across employees even when they have different levels of dutifulness and achievement striving (Kamdar & Van Dyne, 2007).

By contrast, when employees perceive inadequate levels of support, trust, and encouragement from their supervisor, they may resort to their personal dispositions to perform and survive. Even without much support from their supervisor, dutiful employees remain dependable and act on their other-centered nature by actively sharing knowledge, which demonstrates their contribution to the collective. Meanwhile, the achievement-striving employees may interpret low supervisor support as a threat because such situation provides insufficient resources to achieve their goals and prevents them from securing potential gains, such as salary raise and promotion (Eisenberger et al., 2002). Under this resource-constrained context, achievement strivers become reluctant to share their knowledge with others

because they must conserve their personal resources to maximize their own performance. Therefore, we propose the following moderation hypotheses:

**Hypothesis 3a.** *The positive relationship between dutifulness and knowledge-sharing behavior becomes strong when supervisor support is low.*

**Hypothesis 3b.** *The negative relationship between achievement striving and knowledge-sharing behavior becomes strong when supervisor support is low.*

### 2.3.2 | Trait-neutralizing moderation by coworker support

Coworkers represent another important yet often overlooked social influence at work (Chiaburu & Harrison, 2008). Coworkers are the most natural and salient targets in an exchange relationship that provides situation-specific “cues which individuals use to construct and interpret events” in the workplace (Salancik & Pfeffer, 1978, p. 226). In this regard, we consider coworker support as a powerful situational contingency that is defined as “the beliefs employees hold regarding the extent to which coworkers provide assistance” (Ng & Sorensen, 2008, p. 244). Specifically, a high coworker support provides workers with the resources that they need to successfully complete their tasks and creates a normative pressure that coerces a focal member to reciprocate (Ng & Sorensen, 2008). Consequently, when employees receive abundant resources and support from their coworkers, they are likely to return the favor by engaging in knowledge-sharing behavior regardless of their personal dispositions (Meyer et al., 2010; Tett & Burnett, 2003). Thus, high coworker support may neutralize the effects of dutifulness and achievement striving on knowledge sharing.

By contrast, in a low coworker support situation in which individuals receive inadequate resources and thus are not facing any normative pressure for reciprocation, their knowledge-sharing behavior can be mostly driven by their personal inclinations (Tett & Burnett, 2003). This weak situation motivates dutiful workers to expend their other-centered and cooperative mindsets for the sake of demonstrating their dependability. This situation also intensifies the negative effect of achievement striving on knowledge sharing because when achievement strivers are deprived of resources from coworkers and freed from normative pressure, they may conserve their personal resources, treat their coworkers as potential competitors, and focus on their own performance at the expense of others (Ng & Lucianetti, 2016; Sitzmann & Bell, 2017). Therefore, we hypothesize that the effects of dutifulness and achievement striving on knowledge sharing will be activated and become stronger under the low than high coworker support situation.

**Hypothesis 4a.** *The positive relationship between dutifulness and knowledge-sharing behavior becomes strong when coworker support is low.*

**Hypothesis 4b.** *The negative relationship between achievement striving and knowledge-sharing behavior becomes strong when coworker support is low.*

## 3 | METHODS

### 3.1 | Sample and data collection procedure

To validate the theoretical framework, we collected data from the employees of business organizations that represent diverse industries, including manufacturing, telecommunications, and electronics. Full-time employees and their supervisors were recruited from the participants of the executive education programs of a major university in South Korea. From the initial sample of 200 employees and 50 supervisors, we obtained a matching sample of 150 employees and 40 supervisors from 40 work teams (with 75% and 80% response rates for employees and supervisors, respectively). The participating employees performed various functions, including general management (55.3%), sales and marketing (13.3%), production (16.7%), research and development (8%), and professional services (6.7%).

The employees in the final sample included 84 males (56%) and 66 females (44%) with an average age and organizational tenure of 35.7 years ( $SD = 7.27$ ) and 5.9 years ( $SD = 5.23$ ), respectively. Their education levels comprised high school (1.3%), bachelor's degree (90.7%), and graduate degree (8%), whereas their hierarchical positions included staff (42.7%), assistant manager (21.3%), manager (28%), and deputy general manager (8%). Meanwhile, the supervisors in the sample included 35 males (87.5%) and 5 females (12.5%) with an average age and organizational tenure of 44.2 years ( $SD = 6.47$ ) and 12.6 years ( $SD = 7.29$ ), respectively. Their education levels comprised bachelor's degree (70%) and graduate degree (30%), whereas their hierarchical positions included manager (22.5%), deputy general manager (25%), and general manager (52.5%).

### 3.2 | Measures

All constructs were assessed by using existing validated measures on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). All items in the scale were originally developed in English and were translated and back-translated into Korean (Brislin, 1980).

#### 3.2.1 | Two facets of conscientiousness

To measure the two facets of conscientiousness, we adopted two scales from the 240-item Revised NEO Personality Inventory, which assesses five broad factors compiled from 48 items and with each broad factor decomposed into six 8-item facets (Costa & McCrae, 1992). Similar to previous studies on the two facets of conscientiousness (e.g., Marinova et al., 2013; Moon, 2001; Moon et al., 2008; Tangirala et al., 2013), we used eight items each for assessing dutifulness and achievement striving, which have received the most attention and empirical support as the two representative facets of conscientiousness (Judge et al., 2013).

Specifically, dutifulness was assessed by the following eight items ( $\alpha = 0.84$ ): “Sometimes I'm not as dependable or reliable as I should be” (reverse coded), “I pay my debts promptly and in full,” “Sometimes I cheat when I play solitaire” (reverse coded), “When I

make a commitment, I can always be counted on to follow through," "I try to perform all the tasks assigned to me conscientiously," "I adhere strictly to my ethical principles," "I try to do jobs carefully, so they won't have to be done again," and "I'd really have to be sick before I'd miss a day of work."

Achievement striving was measured by the following eight items ( $\alpha = 0.77$ ): "I have a clear set of goals and work toward them in an orderly fashion," "When I start a self-improvement program, I usually let it slide after a few days" (reverse coded), "I work hard to accomplish my goals," "I do not feel like I'm driven to get ahead" (reverse coded), "I strive to achieve all I can," "I strive for excellence in everything I do," "I am easy-going and lackadaisical" (reverse coded), and "I am something of a workaholic."

### 3.2.2 | Supervisor support

We used the eight-item scale ( $\alpha = 0.89$ ) developed by Tsui, Pearce, Porter, and Tripoli (1997) to measure supervisor support. Sample items include "My supervisor is supportive of me" and "My supervisor is considerate of my feelings."

### 3.2.3 | Coworker support

We assessed the coworker support by using the eight-item measure ( $\alpha = 0.91$ ) developed by Tsui et al. (1997). Sample items include "My coworkers are willing to listen to my problems" and "My coworkers can be relied upon when things get tough in my job."

### 3.2.4 | Knowledge-sharing behavior

We adopted the seven-item knowledge sharing measure ( $\alpha = 0.95$ ) developed by Srivastava, Bartol, and Locke (2006) to assess knowledge-sharing behavior. The supervisors rated these items on the basis of the extent to which the focal employee exhibits knowledge-sharing behavior. Sample items include "This employee shares his/her special knowledge and expertise" and "This employee shares lots of information with others."

### 3.2.5 | Control variables

We controlled for several demographic variables to exclude potential alternative explanations for the analysis (Bernerth & Aguinis, 2016). Several studies verified that individual characteristics, such as age, gender, and company tenure, were relevant in assessing one's proclivity toward knowledge sharing because these characteristics lead people to gain different incentives or rewards from knowledge sharing (Kim & Yun, 2015; Park et al., 2017; Srivastava et al., 2006). Age and organizational tenure were measured in years, whereas gender was dummy coded (0 = male and 1 = female). Apart from these demographic characteristics, we also controlled for team size in our analysis because large teams may affect the level of familiarity and interaction among team members (Hansen, Mors, & Løvås, 2005). Team size was operationalized as the number of employees in a work group as reported by supervisors. We also controlled for task interdependence as a critical job design factor for employee knowledge-sharing

behavior because team members will interact more if they rely on and need one another to complete their tasks (Srivastava et al., 2006). We assessed task interdependence by using four items ( $\alpha = 0.91$ ) adopted from Pearce and Gregersen (1991). Sample items include "I must frequently coordinate my efforts with others in my work group" and "The way I perform my jobs has a significant impact upon others in the work group." Prior to conducting full-scale analyses, we also checked for any differences in the results when the control variables were included and excluded to detect any irregularities (Bernerth & Aguinis, 2016). The results were similar with and without controls in the analyses.

## 4 | RESULTS

We conducted a series of confirmatory factor analyses to examine the distinctiveness of the study variables. The hypothesized five-factor model (i.e., dutifulness, achievement striving, supervisor support, coworker support, and supervisor-rated knowledge-sharing behavior) showed a good fit to the data ( $\chi^2[512] = 925.55, p < 0.001$ ; comparative fit index = 0.90, incremental fit index = 0.90, root mean square error of approximation = 0.07) and outperformed any alternative four- or three-factor models (all  $p < 0.001$ ; see Table 1). These confirmatory factor analyses results empirically supported the distinctiveness of the five variables for subsequent analyses. Table 2 presents the means, standard deviations, interscale correlations, and reliabilities of these variables.

The theoretical framework was conceptualized at the individual level of analysis. However, the supervisors rated the knowledge-sharing behavior of approximately two to six employees who directly reported to them (average number of employees per supervisor = 3.66). Given the nested data structure, we employed hierarchical linear modeling to validate the hypothesized relationships (Cohen, Cohen, West, & Aiken, 2003).

### 4.1 | Main effects

Hypothesis 1 posits a positive relationship between dutifulness and knowledge-sharing behavior. We tested this hypothesis by using hierarchical linear modeling equations. After controlling demographic characteristics, team size, and task interdependence, dutifulness exhibited a positive effect on knowledge-sharing behavior ( $\gamma = 0.51, p < 0.001$ ), as shown in Model 1 in Table 3. Thus, Hypothesis 1 was confirmed. By contrast, achievement striving was negatively related to knowledge-sharing behavior ( $\gamma = -0.21, p < 0.05$ ), thereby supporting Hypothesis 2. These main effect patterns confirmed that the two dimensions of conscientiousness have opposite main effects on knowledge-sharing behavior as hypothesized.

### 4.2 | Moderation by supervisor support

Hypotheses 3a and 3b propose that supervisor support has a neutralizing moderating effect, that is, supervisor support neutralizes or weakens the positive and negative effects of dutifulness and achievement striving on knowledge-sharing behavior, respectively. As

**TABLE 1** Comparison of measurement models

Model	Number of factors	$\chi^2$	df	$\Delta\chi^2$	RMSEA	CFI	IFI
Hypothesized model	5 factors: Du, AS, SS, CS, KSB	925.55	512		0.07	0.90	0.90
Model 1	4 factors: (Du + AS), SS, CS, KSB	986.51	516	60.96	0.09	0.87	0.87
Model 2	4 factors: Du, AS, (SS + CS), KSB	1,112.58	516	187.03	0.10	0.84	0.84
Model 3	3 factors: (Du + AS), (SS + CS), KSB	1,173.43	519	247.88	0.10	0.82	0.83
Model 4	3 factors: (Du + AS + SS), CS, KSB	1,610.2	519	684.65	0.12	0.70	0.71
Model 5	3 factors: (Du + AS + CS), SS, KSB	1,428.32	519	502.77	0.11	0.76	0.76
Model 6	2 factors: (Du + AS + SS + CS), KSB	1,843.6	521	918.05	0.13	0.64	0.65

Du: dutifulness; AS: achievement striving; SS: supervisor support; CS: coworker support; KSB: knowledge-sharing behavior; RMSEA: root mean square error of approximation; CFI: comparative fit index; IFI: incremental fit index.\*\*\* $p < 0.001$ .

**TABLE 2** Means, Standard Deviations, and Correlations among the Study Variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9
1. Age (years)	35.74	7.27									
2. Gender (0 = male, 1 = female)	0.44	0.50	-0.04								
3. Tenure (years)	5.89	5.23	0.44	-0.04							
4. Team size	13.99	12.59	0.10	0.07	0.01						
5. Task interdependence	4.88	0.98	-0.06	-0.05	0.16	0.01					
6. Dutifulness	5.20	0.78	-0.13	-0.04	0.01	-0.01	0.05				
7. Achievement striving	4.59	0.75	-0.07	-0.11	-0.08	-0.07	0.01	0.64			
8. Supervisor support	4.76	0.93	-0.08	-0.03	0.09	0.10	0.46	0.29	0.24		
9. Coworker support	4.92	0.84	-0.24	-0.03	0.01	-0.03	0.42	0.26	0.21	0.54	
10. Knowledge-sharing behavior	4.75	0.99	0.08	-0.17	0.18	-0.08	0.16	0.34	0.15	0.38	0.33

Note.  $N = 150$ .

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

**TABLE 3** Results of hierarchical linear modeling equations predicting knowledge-sharing behavior

Variable	Knowledge-sharing behavior		
	Model 1	Model 2	Model 3
Constant	4.72	4.63	4.63
Age	0.01	0.01	0.01
Gender	-0.26	-0.28	-0.27
Tenure	0.01	0.01	0.01
Team size	-0.01	-0.01	-0.01
Task interdependence	0.06	-0.04	-0.02
Dutifulness	0.51	0.50	0.59
Achievement striving	-0.21	-0.27	-0.33
Supervisor support (SS)		0.21	0.22
Coworker support (CS)		0.07	0.08
Dutifulness $\times$ SS			-0.31
Achievement striving $\times$ SS			0.27
Dutifulness $\times$ CS			0.45
Achievement striving $\times$ CS			-0.43
Pseudo $R^2$	0.16	0.23	0.25

Note.  $N = 150$ .

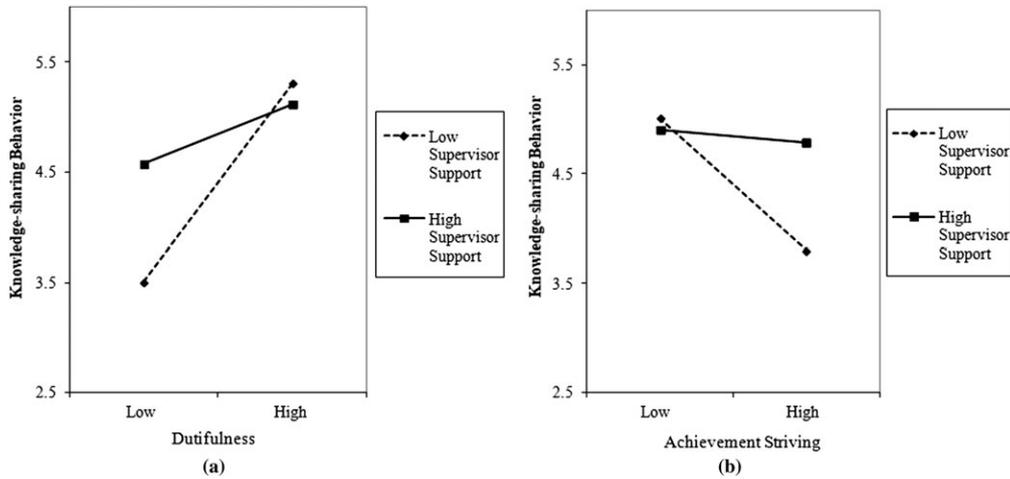
\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

presented in Model 3 in Table 3, supervisor support negatively moderated the positive effect of dutifulness ( $\gamma = -0.31$ ,  $p < 0.05$ ) but positively moderated the negative effect of achievement striving ( $\gamma = 0.27$ ,  $p < 0.05$ ). These interaction coefficients are consistent with

the hypothesized neutralizing moderating effect of supervisor support. We performed a simple slope analysis to further examine these interaction patterns (Aiken & West, 1991). Plot A in Figure 2 shows that the positive relationship between dutifulness and knowledge-sharing behavior is significant when supervisor support is low ( $b = 0.90$ ,  $p < 0.001$ ) but becomes insignificant when supervisor support is high ( $b = 0.27$ , *ns.*). Meanwhile, Plot B in Figure 2 indicates that the negative relationship between achievement striving and knowledge-sharing behavior is significant when supervisor support is low ( $b = -0.61$ ,  $p < 0.001$ ) but becomes insignificant when supervisor support is high ( $b = -0.06$ , *ns.*).

### 4.3 | Moderation by coworker support

Hypotheses 4a and 4b posit that coworker support exerts a neutralizing moderating effect, that is, a high coworker support deactivates or dissipates the positive and negative effects of dutifulness and achievement striving on knowledge-sharing behavior, respectively. Unexpectedly, Model 3 in Table 3 reveals that coworker support positively moderates the positive effect of dutifulness ( $\gamma = 0.45$ ,  $p < 0.05$ ) and negatively moderates the negative effect of achievement striving ( $\gamma = -0.43$ ,  $p < 0.05$ ). The results of the simple slope analysis corroborate that coworker support accentuates, rather than neutralizes, the effects of dutifulness and achievement striving on knowledge sharing, which is the opposite of what was hypothesized.



**FIGURE 2** Interaction effects of the two facets of conscientiousness and supervisor on knowledge-sharing behavior

Plot A in Figure 3 shows that dutifulness is positively related to knowledge-sharing behavior only for those individuals with a high coworker support ( $b = 1.03, p < 0.001$ ), but this relationship is insignificant when coworker support is low ( $b = 0.14, ns.$ ). Similarly, Plot B in Figure 3 demonstrates that the negative relationship between achievement striving and knowledge-sharing behavior is significant when coworker support is high ( $b = -0.77, p < 0.01$ ) but is insignificant when coworker support is low ( $b = 0.10, ns.$ ). These patterns rejected Hypotheses 4a and 4b and indicated that the actual moderating effects of coworker support were opposite to the hypothesized effects.

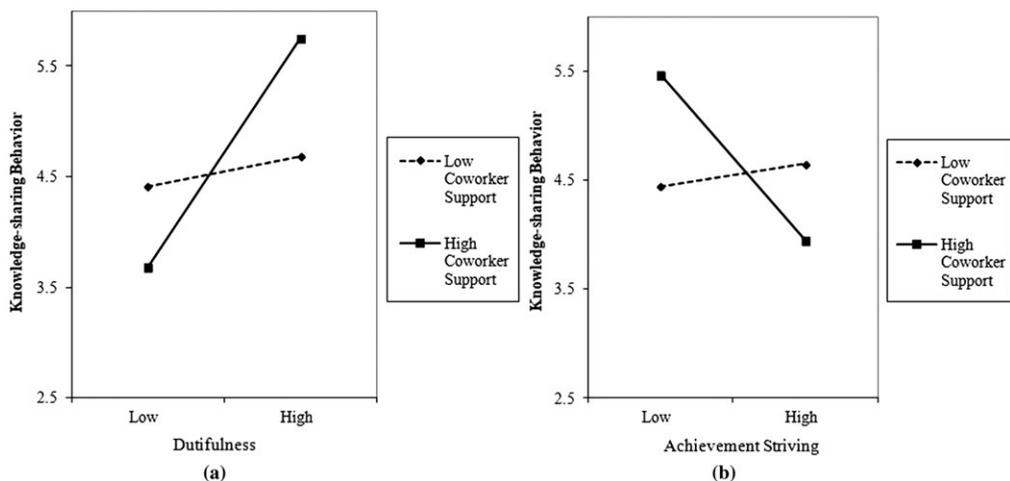
## 5 | DISCUSSION

Among numerous personality characteristics, conscientiousness has been identified by organizational researchers as one of the most significant and pertinent predictors of employee performance (Costa & McCrae, 1992; Judge et al., 2013). In this study, we focused on the two facets of conscientiousness and examined their effects on a critical workplace behavior, namely, knowledge sharing among employees.

Our empirical analysis contended that dutiful and achievement-striving individuals exhibit opposite behavioral tendencies toward knowledge sharing. The analysis also identified the boundary conditions for such effects and affirmed that the positive and negative effects of dutifulness and achievement striving on knowledge-sharing behavior, respectively, become pronounced when supervisor support is low and when coworker support is high. In the following sections, we highlight our key findings and their implications, identify the limitations of our work, and propose future research directions.

### 5.1 | Theoretical implications

This study contributes to the knowledge sharing literature by identifying the personality traits that affect the way people resolve the motivational dilemma of sharing valuable personal resources. Knowledge sharing represents a mixed motivation situation due to the simultaneous presence of its benefits and potential costs or adverse consequences for a person (Cabrera & Cabrera, 2002). Compared with general workplace collaboration and citizenship behaviors, the motivational tension involving knowledge sharing is particularly salient, owing to the distinct value and competitive advantage associated with



**FIGURE 3** Interaction effects of the two facets of conscientiousness and coworker support on knowledge-sharing behavior

knowledge, which disappear once shared (Cabrera & Cabrera, 2002; Chan Kim & Mauborgne, 1998; Lee et al., 2018; Park et al., 2017). When analyzing the individual choices made in this social dilemma, researchers have typically focused on social and environmental characteristics, incentive structures, and interpersonal characteristics, such as trustworthiness or relative status (Wang & Noe, 2010). This study enriches the literature by identifying personality characteristics that may affect the way individuals weigh the costs and benefits of their knowledge sharing, resulting in different behavioral choices (Lee et al., 2015; Matzler et al., 2008).

This study also contributes to the personality literature by examining the divergent roles of the two facets of conscientiousness for the same employee behavior. In doing so, this study responds to the calls for further research on a narrow conceptualization of personality in the workplace (Dudley et al., 2006; Tangirala et al., 2013). The analysis corroborates the notion that “[w]hen a self-orientation or other orientation is relevant to the criterion of interest, a more narrow use of conscientiousness may be beneficial” (Moon, 2001, p. 537). Knowledge sharing is indeed a behavioral criterion that necessitates the consideration of others versus self-orientation of individuals. Specifically, employees with high dutifulness act on their other orientation by sharing their knowledge based on their focus on others than on the risk to their self-interest (Moon, 2001). By contrast, those with achievement striving conserve their knowledge due to their self-centered mindset (Marinova et al., 2013) and the concomitant focus on the outcomes to the self rather than on the benefits to others (Moon, 2001). These findings highlight the importance of considering the self- and other-centered nature of the criterion of interest when investigating the effects of personality characteristics in the workplace (Grant & Wrzesniewski, 2010). For instance, self-oriented personality characteristics may have a strong predictive validity for self-centered criteria, such as task dedication and in-role performance, whereas other-oriented characteristics predict other-centered criteria, such as interpersonal citizenship and knowledge-sharing behavior. Further conceptual and empirical analysis of distinct, often opposite, implications of narrow facets underlying the broad big five personality traits for various employee behavior and outcomes should offer important insights into the way individual traits shape organizational phenomena.

In accordance with the trait-neutralizing argument based on TAT (Tett & Burnett, 2003) and the situation strength paradigm (Meyer et al., 2010; Mischel, 1977), we considered the moderating effects of a focal employee's relationships with his or her supervisor and coworkers, which comprise a compelling daily work environment for most employees (Chiaburu & Harrison, 2008). Specifically, a strong supervisor support offers powerful reward contingencies and numerous resources, thereby neutralizing the effects of individual dispositions on knowledge-sharing behavior. As depicted in Plots A and B in Figure 2, dutifulness and achievement striving significantly predicted knowledge sharing only when a focal employee was exposed to a low level of supervisor support. By contrast, these conscientiousness facets were not related to knowledge sharing when supervisor support was strong. This pattern is consistent with the findings of empirical studies based on the situation strength paradigm that reveal the consistency in the behaviors of individuals under a strong situation

with clear demand characteristics with regard to job process and outcomes (Judge & Zapata, 2015). Apparently, strong supervisor support operates as a strong situation that neutralizes the effect of individual dispositions, whereas weak supervisor support tends to activate the distinct functions of dutifulness and achievement striving toward knowledge-sharing behavior.

One unexpected finding from our analysis is the activating, rather than the hypothesized neutralizing and moderating effect of coworker support. Contrary to our prediction, we corroborated that coworker support accentuated or activated the expression of individual personality traits in the formation of knowledge-sharing behavior. The contrasting moderating functions of supervisor and coworker support might be attributed to the different resources and values flowing in vertical versus horizontal relationships, which create different situational perceptions and behavioral reactions. Vertical relationships with supervisors are governed by authority ranking as opposed to equality matching, and coworker exchanges are based on reciprocity and turn taking (Ng & Sorensen, 2008). Specifically, supervisors have formal authority within the organizational structure (Eisenberger et al., 2002) and control employee behavior through formal and informal evaluations, salary increases, and job assignments (Dineen et al., 2006). Therefore, strong supervisor support exerts a powerful influence to constrain the expression of personality, thereby neutralizing the effects of dutifulness and achievement striving. Thus, relatively weak supervisor support operates as a trait-activating contingency in which personality traits are expressed.

By contrast, the horizontal interactions among coworkers are relatively casual and less constrained in terms of performance appraisal and impression management (Mayer, Davis, & Schoorman, 1995). Thus, coworker support may not create a strong situation that promotes uniformity or consistency in the behaviors of individuals with varying personalities. Instead, the analysis (see Figure 3) confirms that coworker support, as a weak yet trait-relevant situation, allows individuals to choose their behaviors based on their traits possibly because coworkers are often the sources and targets of knowledge sharing at the workplace (Tett & Burnett, 2003). Accordingly, dutiful individuals view coworker support as a reciprocal debt; thus, these individuals are likely to engage in knowledge sharing to return the favor when coworkers offer valuable information and emotional support (Grant & Wrzesniewski, 2010). In effect, coworker support activates the function of dutifulness toward knowledge sharing.

By contrast, when coworkers are generous in sharing their personal resources, achievement-striving individuals can take advantage of the free access to such resources to improve their own performance. Consequently, strong coworker support creates a situational cue that drives achievement-striving individuals to act opportunistically in accordance with their concern for oneself, thereby reducing their willingness to share their knowledge (Hart et al., 2004). Therefore, achievement striving individuals become opportunistic and free ride on the public resources offered by their coworkers, a detrimental situation that was prevented in the case of supervisor support. Thus, coworker support is not sufficiently strong to neutralize the effects of traits; instead, this type of support provides a trait-relevant situational cue to activate the two facets of conscientiousness to shape knowledge-sharing behavior (Tett & Burnett, 2003).

Clearly, the contrasting moderating effects of supervisor support and coworker support highlight the distinct relational dynamics and resources provided by the supervisor and coworkers that represent the vertical and horizontal relations in organizations (Chiaburu et al., 2013; Ng & Sorensen, 2008). Alternatively, as Judge and Zapata (2015) suggested in their theoretical integration of the personality–situation interaction theories, supervisor support may represent a *general context* that suppresses the function of individual differences of any kind (cf. situation strength), whereas coworker support may offer a *specific context* that activates the function of a specific individual trait (cf. trait activation). This speculation should be further conceptually and empirically examined to enable researchers to distinguish general context from specific context in a reliable and consistent manner. Overall, the current moderation analysis and findings offer important theoretical implications regarding the person–situation interaction from the perspectives of situation strength and trait activation in the context of knowledge sharing in organizations.

## 5.2 | Practical implications

This study offers several practical insights into the improvement of knowledge sharing in organizations, which is critical for team and organizational performance and innovation (Sung & Choi, 2012, in press). Given the considerable effects of the two facets of conscientiousness on knowledge-sharing behavior, recruiting highly conscientious employees is a reasonable strategy for enhancing interpersonal and task performance outcomes. However, the current results prove that, although employees are all generally conscientious, dutiful employees share their knowledge and that achievement-striving employees do not practice knowledge sharing. Thus, simply relying on the overall conscientiousness score to fill a position or compose a team that requires a considerable degree of knowledge sharing to achieve a successful performance can be misleading. Caution must be exercised because new recruits or job candidates can be conscientious for different reasons; some are conscientious out of dutifulness, whereas others are driven by personal achievements. Practicing managers should be able to (or learn how to) evaluate and discern these different aspects of conscientiousness among employees.

The results also suggest that social contexts can neutralize or activate the role of employees' personal dispositions in shaping their knowledge-sharing behavior. Supervisors may promote a supportive climate and encourage cooperative interactions among members while reducing their own personal interventions and favors targeted at a small subset of members to improve the knowledge flow among dutiful members. By contrast, to promote knowledge sharing among achievement-striving members, supervisors must provide special attention toward the creation of a resourceful than a resource-deficient situation to prevent these members from being overly competitive and working against the collective goal to preserve their self-interest. In addition, given that achievement strivers tend to act opportunistically and exploit their coworkers' favors, a group norm or an incentive structure should be established to discourage such exploitative behaviors. Supervisors may also systematically penalize these members for their egocentric behaviors by intensively

monitoring their individual contributions to minimize free-riding attempts (Dineen et al., 2006; Hart et al., 2004). These practices can be selectively implemented in combination with existing recommendations for promoting knowledge sharing (Wang & Noe, 2010).

## 5.3 | Study limitations and future research directions

The present findings should be interpreted in light of several limitations. First, the causal direction among the variables cannot be ascertained because of the cross-sectional nature of the data. For instance, supervisor support and coworker support can be the consequences of one's active knowledge sharing over a certain period. When a longitudinal, dynamic perspective and research design are employed, some of the findings may vary. For instance, achievement striving members may not freely exploit the resources from coworker support for a long period because their coworkers may ultimately detect such deceitful behavior and cease from being supportive, particularly to nonreciprocating members. Thus, the current snapshot observation should be further validated and extended by studying the temporal developments in the varying relationships among the current study variables via a longitudinal, experimental, or ethnographic research design.

Second, the ratings for the two facets of conscientiousness, supervisor support, and coworker support were obtained from the same source (i.e., employees). Thus, we cannot entirely rule out the problems associated with common method bias. To reduce such concern, we measured knowledge sharing by using a different source (i.e., supervisors). However, knowledge-sharing behavior can target the coworkers and supervisors, and the consequential recognition and prestige can also be conferred by both. Future studies may increase the validity of the knowledge-sharing behavior measurements by using diverse rating sources, such as supervisors, coworkers, subordinates, and clients. These studies must consider a triad or network-like data that include the self, the peers, and the supervisor to further replicate and validate the current findings.

Third, the participants from Korean organizations possess more collectivistic and higher power distance values than their Western counterparts (Hofstede, 2001). By valuing interpersonal harmony, face saving, and hierarchical structure, the behaviors of these participants can be strongly affected by their relationships with their supervisors and peers, thereby accentuating the importance of supervisor and coworker support as boundary conditions. Therefore, the current theoretical propositions must be empirically verified in other cultural contexts.

The divergent effects of dutifulness and achievement striving observed in this study may correspond with the prevailing bifurcations between cooperative and competitive goals, altruistic and instrumental motivation, prosocial and proself values, or even collectivism and individualism (De Dreu & Nauta, 2009; Moon et al., 2008). Additional research efforts should be devoted to identifying the actual connections between the two facets of conscientiousness and the opposing motivational or value orientations. Interpersonal behaviors, such as knowledge sharing, are also often driven by personal perceptions, that is, people classify others as potential competitors when achieving

mutually exclusive goals or as allies to achieve and share mutually beneficial outcomes (Judge et al., 2013). Thus, individuals with dutifulness and achievement striving tendencies may develop disparate appraisals of their coworkers, and such difference may explain how they resolve the social dilemma of knowledge sharing. Moreover, further investigations are conducted to resolve the unexpected opposing moderating effects of supervisor and coworker support, which can be due to opposing inherent relational dynamics and resources involved or possibly due to disparate functions based on situation strength and trait activation. Theoretical and empirical resolutions of these opposing and occasionally competing perspectives on person-situation interaction should considerably advance the organizational literature.

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**How to cite this article:** Chae H, Park J, Choi JN. Two facets of conscientiousness and the knowledge sharing dilemmas in the workplace: Contrasting moderating functions of supervisor support and coworker support. *J Organ Behav.* 2019;40: 387-399. <https://doi.org/10.1002/job.2337>