# Perceived Mastery Climate, Felt Trust, and Knowledge Sharing

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## Abstract

Interpersonal trust is associated with a range of adaptive outcomes, including knowledge sharing. However, to date, our knowledge of antecedents and consequences of employees feeling trusted by supervisors in organizations remains limited. Based on a multisource, multiwave field study among 956 employees from five Norwegian organizations, we examined the predictive roles of perceived mastery climate and employee felt trust for employees' knowledge sharing. Drawing on the achievement goal theory, we develop and test a model to demonstrate that when employees perceive a mastery climate, they are more likely to feel trusted by their supervisors both at the individual and group levels. Moreover, the relationship between employees' perceptions of a mastery climate and supervisor-rated knowledge sharing is mediated by perceptions of being trusted by the supervisor. Theoretical contributions and practical implications of our findings are discussed.

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*[Trust] the inmates to run the asylum.*

—Laszlo Bock, *Work Rules! Insights from Inside Google that will Transform how you Live and Lead*, 2015

Knowledge is a central resource for ensuring organizational competitive advantage (Grant, 1996; Ipe, 2003; Kogut & Zander, 1992; Wang & Noe, 2010). It is therefore essential that employees' knowledge is made available in organizations through processes involving most if not all employees and departments (De Vries, Van den Hooff, & De Ridder, 2006; Grant, 1996; Ipe, 2003). *Knowledge sharing* refers to the provision of task information and know-how as a way of helping others and of developing collaborative problem solving, new ideas, and the implementation of novel policies and procedures (Wang & Noe, 2010). Extant research in this area has revealed that imparting and exchanging knowledge and information is positively associated with both team and organizational productivity and performance (Collins & Smith, 2006; Wang & Noe, 2010). Because knowledge work is regarded as significant in the process of wealth creation in today's global economy, understanding the antecedents of knowledge sharing has become an increasingly important concern (De Vries et al., 2006; Frost, Osterloh, & Weibel, 2010; Gagné, 2009).

The organizational context in which processes of sharing and combining knowledge occur is a central component of actual knowledge transfer (Connelly & Kelloway, 2003; Connelly, Zweig, Webster, & Trougakos, 2012; Javenpaa & Staples, 2001; Wang & Noe, 2010). However, developing our understanding of antecedents for employees' motivation for sharing and actual knowledge sharing remains an important area of research (Cabrera & Cabrera, 2005; Wang & Noe, 2010). In spite of this, the motivational drivers for employee knowledge sharing are still not fully understood (Lam & Lambermont-Ford, 2010; Milne, 2007; Osterloh, Frost, & Frey, 2002). This is unfortunate because one of the greatest challenges organizations face stems from practices of hoarding/hiding knowledge. Although providing short-term personal competitive advantage (Milne, 2007), such maladaptive behaviors have long-term

organizational consequences. An existing practical challenge (for supervisors in particular) is therefore how to develop organizational contexts wherein norms of knowledge sharing and learning will prevail (Černe, Nerstad, Dysvik, & Škerlavaj, 2014; Milne, 2007).

In this paper, we examine the perceived mastery motivational climate, defined by the traditional achievement goal theory (AGT; Ames, 1992b; Nicholls, 1989), as a potential antecedent of knowledge sharing. This motivational climate defines the achievement criteria of success and failure in a particular work situation based on learning, growth, cooperation, and effort (Nerstad, Roberts, & Richardsen, 2013a). Mastery motivational climate has been found to predict important employee outcomes, including job engagement, burnout, turnover intention, work performance, incivility, innovative work behavior, and knowledge hiding (e.g., Birkeland & Nerstad, 2016; Černe, Hernaus, Dysvik, & Škerlavaj, 2017; Černe et al., 2014; Nerstad et al., 2013a; Nerstad, Roberts, & Richardsen, 2013b). Employees' perceptions of a mastery climate direct how they relate to the task and each other, which goals they accomplish, and how well they are evaluated (Ames & Ames, 1984). It may therefore also affect the sharing of knowledge (cf. Swift, Balkin, & Matusik, 2010). For example, employees experiencing a mastery climate should be more likely to share their knowledge because it is seen as beneficial for both their own and their coworkers' learning and self-improvement (Poortvliet & Giebels, 2012; Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2009). In support of this, prior studies have found perceived mastery climate to positively predict individual knowledge sharing (Poortvliet, Anseel, Janssen, Van Yperen, & Van de Vliert, 2012; Poortvliet & Giebels, 2012; Poortvliet et al., 2009). However, there is a dearth of

understanding[1] of the mechanisms that might explain how a perceived mastery climate relates to knowledge sharing.

Previous work on knowledge sharing has identified *interpersonal trust*—or the willingness to be vulnerable to others in the anticipation of their positive behavior or intention (Brower, Lester, Korsgaard, & Dineen, 2009; Mayer, Davis, & Schoorman, 1995)—as important for explaining the extent to which individuals share their knowledge (Golden & Raghuram, 2010; Lau, Lam, & Wen, 2014; Levin & Cross, 2004; Wang & Noe, 2010). Recently, researchers have focused on perceptions of being trusted by a supervisor, or *felt trust* (Salamon & Robinson, 2008) instead of generalized trust, as has been done previously. Extending this line of inquiry, our study builds on insights of prior research examining employee outcomes related to subordinates' perceptions of their leaders' trustworthiness, by examining felt trust (Lau et al., 2014; Lester & Brower, 2003). Colquitt and Rodell (2011) demonstrated the importance of supervisor trustworthiness through initiating the first step toward subordinates in sharing information, and thus becoming vulnerable to them. Accordingly, employees' beliefs and expectations of their supervisors' trustworthiness can shape their own willingness to engage in trusting behaviors (cf. Seppälä, Lipponen, Pirttila-Backman, & Lipsanen, 2011). Similarity of values between the two parties is an important antecedent to these feelings of being trusted (Lau, Liu, & Fu, 2007). In social exchange theory, trust is central in the ongoing series of exchanges between employer and employees (Cropanzano & Mitchell, 2005). However, although previous research has indicated the importance of interpersonal trust in enhancing the likelihood of knowledge sharing, little is known about the antecedents of interpersonal trust and the consequences of feeling trusted by supervisors. In order to examine the relationship between a perceived mastery

[1] It should be noted that Gagné (2009) presented a conceptual framework of motivational influences on knowledge-sharing mechanisms using a different motivational lens combining the theory of planned behavior with self-determination theory.

climate and knowledge sharing in this study, we explore whether feeling trusted by supervisors serves as an explanatory mechanism.

We intend to contribute to the trust and knowledge-exchange literature in three distinct ways. First, we extend the nomological understanding (cf. Lau et al., 2014; Lau et al., 2007; Salamon & Robinson, 2008) of how felt trust predicts employee outcomes. Specifically, we develop and test a model (Figure 1) of the role of felt trust as a more in-depth explanation of how a perceived mastery climate relates to employees' knowledge sharing. We build on previous research of employee outcomes, which shows that feeling trusted by a supervisor is a more effective measure than simple trust in the supervisor (Lau et al., 2007). The conceptual mechanisms by which felt trust operates vary. For some, it can engender norms of responsibility that improve employee attention and diligence, leading to enhanced organizational performance (Salamon & Robinson, 2008). Other studies suggest it is via a more positive self-concept of organization-based self-esteem (Lau et al., 2014) in which performance improvement is driven (Bowling, Eschleman, Wang, Kirkendall, & Alarcon, 2010). In contrast, some have argued that feeling one is trusted changes employees' sense of empowerment (Brower et al., 2009). Felt trust also operates through a Pygmalion effect (Eden, 1990) derived from the sense of pride and enhanced task performance while employees become driven to maintain their reputation (Baer et al., 2015). Baer et al. (2015) particularly showed supervisors' roles in promoting reciprocated norms from bestowing trust on employees extending to consequences including the sharing of knowledge, which is regarded as an increasingly important resource to access in knowledge-intensive organizations (Ipe, 2003; Quigley, Tesluk, Locke, & Bartol, 2007). In this study, we assess the direct and collective impacts of perceived supervisor efforts in modeling being vulnerable to others. We selected this mechanism because felt trust operates by establishing and modeling norms of reciprocity (Salamon & Robinson, 2008). In this way, the norms of vulnerability that occur when bestowing trust are similar to the vulnerability that sharing knowledge produces.

Second, we contribute to our knowledge about trust dynamics and develop insight into effective managerial practices regarding feeling trusted by a supervisor through

considering both individual and shared group-level cognitions. We thus add a novel group-level perspective on whether felt trust perceptions are likely to be shared more widely and become reinforced within a local aggregated context (Thornton & Rupp, 2016). From the simultaneous investigation of both the direct and larger social aggregate cognitive unit, we are able to examine two distinct levels that occur in membership of an organization (Černe et al., 2014; Kramer, 2010; Preacher, Zyphur, & Zhang, 2010; Salamon & Robinson, 2008). We thereby respond to calls for research to better understand how (felt) trust operates at different levels of analysis and what the implications of an approach using various levels of analysis are (Jiang & Probst, 2015; Schoorman, Mayer, & Davis, 2007). This insight is particularly important given that felt trust is based in relationships, which are relevant both to the individual and the group level of analysis (Schoorman et al., 2007).

Third, we add to the research on knowledge sharing by exploring the role of a perceived mastery climate and its mechanisms in the promotion of knowledge sharing in line with calls for more multilevel research on environmental factors (i.e., climate) in predicting knowledge sharing (Lam & Lambermont-Ford, 2010; Wang & Noe, 2010). As multilevel issues have often received scant attention (Jiang & Probst, 2015; Quigley et al., 2007; Wang & Noe, 2010), our study intends to extend extant insight of the knowledge sharing literature (cf. Preacher et al., 2010).

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Insert Figure 1 about here

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## Theory and Hypotheses

### Perceived Motivational Climate and Knowledge Sharing

The work achievement context in which employees perform daily tasks plays an important part in enhancing the likelihood that knowledge is shared (Černe et al., 2014; Connelly et al., 2012). In line with the AGT, the way in which work goals are rewarded in a specific work context creates a motivational climate concerning employees' (individual and/or shared) perceptions of the extant success and failure criteria (Nerstad et al., 2013a). These criteria are emphasized by organizational policies, procedures, and

practices (Černe et al., 2014; Nerstad et al., 2013a). A climate is conceptualized as *motivational* because it influences individuals' value (goal) orientations, whether and how information is processed, and cognitions of their work performance. Such situational-induced cognitions may be important determinants of subsequent behavior including knowledge sharing. Stated differently, the salient goals or values signaled through organizational goal reward structures should affect employees' understanding of what it takes to achieve success or avoid failure, influencing their anticipated future behavior (Nerstad et al., 2013a). Although motivational climate perceptions are an individual-level phenomenon, experiences shared within the same work group may translate into a collective phenomenon (cf. Kuenzi & Schminke, 2009) because work unit members share stories and information regarding mastery climate experiences (cf. Priesemuth, Schminke, Ambrose, & Folger, 2014) to produce a collective perception of climate.

It is important to emphasize that motivational climate should not be confused with individual motivation (autonomous or controlled; e.g., Gagné, 2009; Gagné & Deci, 2005), or goal orientation (performance and mastery orientation; Dweck, 1986; Nicholls, 1989), which concerns individual motivation and personal dispositions. Motivational climate is a contextual variable at both the individual and collective levels in which employees consider how success is defined in their work situations (i.e., motivational climate), and not how they personally define success (i.e., goal orientation). Although likely to incorporate personal dispositions (i.e., goal orientation), empirical evidence has demonstrated that individuals' perceptions of the motivational climate have predictive value over and above individual goal orientation (Černe et al., 2014; Nerstad et al., 2013a). Further, autonomous and controlled motivation have been found to be important outcomes of the motivational climate (Harwood, Keegan, Smith, & Raine, 2015; Ntoumanis & Biddle, 1999) but are conceptually and empirically distinct from it. In addition, the motivational climate can also operate at the group level. In line with Edmondson's (1999) notion of climate, in order for motivational climates to be group-level constructs, they must characterize similar perceptions of the work group rather than

their individual team members. Because group members are subject to the same structural influences, and because their perceptions develop through relevant shared experiences, perceptions are likely to converge (Edmondson, 1999). For example, most members of a particular group are likely to rely on positive group experiences in concluding that helping and cooperating with coworkers and sharing their knowledge will be of value and benefit to other members, including themselves.

According to AGT, there are two distinct types of motivational climate: mastery and performance (Ames, 1992b). A *mastery climate* values, supports, and rewards employees' efforts, cooperation, learning, mastery, and development of skills (Ames, 1992b; Roberts, 2012). It emphasizes self-referenced goals (goals based on one's past performance), encouraging employees to try their best, giving them several opportunities for improvement, and evaluating or monitoring progression toward their goals (Ames & Ames, 1984). A mastery climate involves the identification of goals that exceed each employee's previous performance and motivates them to learn through the sharing of information (to support and help each other) and by facilitating the development of peer norms that encourage each team member's efforts (Ames & Ames, 1984; Černe et al., 2014). This develops a collective social responsibility, promoting knowledge sharing. Such climates may evolve from the signals employees perceive in the work environment encouraging them to view knowledge sharing as an opportunity to improve the quality of their own knowledge and thereby develop their capabilities further (cf. Poortvliet & Giebels, 2012; Swift et al., 2010). Thus, a situation of positive interdependence is created, with both provider and recipient seeing its benefits (Ames, 1984; Poortvliet & Giebels, 2012).

Inherent in a mastery climate is a value system that fosters a responsibility to help (Ames & Ames, 1984). Such cooperation involves encouraging and assisting others as well as doing one's own share of the work to accomplish both individual and collective goals. Therefore, knowledge sharing becomes an important component in meeting the criteria of success in a mastery climate.

In line with, for example, autonomy-supportive climates (Deci et al., 2001; Gagné, 2009), coworker support, or supervisor support (e.g., Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), a perceived mastery climate influences individual motivation (Harwood et al., 2015; Ntoumanis & Biddle, 1999). However, in motivating knowledge-sharing behavior, a mastery climate has incremental value beyond such support variables because it implicitly expects and rewards cooperative or helping behavior (Ames & Ames, 1984). Consequently, perceptions of a shared fate promote behaviors of encouraging others and looking at the wider interest besides one's own (Černe et al., 2014). Through employees sharing lessons learned and insights gained, others also profit from their knowledge accumulation (Beersma et al., 2003; Černe et al., 2014).

In support of this view, Poortvliet, Janssen, Van Yperen, and Van de Vliert (2009) found that in mastery goal reward structures, individuals tended to share high-quality information regardless of the other party's performance level. In this way, knowledge exchange partners also learned from knowledge sharers' mistakes (Poortvliet et al., 2009). Another study showed how individuals with situational-induced mastery goals were more inclined to cooperate by sharing task-relevant knowledge with another person when both were engaged in a similar complex task (Poortvliet & Giebels, 2012). The high level of concern for others also encouraged this. Organizational climates, which emphasize cooperation (an important aspect of a mastery climate), predict high levels of knowledge-sharing perceptions among individuals (Schepers & van den Berg, 2007). In sum, a mastery climate seems to foster and promote knowledge sharing, and we therefore hypothesize the following:

Hypothesis 1: A perceived mastery climate is positively related to knowledge sharing at (a) the individual level and (b) the collective level of analysis.

By contrast, a *performance climate* fosters intrateam competition and forces social comparison among employees, regardless of whether there was prior interest in such comparative information (Ames, 1992b). In this type of climate, employees typically receive public recognition when they demonstrate their ability, with rewards

restricted only to the best performers (Ames & Archer, 1988; Černe et al., 2014). As a result, in a performance climate employees are more likely to perceive coworkers as competitors and rivals and, therefore, may view knowledge sharing as reducing their own advantage (Poortvliet & Giebels, 2012). Although this climate fosters individual competition and delivers end results, it may actively obstruct the acquisition and sharing of knowledge (Gardner, 2012; Wang & Noe, 2010).

Because the two climate structures are suggested to be interdependent and likely operate more or less simultaneously, we decided to control for their possible concurrent existence (Ames, 1992b; DeShon & Gillespie, 2005).

**The Mediating Role of Felt Trust**

Interpersonal trust refers to an employee's willingness to be vulnerable to another party based on a positive expectation of the other person's actions (Korsgaard, Brower, & Lester, 2015; Rousseau, Sitkin, Burt, & Camerer, 1998). Interpersonal trust involves two parties, trustors and trustees, in a dynamic relationship (Korsgaard et al., 2015; Lau & Lam, 2008). Prior research on interpersonal trust has predominantly focused on trustors, neglecting inclusion of the extent to which the trustee feels trusted by the other party, often his or her supervisor (for exceptions, see Lau & Lam, 2008; Lau et al., 2014; Salamon & Robinson, 2008). Feeling trusted involves the "perception and realization of others' positive expectations and exposes their willingness to be vulnerable" (Lau et al., 2014, p. 114). Previous research on trust in the supervisor–employee relationship offers a partial view for two distinct reasons. First, the conceptual emphasis on trust has concerned measurement of the positive confident expectations (e.g., Aryee, Budhwar, & Chen, 2002; Konovsky & Pugh, 1994) rather than the willingness to become vulnerable to another (Colquitt, LePine, Piccolo, Zapata, & Rich, 2012; Colquitt & Rodell, 2011). However, a decision to trust another party increases a trustor's risks and vulnerabilities. Second, extant research has tended to measure perceptions of trusting others rather than the impact of being trusted by them. Studies have focused on the impact of trusting managers to reveal a moderately strong impact on three key aspects of employee behavior, with meta-analytic results showing both task performance and citizenship

behaviors and diminished counterproductive work behaviors (Colquitt, Scott, & Lepine, 2007; Dirks & Ferrin, 2002). In contrast, although research into feeling trusted has received limited attention, such studies have shown it to have important beneficial consequences for employees' work behaviors, including improved task performance, increased levels of sales and customer service, boosts to citizenship behaviors and loyalty, reduced counterproductive behaviors, and lower intention to leave (Brower et al., 2009; Deng & Wang, 2009; Lau et al., 2014; Lau et al., 2007; Lester & Brower, 2003; Salamon & Robinson, 2008). Accordingly, feeling trusted makes individuals perceive the other party as responsible and competent, bestowing on them a sense of obligation but also confidence and empowerment (Lau et al., 2007). The range of consequences of feeling trusted can therefore have some adverse impacts, not solely regarding increased personal workloads but also in raising levels of emotional engagement and, in turn, the potential for exhaustion (Baer et al., 2015). Indeed, conceptual work has suggested that feeling trusted may make employees less likely to detect their supervisors' more malevolent, bullying, and exploitative intentions (Samnani, Singh, & Ezzedeen, 2013).

Conceptually and empirically trusting others and feeling trusted are independent but critically potentially asynchronous dimensions (Brower, Schoorman, & Tan, 2000; Korsgaard et al., 2015). Further, it is important to distinguish the nomological net for being trusted as distinct from other related concepts, including perceived organizational support (POS) or perceived supervisor support (PSS). POS and PSS are similar to collectively being trusted as they focus on beliefs concerning the relationship between an employee and his or her employing organization and/or supervisor as being attentive to their well-being and supporting them (Eisenberger, Huntington, Hutchison, & Sowa, 1986; Kurtessis et al., 2015). However, results both from meta-analyses (Kurtessis et al., 2015; Rupp, Shao, Jones, & Liao, 2014) and other research (e.g., Holland, Cooper, & Sheehan, 2016) shows them as conceptually and empirically distinct, with trust confirmed to be either a consequence or a mediator, respectively. In contrast, felt trust is the perception that another party, in this case a supervisor, bestows trust and thus is prepared to make himself or herself vulnerable to an employee's future actions.

Employees' feelings of being trusted originate from cues and signals related to organizational norms of compliance, task completion, and work-role achievement (Lau et al., 2014). We propose that such cues are also likely present in a mastery climate because norms signal the importance of interpersonal trust (and its results, cooperation, and help). These norms emerge from actions such as involving subordinates in decision making, offering choices, facilitating opportunities for improvement, and motivating cooperative goals that each employee is more likely to achieve by virtue of the presence and actions of capable colleagues (Ames, 1992b; Ames & Ames, 1984).

Extant research has indicated that both autonomy and cooperation, which are criteria fostered by a mastery climate, are rooted in trust (e.g., Korsgaard et al., 2015; Kramer, 2010). In line with other work climates (e.g., supportive climate) found to be predictors of trust, we expect that employees who operate in and experience a climate that they perceive to support mastery criteria of success will report higher levels of felt trust from their supervisors (cf. Hughes, Avey, & Norman, 2008). Thus, felt trust is not merely another dimension of a mastery climate; rather, it is an outcome of such a climate. When supervisors trust subordinates, they bestow autonomy (a trusting behavior), which results in subordinates showing supervisors greater trust (Seppälä et al., 2011). Kramer (2010) also found that cooperation enhances trust due to the self-reinforcing relationship promoted between the two parties.

As employees work together over time, they are likely to decide whether there is a mastery climate and whether they feel trusted by their shared supervisors. Typically, individuals' perceptions arise due to the organizational practices, policies, and procedures implemented and delivered through the actions of local supervisors (Kozlowski & Doherty, 1989; Searle & Skinner, 2011). Prior theory and research has suggested that supervisors are the main architects of local work climates (Kuenzi & Schminke, 2009; Salamon & Robinson, 2008). For example, a study in the finance industry suggested that perceived supervisor support is an important predictor of perceived mastery climate (Nerstad, Roberts, Richardsen, & Dysvik, 2011).

Drawing on findings from the sports domain (Vazou, Ntoumanis, & Duda, 2006), coworkers might also forge this climate from work interactions that influence the way they interpret, define, and respond to cues of the situation (Schneider & Reichers, 1983). However, a coworker-created climate will still, to some extent, also be the outcome of a supervisor-created climate (Ntoumanis, Vazou, & Duda, 2007). Because supervisors are the most tangible and salient representatives of management policies, procedures, and actions, their interactions with staff are likely to be key to the interpretations that prove foundational to employees' individual and shared climate perceptions (Kozlowski & Doherty, 1989). For example, a study simulating three organizations in which supervisors displayed different leadership styles of productivity, formality, and cooperation (Litwin & Stringer, 1968) showed how, over time, the climates also differentiated in ways that were congruent with these leadership styles. In another study, convergence was found between in-group members' perceptions of the work climate and their supervisors' perceptions of the work climate, and no such convergence was found for out-group members and their supervisors (Kozlowski & Doherty, 1989).

When supervisors show trust, they make themselves vulnerable to their subordinates, whose reciprocation benefits the whole organization (Colquitt & Rodell, 2011; Korsgaard et al., 2015). In turn, employees who feel trusted reciprocate through their satisfaction with and loyalty to their local leader (Deng & Wang, 2009) and are more likely to develop responsibility norms, taking greater responsibility for organizational outcomes (Salamon & Robinson, 2008). This creates individual and shared perceptions. A focus on mastery criteria of success (effort, learning, skill development, decision latitude, and cooperation) demonstrates supervisors' inclinations to take risks by trusting their subordinates (cf. Lau et al., 2014). The signals sent through supervisors' emphases on mastery climate criteria constitute potent sources of subordinates' felt trust (cf. Kramer, 2010). Higher responsibility norms may, in turn, enhance employees' engagement in knowledge sharing as an important way of contributing positively to organizational outcomes. Shared group-level cognitions may then develop (cf. Salamon

& Robinson, 2008). Accordingly, mastery climate and felt trust may operate at two levels of analysis (Lau et al., 2014; Marsh et al., 2012; Salamon & Robinson, 2008).

When employees feel trusted by their supervisors, it can create a sense of obligation but also of psychological empowerment and self-efficacy (Lau et al., 2007). This serves as a positive compliment and an indication of their supervisors' confidence in them (Lau et al., 2007). Accordingly, trustees' beliefs in their own capability may be enhanced, increasing their motivation to further demonstrate their own social responsibility by sharing their own knowledge and expertise (cf. Lau et al., 2014). Work climates that foster cooperation (one important criterion of a perceived mastery climate) have been found to generate trust, a necessary condition for knowledge sharing (e.g., Schepers & van den Berg, 2007). As a result, it may be reasonable to suggest that a mastery climate, which fosters feelings of being trusted by the supervisor, directs employees' attention toward how social interdependence can help them achieve their individual and collective goals. Making the provision of information more salient, providing a role model that enhances wider expectations of more collegial behavior, and showing the positive consequences of such behavior may explain why trustees decide to engage in knowledge sharing as a trusting behavior. We therefore hypothesize the following:

> Hypothesis 2: The positive relationship between a perceived mastery climate and knowledge sharing is mediated by felt trust from the supervisor at (a) the individual and (b) the collective level of analysis.

## Method

### Procedure and Participants

The study took place in Norway in two private organizations (Org. 1 and Org. 4), two independent nonprofit institutions (Org. 2 and Org. 3), and one public organization (Org. 5). These organizations represent several industries, including: engineering/architecture (Org. 1), finance (Org. 2), academia (Org. 3), maritime/offshore (Org. 4), and welfare/labor administration (Org. 5). Prior to commencing research, ethical approval, especially regarding confidentiality, was sought and obtained from the

Norwegian Social Science Data Services (NSD). Initially, we asked for permission to distribute our survey to all employees of the organizations or institutions. Information about the study was provided to each organization by the HR department or other germane contacts.

Prior to the study, each employee was sent an e-mail using a Web-based tool (Confirmit and Qualtrics). Given different potential biases that may have influenced responses, we followed the recommendations of Conway and Lance (2010), Podsakoff, MacKenzie, Lee, and Podsakoff (2003), and Podsakoff, MacKenzie, and Podsakoff (2012) in the design and statistical procedures to reduce the potential influence of common method variance on our findings. With respect to study design procedures, the e-mail sent to employees included a cover letter containing written assurances of strict confidentiality and aggregate reporting. As for anonymity (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), respondents were informed that any identifying information (e-mail addresses) and responses would be stored separately in encrypted files for data collection and data-matching processes (matching with direct supervisor ratings). Furthermore, all personal identifying information (e-mail addresses) for data collection purposes would be deleted by a predetermined date. They were assured that there were no right or wrong answers and asked to answer the survey questions honestly (Podsakoff et al., 2003). In addition, the e-mail included a link for respondents to give their informed consent, allowing their supervisors to rate their knowledge sharing.

The study was cross-sectional in design, with independent variables and the mediator measured at the same time. Survey items were specific, simple, and concise; they did not include double-barreled questions (Podsakoff et al., 2003). Self-reports of the independent variables (e.g., perceived mastery climate, perceived performance climate) and mediator (felt trust from the supervisor) were chosen because these measures capture subordinates' perceptions. Subordinates are best suited to report their own perceptions (Berry, Carpenter, & Barratt, 2012). In order to reduce potential common method bias (Conway & Lance, 2010; Podsakoff, MacKenzie, & Podsakoff, 2012), respondents' direct supervisors rated their subordinates' knowledge sharing.

Response rates included approximately 37% ($n$ = 241) of selected participants from Org. 1, 48% ($n$ = 143) from Org. 2, 42% ($n$ = 224) from Org. 3, 30% ($n$ = 195) from Org. 4, and 29% ($n$ = 319) from Org. 5. The response rates for all five reflect the percentage of responses based on the total number of selected employees who received the invitation to participate in the study. Of the overall sample ($N$ = 1122), 956 subordinate–supervisor pairs were obtained. One hundred and sixty-six respondents could not be matched with their direct supervisor because we did not obtain information about their direct supervisor from the organization. Of the 956 subordinates who could be matched with their direct supervisor, 417 were rated by their direct supervisor in terms of knowledge sharing. One of the organizations (Org. 4) did not grant access to the respective supervisors; therefore, we could not obtain supervisor ratings for knowledge sharing behaviors. However, given that we had data on all the other variables from this particular organization, we decided to include the data in our analyses. Because this study included a collective dimension, 417 of these pairs involved employees nested within 245 work groups ($M$ = 3.90)[2], with 245 direct supervisors rating members of their work group who responded to the initial survey. According to Chan (1998), a work group refers to a collection of individuals who interact through meetings, shared goals, interdependent work, and training in a larger setting. In the context of our study, organizational representatives confirmed that employees, to a great extent, interacted with their colleagues in the work groups led by specific direct supervisors.

The overall sample ($N$ = 1122) consisted of 53% women and 47% men, of whom approximately 41% reported their highest educational level as a master's degree.

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[2] Although our aim was to sample entire work groups, the ethics protocol furnished by the NSD prohibited us from contacting the supervisors to rate subordinates who had not responded to our survey. Therefore, we did not have access to information about other work group members. Consequently, the calculated work group size ($M$ = 3.90) is derived from members for which we have data.

Approximately 57% of participants were between 36 and 55 years old, and 94% were full-time employees. Roughly 84% had no managerial responsibilities. In terms of tenure with the supervisor, 23% reported tenure of less than a year, 35% reported 1–3 years, and approximately 42% reported tenure of 4 years or longer.

**Measures**

In this study, a 7-point Likert response scale was applied, ranging from one (*strongly disagree*) to seven (*strongly agree*). All measures (except for Org. 4) included in the study were administered in Norwegian. Because Org. 4 is an international corporation with English as its business language, the survey was distributed in English.

**Perceived mastery climate.** We used a measure that Nerstad et al. (2013a) developed and validated to assess the perceptions of motivational climate (perceived mastery climate and performance climate) at work. This scale was originally developed in Norwegian and English (Nerstad et al., 2013a). The questions determine how participants perceive success to be defined in their work situations, with six items concerning their perceptions of a mastery climate (e.g., “Each individual’s learning and development is emphasized”), and eight concerning their perceptions of a performance climate (e.g., “Work accomplishments are measured based on comparisons with the accomplishments of coworkers”). Performance climate was included as a control variable. Cronbach’s alpha for these scales was 0.87 and 0.85, respectively.

**Felt trust.** A six-item scale was adapted and translated to Norwegian based on Salamon and Robinson’s (2008) measure. It was translated in line with other researchers’ recommendations to avoid the risk of misconception or misunderstanding and to confirm the equivalence of item meaning (Cavusgil & Das, 1997; Nachmais & Nachmais, 1992). Employees indicated the extent to which they felt that their direct supervisors trusted them (e.g., “My direct supervisor shows through his or her behavior that he or she trusts his or her coworkers” and “My direct supervisor communicates clearly that he or she has confidence in his or her coworkers”). In Org. 4, the original English version of the scale was used (Cronbach’s alpha = 0.95). Cronbach’s alpha using the data from all five organizations was 0.94.

**Knowledge sharing.** To assess knowledge sharing, subordinates' direct supervisors completed an eight-item scale that was derived from De Vries et al. (2006) and that Kuvaas, Buch, and Dysvik (2012) validated in Norwegian. Examples of questions include: "He or she shares information he or she has with his or her colleagues" and "He or she regularly informs colleagues of what he or she is working on." Cronbach's alpha was 0.92.

**Control variables.** The facilitation of climates exclusively emphasizing mastery criteria may be in conflict with the practical realities of organizations (DeShon & Gillespie, 2005; Poortvliet & Darnon, 2010). Perceived mastery and performance climates may be interdependent but distinct (Ames, 1992b), or they may even coexist (Ommundsen & Roberts, 1999). In this study, we therefore controlled for a performance climate at both the individual and group level of analysis by measuring with a group referential measure (cf. Preacher et al., 2010).

We also controlled for supervisor tenure, measured by the amount of time an individual respondent has worked with his or her direct supervisor, because longer relationships with supervisors have been shown to affect relationship development (Maslyn & Uhl-Bien, 2001). This may affect employees' feelings of trust from the supervisor. We controlled for age and gender ("female" was coded as 1 and "male" as 2) because females and males may have different motivational climate perceptions (Abrahamsen et al., 2008). Given that supervisors were in the sample, we also controlled for participants' possible managerial responsibility ("no" was coded as 1 and "yes" as 2). Likewise, education may influence the knowledge an employee possesses, which may, in turn, affect his or her knowledge sharing, so we also controlled for this variable (Lee, Gillespie, Mann, & Wearing, 2010). Finally, as this research was conducted in five different organizations, we also controlled at the individual level for organizational membership (organization 1 = 1 and so on, through 5). This was important given the results of a one-way between-subjects analysis of variance (ANOVA) where we compared organizational differences (Org. 1–5) for the means and variances of the nine other measures, including gender, age, education, supervisor tenure, leader responsibility,

perceived performance climate, perceived mastery climate, felt trust from the supervisor, and objective knowledge sharing (see Table 1). This assessment identified a statistically significant difference between groups for all of the study variables: gender: $F(4,1115) = 63.93$, $p = .001$; age: $F(4,1115) = 22.06$, $p = .001$; education: $F(4,1115) = 60.83$, $p = .001$; supervisor tenure: $F(4,1115) = 22.87$, $p = .001$; leader responsibility: $F(4,1115) = 18.19$, $p = .001$; perceived performance climate: $F(4,1117) = 34.39$, $p = .001$; perceived mastery climate: $F(4,1115) = 18.19$, $p = .001$; felt trust: $F(4,1115) = 3.49$, $p = .01$; and objective knowledge sharing: $F(3,413) = 3.80$, $p = .01$. We undertook post hoc tests to confirm where the differences occurred between groups. Given that our data did not meet the assumption of the homogeneity of variances, Games Howell post hoc tests were used that indicated several significant mean differences (see Table 1) between organizations, emphasizing the importance of controlling for organizational membership in our subsequent analyses. We controlled for organizational membership only at the individual level because collective variables in our study originated at the individual level (Preacher et al., 2010).

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Insert Table 1 about here

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**Statistical Analyses**

**Missing value analysis.** Given that our data included missing values, we decided to conduct Little's (1988) missing completely at random (MCAR) test using the SPSS 24 Missing Value Analysis with the expectation maximization technique. This was done to explore whether missing data depended on the variables in the data set.

**Single-level confirmatory factor analysis.** In line with the recommendations of Dyer, Hanges, and Hall (2005), we first conducted a single-level confirmatory factor analysis (CFA). For this purpose, and because "ordinal variables are not continuous and should not be treated as if they are" (Jöreskog, 2005, p. 10), we applied the weighted least square with a mean and variance adjustment (WLSMV) estimator for categorical data in M*plus* 7.3 (Brown, 2006; B. Muthén & Muthén, 1998–2014). The WLSMV estimator was applied because it provides a precise treatment of categorical data (i.e., our data

represent ordinal variables), and it is a robust estimator where the normality of distributed variables is not assumed (Brown, 2006; Rhemtulla, Brosseau-Liard, & Savalei, 2012).

**Multilevel confirmatory factor analysis.** We applied multilevel confirmatory factor analysis (MCFA) to simultaneously test the structure and reliability of employees' motivational climates and felt trust at both the individual and work group (collective) levels. In addition, we examined the structure and reliability of supervisors' reports of subordinates' individual and collective knowledge sharing. Thus, two levels of analysis (Level 1, individual employee and Level 2, collective) were considered simultaneously.

**Multilevel structural equation modeling.** Mediation analysis in grouped data has predominantly used statistical procedures such as multilevel modeling (MLM; see Zhang, Zyphur, & Preacher, 2009). However, several studies have identified problems with conducting mediation analysis within such a framework (Preacher et al., 2010). To overcome the limitations of MLM, we tested our hypotheses using MSEM (cf. B. O. Muthén & Asparouhov, 2008; Preacher et al., 2010). MSEM allows for the testing of mediation at the individual and group levels by separating between and within components of the indirect effect. Such a framework also enables the control of between-group variability to provide several measures of overall model fit. Our model was a 1-1-1 design because all variables (perceived mastery climate, felt trust, and knowledge sharing) were measured at the individual level (Level 1) of a two-level hierarchy (Krull & MacKinnon, 2001; Preacher et al., 2010). We performed MSEM analyses using M*plus* 7.3, treating data categorically using the WLSMV estimator. As our data were hierarchical (subordinates nested within direct supervisors), we modeled fixed effects at the supervisor level, which may have captured unobserved heterogeneity common to the subordinates nested within a supervisor (Antonakis, Bendahan, Jacquart, & Lalive, 2010). In addition, we modeled the fixed effects of organizations by means of four dummy variables.

**Justification for the application of MCFA and MSEM.** To determine the extent of group-level variance and to facilitate a justification for the application of multilevel analyses, the intraclass correlations coefficients (ICCs) were calculated for each item

using M*plus* 7.3 (see Table 2). In addition, ICCs for each latent variable (LICC1) were calculated (Höhler, Hartig, & Goldhammer, 2010). ICC1 and LICC1 values that meet or exceed 0.10 are ideal (Wagner, Göllner, Helmke, Trautwein, & Lüdtke, 2013). Multilevel modeling may, however, be applied when ICCs are as low as 0.05 (Dyer et al., 2005). To evaluate the group-level reliability of the latent measures of the four measures, we calculated the intraclass correlation (LICC2; see Table 2). We further calculated $r_{WG(J)}$ ($_{(J)}$ = multiple item measures) to evaluate within-group agreement along mastery climate, felt trust, and knowledge sharing after correcting for response bias (cf. Biemann, Cole, & Voelpel, 2012).

Although no absolute standard value for aggregation based on the LICC2 exists, the recommended LICC2 threshold is 0.60 with an $r_{WG(J)}$ equal to or greater than 0.70 (Bliese, 2000; Glick, 1985). $r_{WG(J)}$ was estimated using the multilevel package in R. As indicated in Table 2, the criteria for aggregation were all met, except for the LICC2 values of perceived mastery climate, felt trust, and perceived performance climate, which were below the suggested criterion of 0.60. LICC2, however, is a function of group size (Bliese, 2000), and the average group size in the current study was smaller (3.90) than in the studies used in recommending the cut-off criteria. Thus, sufficient between-group agreement was indicated to conduct MCFA and MSEM.

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Insert Table 2 about here

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**Evaluation of goodness-of-fit**. We applied common guidelines, the root mean square error of approximation (RMSEA) < 0.08, the comparative fit index (CFI) > 0.95, the Tucker-Lewis index (TLI) > 0.95, and the standardized root mean square residual (SRMR) < 0.10 for an acceptable fit to evaluate the model fit of the single-level and multilevel modeling approaches (Hu & Bentler, 1999; Marsh, Hau, & Grayson, 2005). Still, it is unclear whether individual level (Level 1) guidelines apply to the group level of analysis (Level 2). To our knowledge, no proposed guidelines of the SRMR at Level 2 exist, and this becomes particularly opaque when the data are categorical, which may result in a higher SRMR between values. Thus, the guidelines are not strict rules for each

index; rather, we considered the overall model fit statistics and the measurement models. To identify model misspecifications at the different levels of analyses, we applied the partial saturation approach (Ryu, 2014), in which the factor structure is specified on one level of analysis and the other level is saturated. This means that only correlations among the manifest indicators at the same time are allowed (Scherer & Gustafsson, 2015).

## Results

### Missing Value Analysis

We conducted Little's (1988) MCAR test for each organization (1-5) separately given that different explanations may exist for why data were missing in each organization. Little's MCAR test indicated that the data in each organization were missing completely at random (i.e., no identifiable patterns existed in the missing data), which can be expressed as follows: Org. 1: $\chi^2$ (49, $n$ = 241) = 53.230, $p$ = 0.315; Org. 2: $\chi^2$ (25, $n$ = 143) = 45.545, $p$ = 0.007; Org. 3: $\chi^2$ (57, $n$ = 224) = 66.023, $p$ = 0.193; Org. 4: $\chi^2$ (49, $n$ = 199) = 35.242, $p$ = 0.930; Org. 5: $\chi^2$ (45, $n$ = 319) = 51.908, $p$ = 0.223. The range of missing data was most severe for the supervisor ratings, ranging from approximately 48% (Org. 2), 56% (Org. 1), 56% (Org. 5), and 66% (Org. 3) to 100% (Org. 4). Among all other study variables, only a few missing values were found among the demographic variables ranging from 0.4%–1.3%. Little's MCAR test indicated that the data for all organizations were MCAR, except for Org. 2, given that all $p$ values were nonsignificant. Because the result for Org. 2 was significant, the data are considered to be not missing at random (NMAR).

**Handling missing data.** The missing values that occurred in the present study were handled in a stepwise procedure. First, 168 cases were removed from the data set because either information about the leader within the organization—and thus information about the assignment to a cluster in the data set—was missing ($n$ = 166), or respondents provided only background information (e.g., age, gender) and did not respond to the relevant scales ($n$ = 2). The resultant data set comprised $N$ = 956 cases that were clustered with 245 leaders within five organizations; on average, each cluster consisted of four employees. Given that missing values in item responses occurred

particularly for the scale representing supervisor-rated knowledge sharing (up to 56.5 %), a multiple imputation[3] procedure was applied in the second step using M*p*lus. This procedure assumes that missing values occurred randomly (Enders, 2010). Furthermore, we decided to perform a joint multilevel imputation approach (Asparouhov & Muthén, 2010a), in which all variables are decomposed into within- and between-cluster components (Enders, Mistler, & Keller, 2015). In contrast to multiple imputation with chained equations, this approach "is superior for analyses that posit different within- and between-cluster associations" (Enders et al., 2015, p. 222), and it performs well in situations where latent variables are indicated by categorical variables (Teman, 2012). As Lüdtke, Robitzsch, and Grund (2017) argued, the multiple imputation of variables in clustered data sets needs to be informed by the multilevel structure; it was therefore important to explicitly impute the missing data for the within-(employee-) and between-(leader-)levels. The H0 imputation procedure was performed in M*plus* (Asparouhov & Muthén, 2010a; Enders et al., 2015*)*, and $m = 20$ complete data sets were generated (Graham, Olchowski, & Gilreath, 2007). All subsequent analyses were based on these 20 data sets, and the resultant model parameters were pooled using Rubin's combination rules (Enders, 2010). This pooling included the model fit statistics (Enders & Mansolf, 2016).

**Descriptive Statistics**

Table 3 presents the descriptive statistics and correlations of the variables under investigation. Given that level-specific reliability estimations are preferable—as they provide more insights into how accurate measures operate for individuals and work groups—we calculated Cronbach's α of the various measures at Level 1 and Level 2 (Geldhof, Preacher, & Zyphur, 2014). At Level 1, Cronbach's α ranged from 0.84 to 0.93, whereas at Level 2, it ranged from 0.91 to 0.98, indicating overall adequate reliability for all measured concepts (Nunnally & Bernstein, 1994).

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Insert Table 3 about here

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[3] We would sincerely like to thank the editor for suggesting this approach.

**CFA and MCFA Results**

To determine item retention and to secure the discriminant validity of the variables, we conducted a single-level CFA (see Table 4). Our research model consisted of four latent variables—perceived mastery climate, felt trust, knowledge sharing, and perceived performance climate (controlled). To be certain, we compared the fit statistics of such a correlated-traits model with four factors with the fit statistics of one-factor, two-factor, and three-factor models (see Table 4). The CFA assumed a four-factor structure to have the better fit (see fit statistics in Table 4). The factor loadings obtained for the four-factor model were sufficiently high, ranging from 0.59 to 0.94, except for one item measuring performance climate (PC6), which was at 0.35 (Nunnally & Bernstein, 1994). Extending the CFA, the MCFA was performed. Again, the four-factor model indicated the best fit (see Table 4). The model assumed that the same L1 structure would hold at L2, and the results supported this, indicating reasonable fit indices (see Table 4). The latent variable inter-correlations for both the CFA and MCFA analysis are presented in the Appendix. Despite the high inter-correlations between perceived mastery climate and felt trust, the results indicated support for discriminant validity.

At L1 (within level), all factor loadings were significantly different from zero ($p < .001$), and again at L2 (between level), loadings were statistically significant, except for one of the performance climate (PC6; $p > .05$) items. Given its low factor loadings (within level = 0.37; between level = 0.17) and the lack of significance, this item was removed from further analysis. The rerun results of the MCFA excluding this item showed slight improvement in the fit indices (see Table 4), supporting the convergent validity of the constructs (Anderson & Gerbing, 1988).

To strengthen the model further, we assessed model fit at L1 by specifying a partially saturated model in which the L2 model was saturated (cf. Ryu, 2014). These results indicated reasonable fit and no further misfit at L1. L1 was also saturated and resulted in a fit comparable to the overall model (see Table 4). Given that L2 was saturated, perfect model fit was found at L2, as indicated by $SRMR_{between} = 0.000$. We

accepted this MCFA as the baseline for the further investigation of mediation with MSEM.

The results of the CFA and MCFA signified evidence for construct validity and the lack of overlap in items in the different study variables, reflecting that CMV was not a major issue in our study (cf. Conway & Lance, 2010). This is particularly important with respect to the three variables perceived—mastery climate, perceived performance climate, and felt trust—because these were measured at the same time point.

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Insert Table 4 about here
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**MSEM Results**

We did not find support for Hypothesis 1, which predicted that a perceived mastery climate is positively related to knowledge sharing at both (a) the individual level of analysis and (b) the group level of analysis. The direct relationship between perceived mastery climate and knowledge sharing, without accounting for the mediating role of felt trust, was positive but not significant at L1, $\beta = 0.056$, $SE = 0.069$, $p > .05$ and at L2, $\beta = 0.444$, $SE = 0.359$, $p > .05$.

The results of the predicted MSEM mediation model (see Figure 2) indicated a reasonable overall model fit, $\chi^2$ [852] = 2047.10; $\chi^2/df = 2.40$; RMSEA = 0.038; CFI = 0.954; TLI = 0.949; $SRMR_{Within} = 0.058$; $SRMR_{Between} = 0.150$. The results further provided evidence for a significant indirect influence at the individual (within) level of analysis (L1): $\beta = 0.121$, $SE = 0.049$, $p < .01$ and thus for at least partial mediation (see Table 5). Given the joint multilevel imputation approach, confidence intervals are not provided in the M*plus* output. Still, the confidence intervals for the analyses of the original data were significant at the individual level of analysis: $\beta = 0.103$, $SE = 0.037$, $p < 0.01$, 95% CI [0.031, 0.176], thus indicating support for mediation.

In support of our predicted Hypothesis 3a, our results thereby suggested that a perceived mastery climate influences objective knowledge sharing (at least partly) through feeling trusted by the supervisor.

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Insert Table 5 about here

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However, the mediating role of felt trust at the collective level (L2; Hypothesis 2b), the indirect influence of perceived mastery climate on knowledge sharing, was not found to be significant: β = 0.422, *SE* = 0.642, *p* > .05. Thus, only partial support for Hypothesis 3 was found. Although the predicted mediation model for L2 (Hypothesis 3b) was not supported, the direct relationship between a perceived mastery climate and felt trust, β = 0.720, *SE* = 0.097, *p* < .001 at L2 was significant.

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Insert Figure 2 about here

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**Supplementary Analyses**

Due to the cross-sectional nature of our study, it was not possible to test causality and, thus, reverse causality may be a possible explanation for some of the relationships found in our model. For example, the feeling that supervisors trust their subordinates might strengthen the perceptions of an overall perceived mastery climate. To test the possibility of such reverse causality, supplementary MSEM analyses were conducted, where we tested whether felt trust from the supervisor predicted objective knowledge sharing through perceived mastery climate. These results indicated similar model fit indices as our initial model, $\chi^2$ [852] = 2047.10; $\chi^2$/df = 2.40; RMSEA = 0.038; CFI = 0.954; TLI = 0.949; $SRMR_{Within}$ = 0.058; $SRMR_{Between}$ = 0.150. However, when comparing the strength of the relationship between perceived mastery climate and felt trust from the supervisor in our initial model and this reverse causality model, perceived mastery climate seems to be a stronger predictor of felt trust (β = 0.703, *SE* = 0.024, *p* > .001 [L1]; β = 0.720, *SE* = 0.097, *p* > .001 [L2]) compared with the model where we assumed that felt trust may be the predictor of a perceived mastery climate (β = 0.621, *SE* = 0.025, *p* > .001 [L1], β = 0.782, *SE* = 0.108, *p* > .001 [L2]). This result indicated some support for the likelihood that a perceived mastery climate is, in fact, the predictor of felt supervisor trust.

## Discussion

Drawing on the theoretical framework of the AGT (Ames, 1992b; Nicholls, 1984, 1989) and trust (Kramer, 2010; Salamon & Robinson, 2008), we investigated whether a perceived mastery climate at work is positively related to knowledge sharing and, if so, whether feeling trusted by one's supervisor mediates this relationship. Our results showed that a perceived mastery climate drives employees' knowledge sharing through the felt supervisor trust at the individual level of analysis. Moreover, at the group level of analysis, a mastery climate was shown to be an important direct predictor of collective felt supervisor trust.

**Theoretical Contributions**

The results of our study offer three main contributions. First, to the best of our knowledge, no prior research has considered either the predictors of felt supervisor trust or the predictors of knowledge sharing as outcomes of felt supervisor trust. Our study therefore extends understanding into the conceptual mechanisms by which felt trust operates, through consideration of the context in which it occurs (i.e., motivational climate) and, specifically, examination of the role of supervisors in promoting norms of reciprocity by giving employees their trust. Our study also extends the range of consequences of specifically feeling trusted to include knowledge sharing, which is critical to the long-term success and sustainability of organizations (Ipe, 2003; Nonaka & Takeuchi, 1995). Our findings identify that feeling trusted by your supervisor is an important mechanism for knowledge sharing at the individual level of analysis. Thus, the perceived supervisor's efforts in modelling being vulnerable to others seems to be as important for subsequent sharing by subordinates of their knowledge.

The direct actions of supervisors have been previously argued as central to the perceptions of organizational trust (Searle, Den Hartog, & Weibel, 2011). Our study extends the nomological net for trust by positioning felt trust as a proximal consequence of the perceived mastery climate that the supervisor creates. Through their bestowing of trust, supervisors make themselves vulnerable by showing confidence in and empowerment of those whom they lead and manage. Our study highlights the important role of supervisors and how their actions are perceived, by extending the

conceptualization and operationalization of felt trust and the distinct mechanisms (most notably norms of reciprocity) that the supervisors who are making themselves vulnerable have established.

Furthermore, given the dearth of insight into the contextual conditions that influence feelings of being trusted by supervisors (cf. Lau et al., 2014), we show how a perceived mastery climate can affect knowledge sharing. Our findings revealed that when employees feel that the extant criteria of success in their work situations place value on effort, learning, development, cooperation, and thereby social responsibility, they feel more trusted by their supervisors and thus are more willing and likely to share their knowledge. In addition, the prevalence of this behavior may be a result of the responsibility and of the helping norms facilitated through feeling trusted by their supervisors and the perceptions of a perceived mastery climate (Ames, 1984; Salamon & Robinson, 2008). Thus, because a mastery climate facilitates positive social interdependence, a moral situation (responsibility and helping norms) was created (Ames, 1984). Accordingly, our study extends the nomological understanding (cf. Lau et al., 2014; Salamon & Robinson, 2008) of the framework relating to felt trust and employee outcomes. Our research responds to trust researchers' calls to clarify the conditions under which employees feel trusted by their supervisors, even after controlling for a simultaneous performance climate. We have identified how insight into context advances our understanding of this form of organizational behavior (Johns, 2006).

Second, our study extends previous research on felt supervisor trust to our multilevel analyses. Whereas previous studies have focused on either the individual (Lau et al., 2014) or the collective (Salamon & Robinson, 2008) levels of analysis, our data were hierarchically organized (employees nested within their supervisors) and enabled a test of our theoretical model at both the individual and group level of analysis. Because it would be inhibiting to test for mediation on only one level of analysis (cf. Preacher et al., 2010), our sample enabled a multilevel SEM testing that is a quite novel contribution to the field. Although we did not find support for the mediation model for both levels of analysis, our results demonstrate the existence of a mastery climate and felt trust from the

supervisor at multiple levels. A collective mastery climate was confirmed as an important predictor of the collective feelings of trust from the supervisor, attesting to the important sharing and reinforcing of perceptions within a local aggregated context (Thornton & Rupp, 2016). According to Kramer (2010), collective felt trust consists of "a psychological tipping point phenomenon: when sufficient reassuring factors are perceived to be in place, collective trust tends to be present" (p. 83). Our results underpin these propositions in that the value orientation emphasized in the conditions of a mastery climate (cooperating, helping, sharing, learning, developing, and growing) seem to provide such reassurance. Our study has thereby identified conditions under which felt trust thrives (Kramer, 2010).

Third, our study has identified perceived mastery climate as an important predictor of objective knowledge sharing through the mechanism of individuals' feeling trusted by their supervisors. Such a finding identifies both environmental factors and motivational mechanisms relevant to predicting objective knowledge sharing (cf. Wang & Noe, 2010), emphasizing the importance of supervisor felt trust in particular for an individual's subsequent knowledge sharing. Our approach responds to calls for research that would account for multiple levels simultaneously in the knowledge-sharing literature (Quigley et al., 2007; Wang & Noe, 2010). Furthermore, our study expands our understanding of the sharing of individual knowledge by showing how the motivational drivers for such sharing are embedded in the organizational context, thus adding credibility to the suggestions made in earlier research (cf. Ipe, 2003; Lam & Lambermont-Ford, 2010; Osterloh et al., 2002). We thereby provide insight into how organizational contexts may be developed to facilitate the norms of knowledge sharing and learning.

Although not hypothesized, it should be mentioned that the perceived performance climate related negatively to felt trust and knowledge sharing at the individual level of analysis. This finding aligns well with previous research, indicating that a perceived performance climate engenders maladaptive outcomes at work (e.g., Černe et al., 2014; Nerstad et al., 2013a). A perceived mastery climate was also

significantly and negatively correlated with a perceived performance climate, suggesting a lack of support for the theoretical assumptions that the two climates are orthogonal (uncorrelated) constructs (Ommundsen & Roberts, 1999).

**Limitations and Future Directions**

One of the main strengths of the present study is that knowledge-sharing ratings were obtained from different sources, reducing the potential for common method bias (Conway & Lance, 2010; Podsakoff et al., 2003; Podsakoff et al., 2012). As our sample included five different organizations representing a diversity of domains, a further strength is the generalization of these findings.

That said, the results have certain limitations. First, the use of supervisors' ratings of knowledge sharing meant our total sample size was reduced. In addition, obstacles in Org. 4 meant we were unable to collect ratings from the supervisors of subordinates' knowledge sharing, thus truncating the sample size for this dependent variable. This constrains some of the finding's generalizability. Future studies could test our results' robustness and salience across different work domains by extending the matched pairs. The respondent and nonrespondent ethics' protection rules of the NSD allowed us to invite only the direct supervisors of those who had responded to our survey to rate their subordinates' knowledge sharing, so we were not able to access information on the sizes of actual work groups. This precluded us from considering whether the obtained work group's size was representative of its actual size; therefore, our results should be interpreted with this fact in mind.

Furthermore, 166 of our respondents could not be matched with their direct supervisors because we did not receive information about their direct supervisors from the organizations. For these respondents, joint multilevel multiple imputations would not have been accurate because the clustering information was missing. Because we were not aware of any well-tested procedure of imputing grouping or cluster variables, we had to exclude these respondents from the data. This may represent a limitation of our study.

Given that self-reported data were collected for our independent and mediator variables, we did approach CMV influences with both design-related procedures and

CFA and MCFA analyses (Conway & Lance, 2010; Podsakoff et al., 2003; Podsakoff et al., 2012). Although some contention exists as to the sensitivity of such a procedure in controlling for common method effects, it is an important diagnostic tool for evaluating whether CMV may be a concern (Podsakoff et al., 2003). Sparse evidence and a consensus on the effects of statistical detection and correction techniques (Richardson, Simmering, & Sturman, 2009) from other statistical procedures remain to control for CMV (Podsakoff et al., 2003; Richardson et al., 2009; Williams, Hartman, & Cavazotte, 2010), so we decided not to proceed with additional tests. We acknowledge that our readers may have different CMV beliefs (i.e., CMV does not exist, CMV likely exists, CMV exists) that are likely to influence their evaluation of our results (Richardson et al., 2009). Our findings are thus to be interpreted with this in mind.

The cross-sectional nature of our study represents another limitation: Testing causality or ruling out the likelihood of reverse causality is not possible. Therefore, experimental or longitudinal studies are needed to examine causality with greater confidence. In addition, a possible limitation was that we were not able to test whether the perceived motivational climate is supervisor or coworker created. Extant climate theory and empirical work on climate perceptions would contend that the supervisor likely shapes it. However, to be certain, the supervisor is the main architect of the climate. Future studies could benefit from using differentiating measures to test the extent to which the supervisor and/or coworkers create the climate. An interesting approach would also involve assessing the interactions between these two in predicting outcomes.

Some might regard our model of knowledge sharing as overly simplistic and underspecified compared with other models (Alavi & Leidner, 2001; Cabrera & Cabrera, 2005; Gagné, 2009; Ipe, 2003; Quigley et al., 2007). Still, we suggest that our more simplistic model may be particularly relevant to the broader knowledge-sharing domain through extending the initial focus on being trusted (e.g., Ipe, 2003; Quigley et al., 2007), revealing its relevance for knowledge sharing and identifying how *feeling trusted*, which is a result of a perceived mastery climate, may be imperative for subordinates' sharing of knowledge. Our findings concur with prior studies in underscoring how the perceptions

of being trusted may be far more important in relation to employee outputs than simply using the levels of trust in the supervisor (Lester & Brower, 2003).

An interesting avenue for future research in this area is to extend the feeling of being trusted beyond supervisors to include coworkers. As trust is necessary for knowledge sharing (Wang & Noe, 2010), the extent to which employees feel that their colleagues trust them may be decisive in their motivation and willingness to share their expertise in these collaborative contexts. Molm, Schaefer, and Collett (2007) showed, for instance, that participants were significantly more trusting of partners who reciprocated consistently. Accordingly, being trusted by coworkers may be a more important factor in employees' knowledge sharing, completing a "spiral of trust" (Korsgaard et al., 2015, p. 55). Given our findings, mastery climate conditions are likely to facilitate feeling trusted by coworkers as they do feeling trusted by supervisors.

**Practical Implications**

The results of our study demonstrate that organizations and their supervisors would benefit from efforts to create and maintain a mastery climate. Confirmed techniques and strategies that help foster mastery climate principles in actual (work) practices include (a) designing various challenging and meaningful tasks; (b) involving employees in decision-making and leadership roles (developing self-leadership skills); (c) recognizing employees' efforts, progress, improvement, and self-referenced ability; (d) ensuring an equality of opportunities regarding rewards; (e) demonstrations of the self-worth of each and every employee by treating them equally and based on self-referenced, rather than other-referenced, standards; (f) involving employees in self-evaluations that include the application of evaluation criteria of individual mastery, progress, and improvement, with private results; (g) offering employees time and opportunity for self-improvement and growth; and (h) emphasizing the value of cooperation and helping behavior to achieve common goals (Ames, 1992a, 1992b; Roberts, 2012). Indeed, the trust literature also emphasizes several of these practices (participation in decision making, delegation of control, information sharing) as being important to supervisors in facilitating interpersonal trust (cf. Lau et al., 2014). Thus, supervisors in organizations

should be aware of the important role they play as "climate engineers," the impact of the signals (i.e., about the attitudes and behaviors that are valued) they send to employees, and how the work environment defines success (cf. Kramer, 2010; Salamon & Robinson, 2008). These cues and signals (e.g., expecting and rewarding helping behavior and knowledge sharing) constitute a particularly potent source of feeling trusted by supervisors that, in turn, contributes to employees' willingness to share knowledge (cf. Wang & Noe, 2010).

## Conclusion

In this study, we both described and showed empirical support for perceived mastery climate in enhancing knowledge sharing, making an important contribution at the individual level of analysis by showing the mediating role of feeling trusted by a supervisor. Further, we contributed to the understanding of the conditions under which felt trust can facilitate knowledge sharing. We also found that a collective mastery climate is an important antecedent of collective felt trust. Thus, current research on the benefits of felt trust in organizational behavior is extended.

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Table 1

*Differences in the Various Study Variables According to Organizational Membership (N = 1,122; supervisor-rated knowledge sharing n = 417)*

| | Organization 1 | Organization 2 | Organization 3 | Organization 4 | Organization 5 |
|---|---|---|---|---|---|
| | M (SD) | M (SD) | M (SD) | M (SD) | M (SD) |
| Gender | $1.59_{\text{Org. 2,3,4,5}}$ (0.49) | $1.37_{\text{Org.1,4,5}}$ (0.49) | $1.45_{\text{Org. 1,4,5}}$ (0.50) | $1.83_{\text{Org. 1,2,3,5}}$ (0.38) | $1.21_{\text{Org. 1,2,3,4}}$ (0.41) |
| Age | $3.20_{\text{Org. 3,4,5}}$ (1.06) | $3.41_{\text{Org. 4}}$ (0.97) | $3.51_{\text{Org. 1,4,5}}$ (1.05) | $2.73_{\text{Org. 1,2,3,5}}$ (0.97) | $3.53_{\text{Org. 1,4}}$ (1.08) |
| Education | $3.55_{\text{Org. 2,3,4}}$ (0.67) | $2.99_{\text{Org. 1,3,4}}$ (0.76) | $3.95_{\text{Org. 1,2,4,5}}$ (1.01) | $3.51_{\text{Org. 2,3,5}}$ (0.97) | $2.95_{\text{Org. 1,3,4}}$ (0.69) |
| Supervisor tenure | $2.65_{\text{Org. 2,5}}$ (1.26) | $2.15_{\text{Org. 1,3}}$ (0.98) | $2.82_{\text{Org. 2,4,5}}$ (1.23) | $2.36_{\text{Org. 3,5}}$ (1.08) | $2.02_{\text{Org. 1,3,4}}$ (0.90) |
| Managerial responsibility | $1.17_{\text{Org. 2,4}}$ (0.73) | $1.01_{\text{Org. 1,3,4,5}}$ (0.12) | $1.16_{\text{Org. 2,4}}$ (0.36) | $1.33_{\text{Org. 1,2,3,5}}$ (0.47) | $1.12_{\text{Org. 2,4}}$ (0.32) |
| Perceived performance climate | $2.91_{\text{Org. 4,5}}$ (0.93) | $2.97_{\text{Org. 4,5}}$ (1.03) | $2.92_{\text{Org. 4,5}}$ (1.01) | $3.59_{\text{Org. 1,2,3,5}}$ (1.30) | $2.48_{\text{Org. 1,2,3,4}}$ (0.98) |
| Perceived mastery climate | $5.01_{\text{Org. 4,5}}$ (1.01) | $4.84_{\text{Org. 3,4,5}}$ (1.23) | $5.16_{\text{Org. 3,4,5}}$ (0.90) | $5.52_{\text{Org. 1,2,3}}$ (1.10) | $5.52_{\text{Org. 1,2,3}}$ (1.00) |
| Felt trust | 5.67 (1.05) | $5.46_{\text{Org. 4}}$ (1.25) | 5.76 (1.08) | $5.90_{\text{Org. 2}}$ (1.12) | 5.74 (1.10) |
| Knowledge sharing[a] | $5.39_{\text{Org. 5}}$ (0.96) | 5.66 (0.90) | 5.39 (1.08) | - | $5.73_{\text{Org. 1}}$ (0.93) |

*Notes.* All scores reflect responses on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Gender: 1 = female, 2 = male; age: 1 = 16–25 years, 2 = 26–35 years, 3 = 36–45 years, 4 = 46–55 years, 5 = 56+ years; education: 1 = middle school, 2 = high school diploma, 3 = associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree; supervisor tenure: 1 = < 1 year, 2 = 1–3 years, 3 = 4–6 years, 4 = 7–9 years, 5 = 10–13 years, 6 = 14+ years; managerial responsibility: 1 = no, 2 = yes; for organizational membership, the five organizations were coded as 1, 2, 3, 4, and 5.

Means in a row include subscripts indicating the organizations that were significantly different. No subscript indicates that there were no significant differences.

[a] For knowledge sharing, post hoc tests could only be conducted between Orgs. 1, 2, 3, and 5, because Org. 4 did not facilitate the possibility of obtaining ratings of knowledge sharing from supervisors.

Table 2

*Item-level Descriptives*

| | M | SD | ICC[1] | ICC[2] | LICC[1] | LICC[2] | M $r_{wg(J)}$ | SD $r_{wg(J)}$ |
|---|---|---|---|---|---|---|---|---|
| Perceived mastery climate (MC) | | | | | 0.21 | 0.51 | 0.84 | 0.23 |
| MC1 | 4.77 | 1.28 | 0.13 | 0.37 | | | | |
| MC2 | 4.06 | 1.39 | 0.12 | 0.34 | | | | |
| MC3 | 4.80 | 1.25 | 0.16 | 0.42 | | | | |
| MC4 | 3.70 | 1.39 | 0.12 | 0.34 | | | | |
| MC5 | 3.99 | 1.46 | 0.15 | 0.40 | | | | |
| MC6 | 3.99 | 1.48 | 0.20 | 0.50 | | | | |
| Felt trust (FT) | | | | | 0.12 | 0.36 | 0.86 | 0.24 |
| FT1 | 4.84 | 1.27 | 0.14 | 0.39 | | | | |
| FT2 | 4.87 | 1.17 | 0.16 | 0.42 | | | | |
| FT3 | 4.53 | 1.39 | 0.13 | 0.36 | | | | |
| FT4 | 4.76 | 1.37 | 0.14 | 0.39 | | | | |
| FT5 | 4.84 | 1.08 | 0.11 | 0.33 | | | | |
| FT6 | 4.48 | 1.38 | 0.17 | 0.45 | | | | |
| Knowledge sharing (KS) | | | | | 0.34 | 0.67 | 0.93 | 0.15 |
| KS1 | 3.83 | 1.12 | 0.27 | 0.59 | | | | |
| KS2 | 4.67 | 1.23 | 0.32 | 0.65 | | | | |
| KS3 | 4.25 | 1.36 | 0.30 | 0.62 | | | | |
| KS4 | 4.21 | 1.36 | 0.42 | 0.74 | | | | |
| KS5 | 4.56 | 1.28 | 0.30 | 0.62 | | | | |
| KS6 | 3.73 | 1.17 | 0.42 | 0.74 | | | | |
| KS7 | 3.27 | 1.33 | 0.37 | 0.69 | | | | |
| KS8 | 3.41 | 1.32 | 0.44 | 0.75 | | | | |
| Perceived performance climate (PC) | | | | | 0.26 | 0.58 | 0.81 | 0.23 |
| PC1 | 1.84 | 1.63 | 0.23 | 0.54 | | | | |
| PC2 | 2.37 | 1.58 | 0.09 | 0.29 | | | | |
| PC3 | 1.17 | 1.39 | 0.15 | 0.40 | | | | |
| PC4 | 1.42 | 1.43 | 0.20 | 0.50 | | | | |
| PC5 | 2.09 | 1.63 | 0.16 | 0.43 | | | | |
| PC6 | 1.54 | 1.64 | 0.19 | 0.48 | | | | |
| PC7 | 2.19 | 1.49 | 0.08 | 0.26 | | | | |
| PC8 | 2.15 | 1.48 | 0.15 | 0.41 | | | | |

*Notes. N* = 956; item PC6 was omitted because it was insignificant at L2; ICC[1] = intra class correlation at Level 1; ICC[2] = intra class correlation at Level 2; LICC[1] = latent intra class correlation at Level 1; LICC[2] = latent intra class correlation at Level 2.

Table 3

*Descriptive Statistics for Key Study Variables at the Individual and Group Levels of Analysis (N = 956; $n_{cluster}$ = 245; average cluster = 3.90)*

| | | | | | | Correlations at Level 1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | SD | Alpha(L1) | Alpha(L2) | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 9 |
| 1 | Gender | 1.44 | 0.50 | - | - | - | | | | | | | |
| 2 | Age | 3.32 | 1.08 | - | - | 0.02 | - | | | | | | |
| 3 | Education | 3.33 | 0.87 | - | - | 0.18** | -0.19** | - | | | | | |
| 4 | Supervisor tenure | 2.35 | 1.11 | - | - | 0.13** | 0.20** | 0.07* | - | | | | |
| 5 | Managerial responsibility | 1.15 | 0.36 | - | - | 0.10** | 0.12** | 0.20** | 0.14** | - | | | |
| 7 | Perceived performance climate | 1.89 | 1.09 | 0.84 | 0.94 | 0.07* | -0.08** | 0.10** | -0.03 | 0.08 | - | | |
| 8 | Perceived mastery climate | 4.22 | 1.08 | 0.86 | 0.94 | -0.07* | 0.06 | -0.01 | -0.02 | 0.20** | -0.26** | - | |
| 9 | Felt trust | 4.72 | 1.12 | 0.93 | 0.98 | 0.01 | 0.02 | 0.01 | 0.02 | 0.06 | -0.29** | 0.66** | - |
| 10 | Knowledge sharing | 3.99 | 1.02 | 0.92 | 0.91 | -0.27** | -0.05 | -0.01 | -0.03 | 0.03 | -0.14 | 0.19** | 0.23** |

*Notes.* All scores reflect responses on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Alpha (L1) = coefficient alphas at Level 1; Alpha (L2) = coefficient alphas at Level 2; Gender: 1 = female, 2 = male; age: 1 = 16– 25 years, 2 = 26–35 years, 3 = 36–45 years, 4 = 46–55 years, 5 = 56+ years; education: 1 = middle school, 2 = high school diploma, 3 = associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree; supervisor tenure: 1 = < 1 year, 2 = 1–3 years, 3 = 4–6 years, 4 = 7–9 years, 5 = 10–13 years, 6 = 14+ years; managerial responsibility: 1 = no, 2 = yes.

*$p$ < 0.05, **$p$ < 0.01

Table 4

*Confirmatory Factor Analysis and Multilevel Confirmatory Factor Analysis Results*

| ***Single-level CFA*** | $\chi^2$ | DF | $\chi^2/df$ | RMSEA | CFI | TLI | | |
|---|---|---|---|---|---|---|---|---|
| One factor model | 9243.15 | 593 | 15.59 | 0.123 | 0.693 | 0.674 | | |
| Two factor model | 4522.91 | 583 | 7.76 | 0.084 | 0.860 | 0.849 | | |
| Three factor model | 2596.67 | 581 | 4.46 | 0.060 | 0.928 | 0.922 | | |
| Four factor model | 1917.73 | 569 | 3.37 | 0.050 | 0.952 | 0.947 | | |
| ***Multilevel CFA*** | $\chi^2$ | DF | $\chi^2/df$ | RMSEA | CFI | TLI | $SRMR_{within}$ | $SRMR_{between}$ |
| One factor model | 11452.53 | 943 | 12.14 | 0.108 | 0.599 | 0.572 | 0.217 | 0.290 |
| Two factor model | 4968.42 | 932 | 5.33 | 0.067 | 0.846 | 0.833 | 0.114 | 0.240 |
| Three factor model | 2959.11 | 928 | 3.19 | 0.048 | 0.922 | 0.916 | 0.075 | 0.180 |
| Four-factor model | 2330.34 | 913 | 2.55 | 0.040 | 0.946 | 0.940 | 0.062 | 0.175 |
| Four-factor model (excluding item PC6) | 2047.10 | 852 | 2.40 | 0.038 | 0.954 | 0.949 | 0.058 | 0.150 |
| ***Partially Saturated Models*** | | | | | | | | |
| Level 1 (Level 2 model saturated) | 686.40 | 344 | 2.00 | 0.032 | 0.986 | 0.968 | 0.000 | 0.173 |
| Level 2 (Level 1 model saturated) | 1263.28 | 344 | 3.67 | 0.053 | 0.961 | 0.915 | 0.061 | 0.000 |

*Notes*. N = 956; ncluster = 245; One factor model = all items load on one factor; Two factor model = perceived mastery climate, performance climate and felt trust load on one factor and knowledge sharing loads on another factor; Three factor model = perceived mastery climate and felt trust represent the first factor, performance climate the second, and knowledge sharing the third factor; Four factor model = a perceived mastery climate, performance climate, felt trust and knowledge sharing represent four separate factors. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5

*Multilevel SEM Results for the Predicted Mediation Model (N = 956; $n_{cluster}$ = 245)*

| Variables | Standardized parameter estimate (SE) |
|---|---|
| ***Within Level*:** | |
| *Dependent variable is felt trust* | |
| Perceived mastery climate ($a_W$) | 0.703 (0.024)*** |
| Perceived performance climate ($c_W$) | −0.130 (0.027)*** |
| Gender | 0.011 (0.031) |
| Age | −0.025 (0.031) |
| Education | 0.007 (0.038) |
| Supervisor tenure | 0.031 (0.037) |
| Managerial responsibility | −0.127 (0.044)** |
| Organization 1 | 0.123 (0.048)** |
| Organization 2 | 0.062 (0.037) |
| Organization 3 | 0.148 (0.049)** |
| Organization 4 | 0.105 (0.048)* |
| *Dependent variable is knowledge sharing* | |
| Felt trust ($b_W$) | 0.197 (0.078)** |
| Perceived mastery climate | −0.085 (0.085) |
| Perceived performance climate | −0.109 (0.059) |
| Gender | −0.330 (0.059)*** |
| Age | −0.056 (0.061) |
| Education | 0.089 (0.068) |
| Supervisor tenure | 0.018 (0.073) |
| Managerial responsibility | 0.153 (0.076)* |
| Organization 1 | −0.103 (0.084) |
| Organization 2 | −0.058 (0.087) |
| Organization 3 | −0.144 (0.090) |
| Organization 4 | −0.083(0.103) |
| ***Between Level*:** | |
| *Dependent variable is felt trust* | |
| Perceived mastery climate ($a_b$) | 0.720 (0.097)*** |
| Perceived performance climate ($c_b$) | −0.188 (0.107) |
| *Dependent variable is knowledge sharing* | |
| Felt trust ($b_b$) | 0.275 (0.412) |
| Perceived mastery climate | 0.250 (0.384) |
| Perceived performance climate | 0.116 (0.400) |
| ***Mediation test**:** | |
| $a_W$*$b_W$ | 0.121 (0.049)** |
| $a_b$*$b_b$ | 0.422 (0.642) |

*Notes.* Gender: 1 = female, 2 = male; age: 1 = 16–25 years; 2 = 26–35 years; 3 = 35–45 years; 4 = 46–55 years; 5 = 56+ years; education: 1 = middle school, 2 = high school diploma, 3 = associate's degree, 4 = bachelor's degree, 5 = master's degree, 6 = doctoral degree; managerial responsibility: 1 = no, 2 = yes; supervisor tenure: 1 = < 1 year; 2 = 1–3 years; 3 = 4–6 years; 4 = 7–9 years; 5 = 10–13 years; 6 = 14+ years; the fixed effects of organizations were modeled by means of four dummy variables, where Org. 5 served as the reference.

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

Appendix

Intercorrelations Between the Latent Variables

| | Latent Variable Intercorrelations Based on CFA | | | | Latent Variable Intercorrelations Based on MCFA | | | |
|---|---|---|---|---|---|---|---|---|
| | Mastery climate | Performance climate | Felt trust | Knowledge sharing | Mastery climate | Performance climate | Felt trust | Knowledge sharing |
| Mastery climate | - | | | | - | -0.39*** | 0.80*** | 0.42 |
| Performance climate | -0.36*** | - | | | -0.36*** | - | -0.46*** | -0.12 |
| Felt trust | 0.72*** | -0.39*** | - | | 0.71*** | -0.37*** | - | 0.42 |
| Knowledge sharing | 0.18** | -0.14* | 0.24*** | - | 0.11* | -0.17*** | 0.20*** | - |

Note. The inter-correlations of the individual level latent variables (MCFA) are presented below the diagonal; the inter-correlations for the group level latent variables (MCFA) are presented above the diagonal.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.00$