How does knowledge hiding play a role in the relationship between leader–member exchange differentiation and employee creativity? A cross-level model

Ganli Liao, Mengyao Li, Yi Li and Jielin Yin

Abstract

Purpose – *Employees' knowledge management, which influences creativity, is a pivotal resource in organizational innovation activities, as it helps activate the knowledge resource pool and improves knowledge flow. Using social information processing theory, this study aims to construct a cross-level model to examine how knowledge hiding plays a role in the relationship between leader–member exchange differentiation (LMXD) and employee creativity.*

Design/methodology/approach – *This study surveyed 754 leader–employee matching samples from 127 teams in China innovation enterprises at two time points. Confirmatory factor analysis, convergent analysis, hierarchical regression analysis and bootstrapping method by SPSS and AMOS were used to test the hypotheses.*

Findings – *The empirical results demonstrate the cross-level model's efficiency and reveal the following findings: Team-level LMXD is negatively related to employee creativity, whereas it is positively related to knowledge hiding; knowledge hiding is negatively associated with employee creativity; thus, knowledge hiding plays a mediating role in the relationships between them.*

Originality/value – *Based on the knowledge-hiding perspective, this study analyzed an underlying mechanism between LMXD and employee creativity, thereby further enriching the literature on the influence of knowledge management. This proposed connection has not been established previously. Moreover, the findings respond to the reasons for the inconsistent conclusions of previous literature on the cross-level relationship between LMXD and employee creativity based on the social information processing theory. It thus clarifies the cross-level influence path, as well as provides a theoretical basis for further research on the relationship between the two.*

Keywords *Knowledge hiding, Leader–member exchange differentiation, Employee creativity, Cross-level model, Social information processing theory*

Paper type *Research paper*

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1. Introduction

In the age of variability, uncertainty, complexity and amabiguity, the environment in which organizations develop has become increasingly complex (Fletcher and Griffiths, 2020). To improve their ability to adapt to the environments, organizations must continue to innovate and reform to survive. Only through continuous innovation can organizations maintain their advantage in today's increasingly competitive market conditions (Schoemaker *et al.*, 2018; Del Giudice *et al.*, 2019; Scuotto *et al.*, 2020a, 2020b). The present studies demonstrate that knowledge management within an organization plays an important role in enterprise innovation and individual creativity (Xiong *et al.*, 2021; Alinasab *et al.*, 2022; Caputo *et al.*, 2017). Nowadays, teams have become the main form of enterprise work though which

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organizations achieve innovation. Within teams, members play different roles because of their diverse backgrounds, abilities and perceptions (Joshi and Roh, 2009). Simultaneously, team leaders should coordinate limited team resources, motivate members to maximize their roles and create a favorable team climate, thereby enabling enterprises to obtain continuous competitive advantages (Homan *et al.*, 2020). Thus, efficiently managing teams' knowledge to motivate subordinates and achieve innovation has become a challenge for leaders.

As employees' direct superiors, leaders control most resources that employees need, so they play an important role in the process of enhancing employees' creativity (Wang *et al.*, 2021). Through a literature review, we found that leaders develop exchange relationships of varying degrees with different team members based on each employee's abilities, trustworthiness and contributions to the team. This process is called leader–member exchange differentiation (LMXD) (Li and Liao, 2014; Li *et al.*, 2016; Whitney *et al.*, 2022). Recent studies on LMXD mainly have focused on the team level, e.g. antecedents and mechanisms of group outcomes (Choi *et al.*, 2020; Yu *et al.*, 2018). However, researchers increasingly have begun to pay attention to both team-level and individual-level LMXD, arguing that it is an important factor that affects both team and individual results, such as employees' voice and performance (Arain *et al.*, 2022; Park *et al.*, 2022). For example, some researchers have proposed that LMXD has a negative impact on team performance by decreasing team cohesion and collaboration, as well as reducing the quality of member relationships (Chiniara and Bentein, 2018). Other researchers have found that LMXD is negatively related to team justice climate, team commitment and team relationship conflicts (Haynie *et al.*, 2014; Le Blanc and González-Romá, 2012). At the individual level, extant research has focused more on the influence of LMXD's influence as an antecedent to employees' attitudes and behaviors compared with the team result. For example, some scholars have reported that LMXD is not only detrimental to employees' job satisfaction, psychological empowerment and helping behaviors (Park *et al.*, 2022), but also increases their turnover intention (Chen *et al.*, 2014). These studies demonstrate how scholars have examined the relationship between LMXD and creativity at the team or individual level (Xie *et al.*, 2019; Zhao, 2015). However, only a few studies have examined the mechanism of this cross-level relationship.

Based on related literature, we attempted to examine the cross-level relationship between LMXD and employee creativity from a knowledge management perspective. Employees' knowledge management, which influences creativity, is a pivotal resource in organizational innovation activities because it helps activate the knowledge resource pool and improves knowledge flow (Magni *et al.*, 2022; Di Vaio *et al.*, 2020; Rossi *et al.*, 2020; Caputo *et al.*, 2017). In previous research, most scholars have examined the impact of LMXD from a knowledge-sharing perspective (Rossi *et al.*, 2020; Kim *et al.*, 2017, 2021). We identified one crucial cross-level variable – employee knowledge hiding – which affects LMXD and employee creativity. Knowledge hiding indicates the extent to which employees are willing to retain knowledge (Connelly *et al.*, 2012; Di Vaio *et al.*, 2021). Therefore, how does knowledge hiding play a role in the relationship between LMXD and employee creativity?

To answer this question, this study constructed a cross-level mechanism based on social information processing theory. Compared with the perspectives of previous studies on LMXD, knowledge hiding and employee creativity, including equity theory and social exchange theory, etc. (Yu *et al.*, 2018; He *et al.*, 2017), social information processing theory pays more attention to the external environment's influence on individuals (Salancik and Pfeffer, 1978). This theory argues that individuals adjust their attitudes and behaviors based on information that the external environment provided. Within an organization, the work environment can produce all kinds of concerning, e.g. team atmosphere, interpersonal relationships and job characteristics. After compiling and decoding organizational information, individuals develop specific attitudes and exhibit corresponding behaviors

(Thomas and Griffin, 1983). Simultaneously, they have three reaction mechanisms in response to environmental information: learning; attribution; and judgment processes (Zalesny and Ford, 1990). In this way, when individuals feel that their leader treats them differently on the team, they will interpret this as an "unfavorable signal" to process and judge. In turn, team members will question and distrust their leader's performance, thereby reducing their affective commitment and sharpening knowledge-hiding behaviors (Ladan *et al.*, 2017; Le Blanc and González-Romá, 2012). Ultimately, their motivation to innovate will be reduced (Safari *et al.*, 2020). The cognitive and emotional responses to this information, namely, knowledge hiding, comprise the precise internal mechanism between LMXD and employee creativity. Thus, a mediating path between LMXD and employee creativity was constructed, validating the mediating effect of knowledge hiding.

To sum up, this study makes the following major contributions to the literature. First, based on the knowledge-hiding perspective, this study analyzed an underlying mechanism of the relationship between LMXD and employee creativity, thereby further enriching the literature on knowledge management's influence on employee's behavior. Second, this study responded to the reasons for the inconsistent conclusions of previous literature on the cross-level relationship between team-level LMXD and employee creativity based on social information processing theory. Also, we respond to the call of scholars and enrich the current research on how team-level LMXD affects employees' behavior by constructing a multilevel model.

2. Theory and hypotheses

2.1 Leader–member exchange differentiation and employee creativity

Scholars have proposed that high-quality leader–member exchange (LMX) relationships are manifested by mutual respect and trust between leaders and subordinates, as well as their willingness to take responsibility for work tasks (Dienesch and Liden, 1986). However, because of the limitations of time, energy and other resources, leaders cannot establish high-quality exchange relationships with all members. Thus, they tend to treat employees in varying ways, thereby forming different exchange relationships, namely, LMXD. Employees with strong competence and high skill levels can complete challenging tasks and make more contributions to the team, in which these members (i.e. "insiders") establish social exchange relationships with leaders beyond the work contract and gain more trust, resources and power from the latter (Bauer and Green,1996). Conversely, employees with low LMX relationships (i.e. "outsiders") only can establish an economic exchange relationship with leaders that is consistent with their work contracts (Graen and Uhl-Bien, 1995). Earlier studies on LMX were conducted at the individual level. With the prevalence of teams in organizations, researchers extended LMX to the team level, resulting in LMXD. Researchers have proposed that such differentiation within a team can destroy team cohesion, elicit teamwork, cause team conflicts and negatively impact overall team performance (Li and Liao, 2014; Li *et al.*, 2016).

Employee creativity refers to the generation of novel and potentially useful ideas about products, practices, services and/or procedures. It is the foundation of innovation management and the key condition that an organization needs to maintain a long-term competitive advantage in the digital world (Farmer *et al.*, 2003; Oldham and Cummings, 1996; Caputo *et al.*, 2020, 2019). Enterprise practices and academic research results have demonstrated that employee creativity is essential for organizations to maintain flexibility effectively and successfully respond to changing market demands, thereby helping originations achieve individual, organizational and societal goals (Chaubey *et al.*, 2019). Numerous scholars have investigated how to improve employees' creativity at the individual, team and organizational levels (Hirst *et al.*, 2009; Han and Bai, 2020). Among them, a leader's style and characteristics are factors that have received the most attention. According to extant research, positive leadership that encourages, supports and guides

employees can promote the development of creativity (Tierney *et al.*, 1999). In particular, several studies have indicated that transformational leadership (Wang and Rode, 2010; Bai *et al.*, 2016), leader empowerment behavior (Liu *et al.*, 2020) and leader emotional intelligence (Zhou and George, 2003) are correlated positively and significantly with employee creativity. However, most of these studies have focused on a single level's impact on employee creativity. At this point, in the context of team-level relational leadership, we are interested in determining how LMXD exerts a cross-level influence on employee creativity.

Using social information processing theory, this study investigates the cross-level mechanisms of LMXD and employee creativity (Thomas and Griffin, 1983). First, differentiated relationships between leaders and employees are developed based on employees' comprehensive abilities, rather than their job performance. Leaders deliver this information to employees through their thoughts, values, communication methods and behaviors. Employees view this differentiated treatment of leaders as a form of information input. Accordingly, they will change their attitudes and cognitions based on their personal perceptions of LMXD. When LMXD in a team is perceived as high, they will perceive a sense of injustice and develop distrust in their leaders (Cropanzano *et al.*, 2017; Chen and Zhang, 2021), which could lead to a decrease in job satisfaction (Chen *et al.*, 2014). In turn, such dissatisfaction and negative emotions toward the team will affect their job involvement and weaken their creativity (Mumtaz and Rowley, 2020). Meanwhile, other scholars have proposed that team members' perceptions of unfairness weaken their motivation to innovate and inhibit improvement in their creativity (Zhang *et al.*, 2015). Second, LMXD can affect team climate negatively, which can lead to interpersonal deviance and relationship conflicts (Sajadi and Vandenberghe, 2021). Friction and disharmony among team members not only will reduce their interpersonal communication and knowledge sharing but also reduce team morale (Kim *et al.*, 2021). In this stressful and oppressive environment, employees have little incentive to be creative and devise new ideas; thus, employee creativity is reduced. Third, team members with low-quality relationships have fewer resources and receive less support from their leaders. In this case, "insiders" and "outsiders" are likely to form antagonistic relationships, and these members may try to maximize their own interests to gain their leaders' attention and resources. As a result, they are more likely to slack off and refuse to cooperate with fellow colleagues. Fierce competition among team members makes it difficult for employees to take the initiative, care about others' feelings and help one another, making it easier for conflicts of interest to develop. Ultimately, the resulting strained relationships affect the development and integration of individual creative ideas, thereby also reducing employee creativity. Thus, we propose that:

H1. LMXD is negatively related to employee creativity.

2.2 Leader–member exchange differentiation and knowledge hiding

To preserve resources and maintain competitive advantage, employees often do not share all individual knowledge without reservation. Such knowledge-hiding behavior exists widely in organizational activities. Connelly *et al.* (2012) proposed the concept of knowledge hiding for the first time and defined it as behavior wherein an individual is unwilling to share knowledge and intentionally retains or hides knowledge from others, when fellow colleagues ask for help, e.g. job information, novel opinions, professional skills and work experience (Caputo *et al.*, 2021; Xiong *et al.*, 2021). They also found that knowledge hiding includes three aspects (Connelly *et al.*, 2012): "evasive hiding" means that the "hider" is unwilling to help the knowledge "requester," deliberately delays and provides wrong information; "playing dumb" implies that the hider refuses to help the knowledge requester by pretending to be deaf to the question; and "rationalized hiding" refers to the act of not providing knowledge or information desired by the knowledge requestor on the grounds of company regulations or confidentiality requirements.

Because the knowledge-hiding concept first was proposed, scholars have examined its antecedents and outcomes thoroughly, founding that it carries important implications for organizations, teams, interpersonal relationships and individuals (Xiong *et al.*, 2021; Caputo *et al.*, 2021). The present study suggests that perceptions of LMXD within a team induce knowledge-hiding behavior among employees. According to social information processing theory, employees process information in a working situation to adjust their attitudes and behaviors. Thus, employees' interpretations of different leader–member relationships will lead to different behaviors. When LMXD in a team is high, leaders treat employees differently, developing close relationships with insiders and giving them more resources and power. However, they are less connected to and more distant from outsiders who have fewer resources and less power (Merriam *et al.*, 2001; Brown *et al.*, 2008). This signals "competition" to employees, i.e. their identity as outsiders strengthens because they perceive unfairness and marginalization in the workplace, thereby strengthening their negative perceptions of their relationships with other team members, draining personal enthusiasm and self-efficacy, while generating negative emotions, e.g. insecurity, boredom and anxiety (Merriam *et al.*, 2001; Brown *et al.*, 2008). This creates a constant drain on their emotional resources because they perceive the loss of their own resources under such differential treatment. Thus, to preserve their knowledge resources, they are more inclined toward hiding or retaining them (Babič *et al.*, 2019). For insiders, knowledge is a kind of "power" that they must protect to maintain their identity within the team. Because of the fear of diminishing their advantages through knowledge transfer and sharing, they also are inclined toward engaging in knowledge-hiding behavior (Kumar *et al.*, 2022). Moreover, studies have demonstrated that LMXD reduces employees' job satisfaction and subjective well-being (Paik, 2016). This decline in positive emotions and cognition leads to a decrease in employees' helping behavior, which in turn, increases their knowledge-hiding behavior when colleagues seek knowledge sharing. Conversely, when LMXD is low, leaders treat each subordinate more equally, creating a just climate within the team. Harmonious communication channels and interpersonal interactions are established among team members, and employees experience a less competitive and aggressive atmosphere within the team. Members help one another and have strong initiative to achieve team goals. When facing setbacks, they can be optimistic and try to overcome these problems, prompting them to share knowledge actively (Luthans and Youssef, 2004). As a result, they are more likely to contribute to team development because of reduced knowledge-hiding behavior. Thus, we propose the following hypothesis:

H2. LMXD is positively related to knowledge hiding.

2.3 Mediating role of knowledge hiding

Existing studies on knowledge management indicate that knowledge hiding impedes the circulation of knowledge within organizations (Caputo *et al.*, 2021; Xiong *et al.*, 2021), damages relationships between colleagues and team performance, and negatively impacts on individual performance, innovation and creativity (Chatterjee *et al.*, 2021; Anand *et al.*, 2022; Scuotto *et al.*, 2020a, 2020b). This is because knowledge-hiding behavior enables these insiders to maintain their competitive advantage, and their personal performance can be improved to some extent in the short term. However, if those who request knowledge discover this knowledge-hiding behavior, it can lead to mutual distrust and knowledge-hiding retaliation among team members (Černe *et al.*, 2017). In the long run, interpersonal relationships between team members may be destroyed, resulting in a team climate of mutual distrust and hostile competition (Rhee and Choi, 2017). At this point, individuals cannot obtain effective information from the team, hampering interactions and communication of innovative ideas and thoughts among team members, ultimately leading to a decline in employee creativity (Wang *et al.*, 2019; Malik *et al.*, 2019):

H3. Knowledge hiding is negatively related to employee creativity.

Thus, combining *H2* and *H3*, we find that when team members perceive a higher LMXD, their knowledge-hiding behavior increases. They also interpret this LMXD information negatively and believe that only competitive individuals can obtain a higher quality of leadership member exchange. Subsequently, a fiercely competitive atmosphere is created, weakening harmonious interpersonal relationships among team members. Team cohesion weakens, which will affect overall internal cooperation when employees exhibit negative behaviors, such as unwillingness to work, apathy and procrastination, thereby increasing the probability of knowledge hiding (Di Vaio *et al.*, 2021). Thus, employees focus on avoiding the loss of their own resources and competitive advantages through knowledge hiding when other team members ask them for help. This impedes interpersonal communication and team collaboration, leading to a failure to generate new ideas and insights, thereby further reducing employee creativity (Malik *et al.*, 2019). Accordingly, we propose the following hypothesis:

H4. Knowledge hiding mediates the relationship between LMXD and employee creativity.

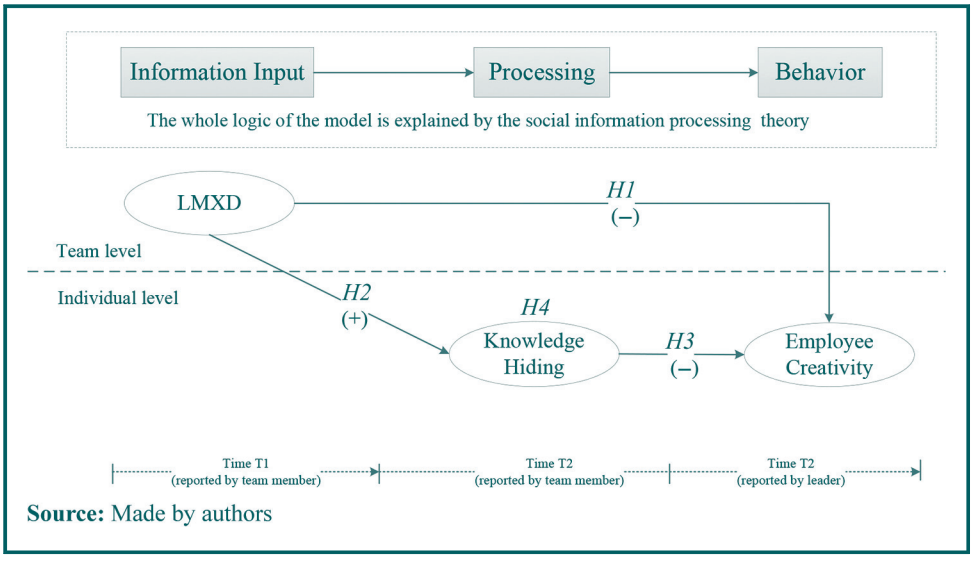
The theoretical cross-level model is shown in Figure 1.

3. Methods

3.1 Samples and procedures

The samples were obtained from 13 large innovative enterprises throughout Beijing, Hubei, Jiangxi and Guangdong provinces in China, involved technical innovation, brand planning, market operation, data analysis, project management and customer service jobs. First, by contacting the managers of their respective HR departments, we obtained permission and support from the superiors to collect the basic information of each team and the members from whom we selected a contact person for each enterprise. Second, the questionnaire website links were sent to each contact person, who then set up a Group WeChat through a social media platform and forwarded the links to the participants. The period of questionnaire collection was from September 2021 to June 2022. To avoid common method bias and homogeneity, we collected sample data from two groups, team members and team leaders, in two time periods, respectively. At time point T1, data on the demographic

Figure 1 Theoretical cross-level model



Source: Made by authors

information and perceived LMX were collected. A total of 887 questionnaires were sent to 144 teams, and 839 were recovered. After three months (time point T2), 839 team members completed the knowledge-hiding questionnaires, and 796 questionnaires were collected. A total of 144 team leaders evaluated the creativity of each team member, and 780 questionnaires were collected. We deleted the unmatched questionnaires and those with a missing rate of more than 10%. Finally, 754 matching questionnaires were obtained from 127 teams, and the response rate was 85.0%.

In this survey, the average age of the teams was 3.65 years, the number of team members ranged from 3 to 16 and the average size of the team was 7.27. Male members accounted for 64.90% and female members accounted for 35.10% of the total. In terms of tenure, employees with 1–5 years accounted for 26.9%, those with 5–10 years accounted for 37.7%, those with 10–15 years accounted for 25.3% and those with more than 15 years accounted for 10.1%. In terms of educational level, 5.4% had junior college degrees, 19.0% had bachelor's degrees, 57.3% had master's degrees and 18.3% had postgraduate degrees.

3.2 Measures

To ensure the reliability and validity of the measurement tools, all scales used in this study were published in TOP international journals and were already validated in the Chinese context. Moreover, we invited several researchers and doctoral students to assess the double-blind translation process. Then, three well-known professors of management were invited to revise the Chinese scale version. After two rounds of discussion, the final measurement scales were formed. We used a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure all the variables.

LMXD. The scale proposed by Graen and Uhl-Bien (1995) was used to assess LMX. The LMX scale includes seven items, such as "My team leader is fully aware of my work difficulties and my personal needs." This paper used Liden *et al.*'s (2006) method to measure LMXD. First, we assessed the LMX of each team member. Then, LMXD was represented by the standard deviation of the LMX of each team. The larger the standard deviation is, the greater the difference of LMX. The Cronbach's α of this scale was 0.892, indicating good reliability.

Knowledge hiding. The knowledge-hiding scale from Connelly *et al.* (2012) with 12 items was used for employee knowledge-hiding analysis. A sample item is "When a colleague asks me something, I might pretend I don't know what he/she is talking about." The Cronbach's α for this scale was 0.875.

Employee creativity. This scale was developed by Farmer *et al.*'s (2003) four-item scale. The team leader scores the innovation performance of the team members. A sample item is "This employee often has innovative ideas." The Cronbach's α for this scale was 0.825.

Controlled variables. To avoid the influence of demographic variables, this study selected employees' gender, tenure, educational level and team age as the controlled variables.

3.3 Analytical strategy

The SPSS and AMOS software are used to assess the hypothesis model. There are four steps in the analytical process. First, descriptive analysis was carried out for the LMXD, knowledge hiding and employee creativity, including means, standard deviations and correlation coefficients. Second, confirmatory factor analysis (CFA) with AMOS was adopted to validate our measurement models. Third, as LMXD was measured at the individual level, this study uses convergent analysis to test group variability and homogeneity. Fourth, hierarchical regression analysis and bootstrapping method by SPSS were performed to test the hypotheses.

4. Data analysis

4.1 Descriptive analysis

The results of means, standard deviations and correlation coefficients of all variables in this study are analyzed. As can be seen in Table 1, LMXD was significantly negatively correlated with employee creativity ($r = -0.080$, $p < 0.05$), and significantly positively correlated with knowledge hiding ($r = 0.083$, $p < 0.05$). Knowledge hiding was negatively related with employee creativity ($r = -0.104$, $p < 0.01$). The correlation results provide preliminary evidence for hypothesis testing.

4.2 Measurement model

CFA with AMOS was adopted to validate our theoretical models. The results are shown in Table 2. We estimated our proposed model at the individual level with all latent variables (LMXD, knowledge hiding and employee creativity) into a model. The three-factor model showed a good fit (χ^2 = 3,234.9, df = 1,315, χ^2/df = 2.46, GFI = 0.91, CFI = 0.91, RMSEA = 0.044) compared with all the other alternative models, suggesting that the scales had acceptable internal validity. Therefore, all scales showed good discriminative validity and could be used for hypotheses testing.

4.3 Convergent analysis

As LMXD was measured at the individual level, this study aggregated it to the team level. The consistency coefficient R_{wg}, the reliability of score within group ICC(1) and reliability of mean group ICC(2) were calculated to test group variability and homogeneity. The values of R_{wg}, ICC(1) and ICC(2) of LMXD were 0.845, 0.257 and 0.715, respectively, which were all higher than their corresponding aggregation criteria [$R_{wg} > 0.7$, ICC(1) > 0.12 and ICC(2) > 0.5]. Thus, LMXD can be measured at the team level.

4.4 Tests of hypotheses

This study used the SPSS to construct the hierarchical regression model. Mediation method proposed by Hayes (2013) was used to test the hypothesis. After repeated sampling 5,000

Table 1 Descriptive analysis of all variables

Variables	*Means*	*SDs*	*1*	*2*	*3*
1. LMXD	0.57	0.24	–		
2. Knowledge hiding	2.31	0.57	0.083*	–	
3. Employee creativity	3.00	0.87	−0.080*	−0.104**	–

Notes: *$p < 0.05$; **$p < 0.01$
Source: The authors made it according to the questionnaires

Table 2 Results of CFA

Model	*Factors*	χ^2	*df*	χ^2/*df*	*GFI*	*CFI*	*RMSEA*
One-factor model	LMXD + KH + EC	6126.1	1326	4.62	0.66	0.68	0.092
Two-factor model 1	LMXD + KH, EC	5141.0	1325	3.88	0.77	0.74	0.086
Two-factor model 2	LMXD, KH + EC	4518.3	1325	3.41	0.80	0.82	0.081
Two-factor model 3	LMXD + EC, KH	4505.0	1325	3.40	0.82	0.82	0.081
Three-factor model	LMXD, KH, EC	3234.9	1315	2.46	0.91	0.91	0.044

Notes: KH = knowledge hiding; EC = employee creativity; GFI = goodness of fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation
Source: The authors made it according to the questionnaires

times (Bootstrapping = 5,000), the results are shown in Table 3. In Model 1, after controlling for the demographic variables, namely, gender, tenure, education level and team ages, LMXD was negatively related to employee creativity ($\beta = -0.088$, $p < 0.001$). Thus, *H1* was supported. In Model 2, LMXD was positively related to knowledge hiding ($\beta = 0.084$, $p < 0.05$). Thus, *H2* was supported. Model 3 was used to test the relationship between the knowledge hiding and employee creativity. The results showed that knowledge hiding was negatively associated with employee creativity ($\beta = -0.075$, $p < 0.05$). After controlling for the demographic variables and LMXD, knowledge hiding was negatively associated with employee creativity (Model 4: $\beta = -0.095$, $p < 0.05$). Thus, *H3* and *H4* were also supported. The above results showed that the path coefficients of independent variable, mediating variable and dependent variable were all significant.

According to Hayes' mediation method, we need to further test the mediating effects of knowledge hiding between LMXD and employee creativity. The bias-corrected 95% confidence interval (95%CI) was estimated and the results were shown in Table 4. In the mediating path, knowledge hiding had a significant indirect effect between LMXD and employee creativity ($\beta = -0.0067$, $p < 0.01$, 95%CI = [−0.019, −0.0070], exclude 0). Thus, *H4* was furtherly supported.

5. Discussion

This study examined the influence mechanism of LMXD and employee creativity from the perspective of knowledge hiding. Based on social information processing theory, LMXD is viewed as a kind of team information input, with knowledge hiding as the processing procedure and creativity as the output. After developing a cross-level model, the following conclusions were drawn.

First, our cross-level model yielded experimental evidence that LMXD exerts a significantly negative impact on employee creativity based on social information processing theory. This result indicates that employees self-process this differentiated treatment as a kind of team "information" and, thus, alter their behaviors accordingly. Specifically, they perceive a

Table 3 The Results of hierarchical regression model

Variable	*Model 1 EC*	*Model 2 KH*	*Model 3 EC*	*Model 4 EC*
Gender	0.095**	−0.043	−0.040	0.091*
Tenure	0.008	0.034	0.028	0.012
Education	−0.051	0.017	0.007	−0.05
Team ages	0.052	0.015	0.026	0.053
LMXD	−0.088*	0.084*		−0.080*
KH			−0.075*	−0.095**
R^2	0.020	0.011	0.017	0.029
F	3.06*	2.02*	2.15*	3.73**

Notes: *$p < 0.05$; **$p < 0.01$. KH = knowledge hiding; EC = employee creativity
Source: The authors made it according to the questionnaires

Table 4 Bootstrapping mediation testing results

Pathway	*β*	*SE*	*95% confidence interval* *Lower*	*Upper*
Path: LMXD→ KH→ EC	−0.0067**	0.0044	−0.019	−0.0070

Note: **$p < 0.01$
Source: The authors made it according to the questionnaires

sense of injustice and experience negative emotions (Cropanzano *et al.*, 2017; Chen and Zhang, 2021; Chen *et al.*, 2014). Whether as insiders or outsiders, this sense of injustice leads to employees' distrust of leaders, resulting in negative emotions and attitudes that are not conducive to generating innovative ideas among employees (Yang *et al.*, 2021; Kumar *et al.*, 2022). These findings are consistent with previous research (He *et al.*, 2021; Xie *et al.*, 2019; Pan *et al.*, 2012; Mumtaz and Rowley, 2020; Zhang *et al.*, 2015). Particularly for outsiders, who have less access to job resources and leaders' attention, they are prone to interpersonal conflicts with insiders, leading to inappropriate social comparisons and negative mental states, e.g. anxiety, jealousy and resentment (Windscheid *et al.*, 2016), and ultimately eliciting less employee creativity.

Our results also shed light on the role of knowledge management in the dynamics between LMXD and employee creativity. In our cross-level mediation model, LMXD increased employees' knowledge hiding, which eventually led to a decrease in employee creativity. Previous research focused more on the effect of leader–member relationship on knowledge sharing and less on knowledge hiding (Rossi *et al.*, 2020; Kim *et al.*, 2017, 2021). Furthermore, most of these studies treated LMX as a boundary condition to analyze the employee knowledge management mechanism (Dysvik *et al.*, 2015). Our findings indicate that high LMXD can lead to employees experiencing identity cognition concerning their status on the team, and differences in team status can lead to employee perceiving an unfair, competitive environment, which depletes their enthusiasm and self-efficacy (Merriam *et al.*, 2001; Brown *et al.*, 2008). When LMXD increases, employee knowledge-hiding behavior increases significantly, possibly because teams with high LMXD express low optimism and resilience, and they also are unwilling to devote their job resources and personal efforts to overcoming team challenges. As a result, they gradually lose their willingness to share knowledge, thereby increasing the likelihood of knowledge-hiding behavior and decreasing employee creativity further.

5.1 Theoretical implications

First, based on the perspective of knowledge hiding, this study analyzed an underlying mechanism of the relationship between LMXD and employee creativity, thereby further enriching the research on knowledge management's influence on employee creativity. Most previous studies have examined the relationship between LMXD and employee creativity from the perspective of knowledge sharing (Rossi *et al.*, 2020), but, our proposed mediating connection, knowledge hiding, has not been established in previous studies. Thus, our study enriches the mediation model between LMXD and employee creativity. Furthermore, this study demonstrates the positive effect of team-level LMXD on knowledge hiding, thereby enriching the research on the influencing variables of the team perspective on knowledge hiding. This further enhances our understanding of the potential mechanism between these two variables.

Moreover, this study also responds to the reasons for the inconsistent conclusions of previous literature on the cross-level relationship between team-level LMXD and employee creativity based on social information processing theory. Most of the literature on LMXD and employee creativity was developed based on equity theory, social exchange theory or planned behavior theory (Yu *et al.*, 2018; He *et al.*, 2017; Xiong *et al.*, 2021), and estimated the different effects of LMXD (Seong and Choi, 2019; Xie *et al.*, 2019). We incorporated LMXD into the framework of social information processing to help us understand the team-level variables for employee creativity further and how employees deal with such "relationship" information. Moreover, most existing studies have focused on the influence of LMXD on individual results, such as individual performance and creativity, at the individual level (Arain *et al.*, 2022; Park *et al.*, 2022). Although several scholars have examined how team-level LMXD

influences team and individual results, most extant studies are limited on a certain level (Li *et al.*, 2016). Therefore, this study responded to the call of scholars and enriched current research on how team-level LMXD affects employee creativity by constructing a multilevel model (Pan *et al.*, 2012; He *et al.*, 2021). Thus, the study clarified the influence path between LMXD and employee creativity, as well as provided a theoretical basis for more research on the relationship between the two.

5.2 Practical implications

First, managers should pay more attention to the negative effects of knowledge hiding, which is not simply in opposition to knowledge sharing. They should enrich their perspectives on efficient knowledge management and realize that knowledge-hiding behavior may elicit a lack of work enthusiasm and motivation, damage or shatter interpersonal relationships and decrease job performance. Managers need to understand the "reason" and "outcome" of knowledge hiding, and avoid negative effects on employee creativity as much as possible. Moreover, for team leaders, they should focus more on knowledge-hiding behaviors among team members, reduce employees' negative emotions and cognitions caused by knowledge hiding and encourage employees to share knowledge with others. Simultaneously, organizations also should create a knowledge-sharing climate and improve relationships among team members. Effective incentive policies also need to be established, such as setting bonuses and improving welfare benefits, to encourage employees to share knowledge.

Then, managers should establish high-quality LMX relations with subordinates and treat each subordinate as fairly as possible. Leaders need to consider the diversity of team members' abilities fully, systematically understand each member's characteristics and reasonably try to cultivate each member's potential. This study found that employee knowledge hiding increases and creativity decreases when LMXD is high. Therefore, leaders should pay special attention to potential threats from LMXD, communicate with members frequently, coordinate relationships and try to avoid contradictions and conflicts. These measures can help reduce employees' negative emotions and work attitudes, thereby reducing the probability of knowledge hiding and improving employee creativity.

5.3 Limitations and future directions

Although our cross-level model confirmed the influence mechanism among LMXD, knowledge hiding and employee creativity, this study still contains several limitations. First, the study analyzed the cross-level model of LMXD and employee creativity from the perspective of knowledge hiding. Future studies can analyze this mediating mechanism from other aspects of knowledge management. Other perspectives, such as knowledge-based dynamic capabilities and knowledge creation (Bhardwaj *et al.*, 2022; Chin *et al.*, 2022; Goswami and Agrawal, 2022; Alinasab *et al.*, 2022) can be analyzed in future studies. Second, this study investigated the mediating role of knowledge hiding as a whole. In response to scholars' calls for strengthening the test of the impact from the three subdimensions of knowledge hiding, future studies can investigate the various mediating effects of the subdimensions of knowledge hiding further (Connelly *et al.*, 2012). Third, the boundary conditions of the cross-level model are not considered in this study. Therefore, some moderating variables such as individual personalities, emotions and organizational climates can be added in future studies to deepen the underlying mechanism of LMXD, knowledge hiding and employee creativity.

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