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Prototypical leaders reinforce efficacy beliefs: How and when leader–leader exchange relates to team effectiveness

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Summary

Integrating two social cognition-based theories: social cognitive theory and implicit leadership theory, we propose that leader prototypicality perceptions are important boundary conditions for the effects of leader–leader exchange (LLX) on team performance through the mediating roles of team leaders' and team members' efficacy beliefs. Using time-lagged, three-source data from 231 retail store teams, we found that perceived superior prototypicality enhanced the relationship between LLX and team leader self-efficacy and that perceived team leader prototypicality strengthened the relationship between LLX and team collective efficacy. Moreover, LLX was indirectly and positively related to team performance through the mediating role of team collective efficacy only when team members' perceptions of team leader group prototypicality were high. Our findings provide a deeper understanding of the role of LLX on team- and leader-level outcomes and they further illuminate the key team processes that bridge the links and important contingencies for the team effects of LLX.

KEYWORDS
leader prototypicality, leader self-efficacy, leader–leader exchange (LLX), team collective efficacy, team effectiveness

1 | INTRODUCTION

In the past decades, team researchers have redoubled their efforts to explore the crucial role of team leaders in motivating team members and building effective teams (Mathieu et al., 2017; Morgeson et al., 2010). A critical feature of team leaders is that they serve as "linking pins," which on the one hand connect with team members, and on the other hand connect to upper management. A construct that captures the "linking pin" nature of team leaders is leader–leader exchange (LLX), which characterizes team leaders' social exchange relationship with their own bosses (Cashman et al., 1976; Graen et al., 1977).

LLX, a form of leader–subordinate relationships, was of central importance in early vertical dyadic linkage theory (e.g., Cashman et al., 1976; Graen et al., 1977). According to the vertical dyadic linkage theory, superiors develop distinctive types of exchange relationships with their subordinates (i.e., team leaders). High-quality LLX relationships between superiors and team leaders extend beyond the formal transactional relationship to include mutual trust, support, and expanded exchanges of resources (Dansereau et al., 1975). In contrast, low-quality LLX relationships are more contractual and contain more economic resource exchanges and limited interpersonal interactions (Graen & Uhl-Bien, 1995).

As LLX relationships serve as an important "linking pin" mechanism through which the social and material resources within the larger organization can be distributed to work groups, there has been an increased scholarly attention on the influences of LLX. Prior research has shown that higher quality LLX has positive implications for individual employees' attitudinal and performance outcomes (Herdman et al., 2017; Lorinkova & Perry, 2017; Tangirala et al., 2007; Venkataramani et al., 2010; Zhou et al., 2012). In terms of its impact on team-level outcomes, Zhou et al. (2012) found that LLX was

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positively related to team empowerment, which in turn affected individual empowerment and performance.

Despite the robust findings, there remain questions regarding the influencing mechanisms of LLX. First, compared to the direct influence of LLX on employee and team outcomes, much less attention has been paid on the boundary conditions under which LLX plays a role. This gap is critical because leadership is relational and the impact of LLX may be stronger or weaker depending on followers' interpretations and perceptions of leaders' actions (Lord & Brown, 2001; MacDonald et al., 2008). Second, although team leaders are direct recipients of LLX relationships, there is no known research empirically examining how the LLX relationship quality directly influences team leaders. Moreover, given the linking position team leaders occupy in the organizational hierarchy, it is worth exploring how the influence of LLX can be carried over from superiors to team members via team leaders.

To address those two questions, the current study seeks to integrate two social cognition-based theories (social cognitive theory and implicit leadership theory) and identifies efficacy beliefs and perceived leader prototypicality as important factors explaining *how* and *when* LLX influences team performance. We integrate these two related theories because both stress the importance of followers' perceptions of leaders in shaping their responses to leaders. Indeed, implicit leadership theory is originally developed in response to the development in social cognitive theory (Shondrick et al., 2010). According to social cognitive theory, people's efficacy beliefs are deeply impacted by persuasion and support from important roles at work (Bandura, 1986, 1997). As LLX depicts the relationship quality between team leaders and their superiors, LLX may be a salient factor determining the level of support and confirmation gained from superiors and shaping team leaders' efficacy beliefs and ultimately their teams' confidence. Implicit leadership theory further argues that followers' psychological and behavioral responses to leaders depend on whether they believe leaders' behaviors can be mapped onto implicit prototypical images (Cronshaw & Lord, 1987; Foti et al., 1982; Lord et al., 1984; Lord & Brown, 2001, 2004). Hence, as a core mechanism in implicit leadership theory, superiors' and leaders' perceived prototypicality holds great potential to interact with LLX on impacting perceivers' efficacy beliefs and performance behaviors.

Taken together, in the current research, we propose and examine how the LLX relationship quality and perceived leader prototypicality may jointly impact perceivers' efficacy beliefs and team performance outcomes. Specifically, we show the impact of LLX on team performance through the linking mechanisms of both team leaders' self-efficacy (i.e., belief in their capabilities to perform successfully; Gist, 1987) and team members' collective efficacy beliefs (i.e., the shared belief about a team's general capabilities to be effective; Campion et al., 1993). We suggest that the efficacy mediators may work both in parallel and sequentially (i.e., team leader self-efficacy— team collective efficacy) in the relationship between LLX and team performance.

Considering that LLX depicts relationships between leaders at the team level and superiors at the higher level, we thus consider the moderating roles of two forms of leader prototypicality: perceived superior organizational prototypicality and perceived team leader group prototypicality. High perceived superior organizational prototypicality means that team leaders consider their superiors prototypical members in the organization and perceive the resources provided by their superiors as representing their needs and interests. High perceived team leader group prototypicality indicates that team members perceive that their team leaders share high similarity with team prototypes and have confidence that their leaders would use the resources obtained from superiors for their teams' needs (van Knippenberg, 2011). We propose that superior organizational prototypicality enhances the effects of LLX on team leader self-efficacy because perceived high superior organizational prototypicality assures to team leaders that the resources and benefits they receive in the high LLX relationships will be functionally valuable to their work in the organization rather than constrained in a dyadic relationship between superiors and team leaders. We also predict that perceived high team leader group prototypicality augments the effects of LLX on team collective efficacy because team leaders with high group prototypicality are believed to represent collective team interests so that team leaders' good relationships with
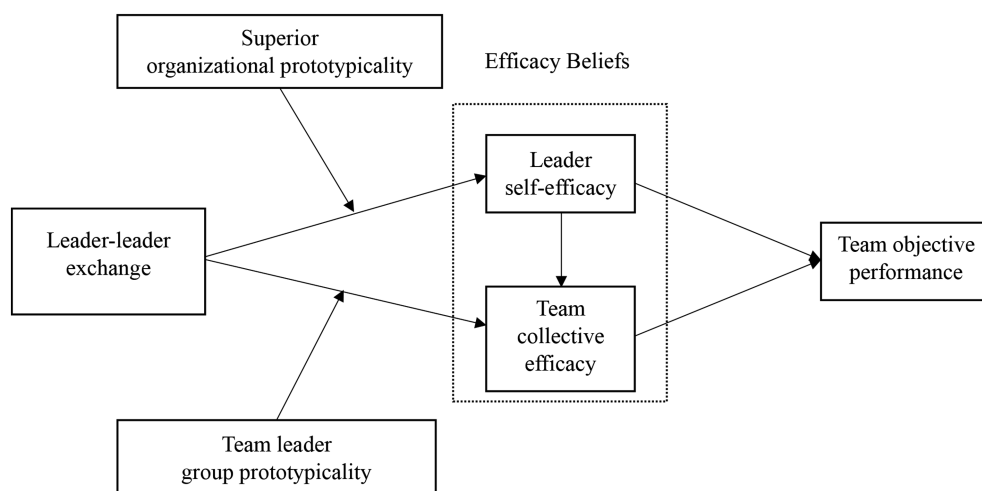

FIGURE 1 Theoretical model

superiors will be seen as beneficial not only to team leaders but also to the team they are leading (van Knippenberg, 2011). Figure 1 depicts the overall theoretical model.

Taken together, we aim to make the following contributions to the literatures of leadership and teams. First, we provide a new perspective to look at the contingent influences of LLX in teams and offer a novel explanation for why high-quality LLX may be more effective for some leaders and teams than others. Specifically, we document that the benefits obtained from LLX are contingent on the extent to which *team leaders* believe that their superiors have high superior organizational prototypicality and the extent to which *team members* consider their team leaders prototypical members of their teams.

Second, we build on and enrich existing research on LLX (e.g., Zhou et al., 2012) by shifting the focus from individual-level to team-level outcomes. In line with the implicit leadership theory, leaders with prototypicality are more likely to render the group membership and goals salient, increasing leaders' belief in their abilities to do their jobs well (i.e., self-efficacy) and building team members' shared confidence in their teams (i.e., team collective efficacy) (Hirst et al., 2009; van Knippenberg, 2011). We suggest that under high superior prototypicality and team leader prototypicality, both team leader self-efficacy and team collective efficacy can transfer LLX into team performance.

Third, we identify team leader self-efficacy as an additional overlooked mechanism of the LLX influences. Extant research on LLX has informed us its influence on individual outcomes and team members' psychological states, but we know little about how it affects the beliefs of team leaders, an immediate partner in the social exchange dyad. We also examine the spillover effect from LLX to leader self-efficacy to team collective efficacy as an extension of prior studies.

2 | THEORY AND HYPOTHESIS DEVELOPMENT

2.1 | LLX, efficacy beliefs, and team performance

In social cognitive theory, Bandura (1982, 1997) posited that efficacy beliefs are constructed from four primary sources: enactive mastery experiences, which are successful experiences in overcoming obstacles; vicarious experiences, referring to observing people similar to oneself succeeding; verbal persuasion, referring to comments from others confirming one's ability to succeed; physiological and affective state, referring to the physical strength and mood states relating to performing tasks. We suggest that LLX can influence some sources of the efficacy belief formation, thus improving team leader self-efficacy beliefs and team collective efficacy.

LLX is likely to enhance team leaders' self-efficacy beliefs for the following reasons. First, being able to form high-quality relationships with superiors shows to team leaders the effectiveness of their interpersonal skills, which may serve as enactive mastery experiences when team leaders engage in team people management. Second, team leaders with high LLX are likely to have more material resources,

information, social support, and autonomy (Graen et al., 1977; Tangirala et al., 2007). Team leaders may also receive verbal encouragement and positive feedback from superiors in high-quality LLX relationships (Liden et al., 1997), which act as effective social persuasion (Bandura, 1997). Third, in high-quality LLX relationships, team leaders are more likely to feel secure and energized at work (Tse et al., 2016), which are favorable affective states that enhance their efficacy beliefs (Gerstner & Day, 1997). Together, those tangible and intangible benefits are likely to boost team leaders' confidence to guide their teams to perform team tasks and to implement team plans.

We further link team leaders' self-efficacy beliefs to team performance. This is because when leaders feel confident about their capabilities, they are more likely to persist in the face of adversity and difficulties (Carver et al., 1983) and cope better with stressors and changes in the task accomplishment process (Scheier et al., 1986). In addition, high efficacy beliefs motivate leaders to set higher goals and to work harder to guide their teams toward achieving higher performance (Bandura & Cervone, 1983). In support of this view, Chemers et al. (2000) found positive links between leader self-efficacy and performance evaluations in a leadership simulation. Integrating the positive effects of LLX on team leader self-efficacy with the positive link of team leader self-efficacy and team performance, we propose:

> **Hypothesis 1.** Team leader self-efficacy mediates the relationship between LLX and team performance.

We also predict that LLX is likely to boost team members' collective efficacy beliefs. Team collective efficacy depicts team members' generalized collective belief that the group can be effective (Bandura, 1997; Lindsley et al., 1995; Shea & Guzzo, 1987). Team collective efficacy is not a simple aggregate of self-efficacy across group members; rather, it represents a team-level property that is shared, consensual, and held in common across team members (Gully et al., 2002).

We suggest that LLX should enhance team collective efficacy for the following reasons. First, teams whose leaders have high LLX have been found to receive more attention from their leaders (Cashman et al., 1976), experience fewer job constraints, and have more information and resources (Graen et al., 1977; Tangirala et al., 2007; Zhou et al., 2012), all of which help enhance teams' confidence to accomplish team tasks. Second, because of the frequent interactions between team leaders and their teams, team leaders' high-quality relationships with their superiors are readily observable by their teams (Duchon et al., 1986; Venkataramani et al., 2010; Zhou et al., 2012). As teamwork success requires effective social interactions among team members (Mathieu et al., 2008), team members can vicariously learn from their leaders to improve their interpersonal and social network skills, which help build their collective efficacy beliefs when dealing with coworkers or customers (Manz & Sims, 1981). Third, research has found that under the guidance of leaders with high LLX relationships, team members tend to be more satisfied with their jobs and leaders (Cashman et al., 1976; Zhou et al., 2012). This sense of satisfaction is likely to form a shared positive affective climate within

the team (Thoresen et al., 2003), which fosters the development of high team collective efficacy beliefs.

We further argue that team collective efficacy is positively related to team performance because team members with high collective efficacy beliefs are more likely to have stronger motivation, exert extra effort, make better use of team knowledge and skill, and persist in the face of difficulty (Bandura, 1997). In support of this argument, meta-analysis results have shown a positive connection between team collective efficacy and team performance (Gully et al., 2002; Stajkovic et al., 2009). Given the positive correlation between LLX and team collective efficacy, and the effects of team collective efficacy on team performance, we hypothesize:

> **Hypothesis 2.** Team collective efficacy mediates the relationship between LLX and team performance.

2.2 | Team leader self-efficacy and team collective efficacy

We further contend that LLX can also influence team members' collective efficacy beliefs indirectly through the mediating role of team leaders' self-efficacy beliefs. Team leaders' self-efficacy beliefs may enhance team members' collective efficacy beliefs through influencing their vicarious experience and social persuasion. Team members observe and emulate team leaders' efficacy beliefs and associated success in the workplace, making leaders important role models (Bandura, 1986). Thus, team leaders' confidence can have an important social influence on team collective efficacy (Prussia & Kinicki, 1996). Moreover, team leaders with high efficacy beliefs tend to express their confidence in their teams' overall effectiveness and to view their teams' capabilities positively, which provides social persuasion, shaping team members' collective efficacy beliefs (Hoyt et al., 2003). Early research has also found that teams with confident leaders reported higher group confidence using a college basketball sample (Watson et al., 2001). Thus, we propose the following:

> **Hypothesis 3.** Team leader self-efficacy mediates the relationship between LLX and team collective efficacy.

2.3 | Leader prototypicality as boundary conditions

We further propose that the potential positive influences of LLX on leader self-efficacy and team collective efficacy are contingent on followers' judgment and categorization of their leaders. The implicit leadership theory explains why such boundary conditions matter and posits that individuals possess their own naive, implicit theories of leadership, which help determine their cognitive evaluations of their leaders' behaviors and guide their reactions to leaders. One core mechanism to understand leadership perceptions is subordinate categorization of leaders (Cronshaw & Lord, 1987; Lord & Brown, 2001,

2004). In the categorization process, prototypes play an important role. Prototypes are cognitive representations of the characteristics that define a group in comparison to relevant other groups (Hogg, 2001). The more prototypical a group member is, the more they represent the group's characteristics such as standards, values, and norms. Leader prototypicality is a measure of how representative a leader is of the group they work in (van Knippenberg, 2011). Leaders with high prototypicality share more similarities to group prototypes and also exemplify group normative behavior (van Knippenberg & van Knippenberg, 2005).

As LLX involves two parties: team leaders at the team level and superiors at the higher level, we thus examine two forms of leader prototypicality: team leader group prototypicality and superior organizational prototypicality. Team leader group prototypicality has been studied extensively in previous research (e.g., Hirst et al., 2009; van Knippenberg & van Knippenberg, 2005). Extending the notion of leader group prototypicality, we also include superior organizational prototypicality. Superior organizational prototypicality is another form of leader prototypicality, with the organization as a reference (Hogg, 2001, 2003; van Knippenberg, 2020).

Leader group prototypicality refers to the extent to which a leader is perceived to represent the collective identity, and organizational identity is such an instance of collective identity (Ashforth & Mael, 1989). A group prototype is a mental representation of what the perceivers see as core and distinctive about the group (Turner, 1987). Likewise, an organizational prototype is people's mental representation of what is core and distinctive about the organization (Hogg, 2001). Organizational prototypicality would impact the perceived legitimacy of the leader in terms of representing organizational purpose and identity. Hence, superiors with high organizational prototypicality are perceived to represent what is core to organizational identity and purpose (van Knippenberg, 2020). The more prototypical superiors are as organizational members, the more likely they would be perceived to embody shared organizational norms, values, and interests (van Knippenberg, 2020).

We study superior organizational prototypicality instead of group prototypicality because upper level superiors occupy high positions in the organization hierarchy, and their organizational prototypicality is more salient than their group prototypicality when they interact with lower level leaders (Hogg & Terry, 2000). Moreover, as upper level superiors have easier access to organizational benefits and opportunities, their organizational prototypicality has more implications for lower level leaders' efficacy beliefs and motivation than their group prototypicality.

2.3.1 | Perceived superior organizational prototypicality

Taking the perspective of the implicit leadership theory, we suggest that perceived superior organizational prototypicality will enhance the relationship between LLX and team leader self-efficacy beliefs because superior prototypicality increases the credibility and

functional value to the resources gained in LLX and adds motivational value of LLX in building team leaders' efficacy beliefs (Hirst et al., 2009; van Knippenberg, 2011). First, when superiors have high organizational prototypicality, team leaders are likely to view their high-quality relationships with superiors as indicative of their exchange relationships with the organization (Eisenberger et al., 2010). In this way, team leaders will think that the direction, coaching, and help they receive in their high-quality exchange relationships with superiors take place on behalf of the organization (Eisenberger et al., 2002). These extended relationships with organizations will then further boost team leaders' confidence in their abilities to deal with team demands, because they expect to have greater access not only to the benefits from their direct superiors but also to abundant organizational resources and support. Besides, team leaders will have more confidence in the information superiors share with them, because they believe that superiors have inside information and know about the goals and directions of their organizations more clearly. Moreover, when team leaders have high-quality LLX and superior organizational prototypicality is high, team leaders will believe that their efforts will receive recognition and reward on the organization's behalf, which further confirms their capabilities and enhances their efficacy beliefs (Armeli et al., 1998; Eisenberger et al., 1999). In contrast, if team leaders do not perceive their superiors as representative of their organizations, their high-quality LLX relationships may not guarantee them a good standing within the organization. In addition, when superior organizational prototypicality is low, team leaders' relationships with superiors are limited within their dyads, and team leaders will not be able to capitalize on broader resources at the organizational level. Thus, we propose:

> **Hypothesis 4.** Perceived superior organizational prototypicality moderates the relationship between LLX and leader self-efficacy such that as perceived superior organizational prototypicality increases, the relationship between LLX and leader self-efficacy becomes stronger.

2.3.2 | Perceived team leader group prototypicality

Studies on implicit leadership theory have indicated that when perceived team leader group prototypicality is high, team members tend to hold the belief that their leaders will have their group's best interest at heart and will align their actions to serve for the needs of the group (van Knippenberg & van Knippenberg, 2005; van Knippenberg et al., 2000). Thus, when team members perceive that their team leaders have high group prototypicality, they would think that team leaders' high LLX relationships will be useful for their teams, as team members believe that prototypical team leaders will use the benefits they receive from superiors to facilitate team functioning. This positive expectation in turn boosts teams' overall collective efficacy beliefs. In contrast, when team members perceive that their team leaders do not embody who they are and do not share their values and characteristics (i.e., they have low group prototypicality), they

may be concerned that team leaders' high LLX will only work for their own benefits rather than serve their teams. Consequently, the potential benefits of LLX on shaping team collective efficacy would not be further enhanced.

> **Hypothesis 5.** Perceived team leader group prototypicality moderates the relationship between LLX and team collective efficacy such that as perceived leader group prototypicality increases, the relationship between LLX and team collective efficacy becomes stronger.

As Hypothesis 1 states, leader self-efficacy beliefs are likely to enhance team performance. Hence, it is logical to predict that the heightened leader self-efficacy beliefs resulting from the positive interactions between LLX and superior organizational prototypicality in turn contribute to team performance. Thus, we propose:

> **Hypothesis 6.** Perceived superior organizational prototypicality moderates the indirect effect of LLX on team performance through leader self-efficacy such that the relationship is more positive when perceived superior organizational prototypicality is higher than when perceived superior organizational prototypicality is lower.

As Hypothesis 2 suggests, team collective efficacy is likely to enhance team performance. We further predict that the enhanced team collective efficacy resulting from the positive interactions between LLX and leader group prototypicality will then lead to increased team performance. Thus, we propose:

> **Hypothesis 7.** Perceived team leader group prototypicality moderates the indirect effects of LLX on team performance through team collective efficacy such that the relationship is more positive when perceived team leader group prototypicality is higher than when perceived team leader group prototypicality is lower.

3 | METHOD

3.1 | Sample and procedure

Our sample consists of store managers and employees of a large women's shoe retail company located in three major cities in East China. Members of the same store work in the same location and have frequent interactions with each other. Store members take on different roles, including cashier, sales associate, cleaning and maintenance, and warehouse worker. Each store qualifies as a team because store members work with a high degree of interdependence, have a common leader, work toward a common goal, and are responsible for the collective performance (Mathieu et al., 2008). For example, to

achieve stores' goal, store employees work together to create a pleasant shopping experience for customers by answering their questions, offering help, and smoothing the checkout processes. Store members also share rewards and bonuses for their store performance.

With the help of company executives, we invited 377 stores to participate in this study. Data were collected over three time periods, with approximately 3-month intervals. At Time 1, we sent surveys to 377 team leaders and received completed surveys from 301 stores, with a response rate of 79.84%. Team leaders answered questions about the store information (i.e., city of the store, area of the store, and age of the store), their demographic background, their exchange relationships with their superiors (i.e., area managers), their core self-evaluations, and superior organizational prototypicality. At Time 2, 3 months later, we sent surveys both to team leaders and team members. Team leaders provided information about their self-efficacy beliefs. Team members reported their demographic background, team collective efficacy beliefs, and rated team leaders' leader group prototypicality. After excluding 44 non-responding stores, 14 stores with missing data, and 12 stores that had lower than 60% within-team response rate (Timmerman, 2005), we were able to obtain valid complete surveys from 890 employees in 231 stores for an average group size of 3.94 employees per group, with an effective response rate of 76.74%. At Time 3, we obtained store financial performance data from the company's finance department. Of the team leader respondents, 98% were female, and 79% had college or above education. Their average team tenure was 1.98 years. Team members were also predominantly female (99%); 64.4% had college or above education; 1.04 years average tenure with the team.

3.2 | Measurements

As our data were collected in China, we had all the measures translated to Chinese by two bilingual management scholars using the translation-back translation procedure (Brislin, 1980). Unless otherwise noted, all the measures were rated on a scale from 1 = strongly disagree to 7 = strongly agree.

3.2.1 | Leader–leader exchange

At Time 1, team leaders rated their relationship with superiors using the seven-item scale of leader–member exchange (LMX) developed by Scandura and Graen (1984). A sample item is "How well does your leader understand your job problems and needs?" (1 = Not a bit to 7 = A great deal). Cronbach's alpha for this scale was .87.

3.2.2 | Superior organizational prototypicality

This variable was rated by team leaders using the five-item scale adapted from the leader prototypicality scale developed by van Knippenberg and van Knippenberg (2005). We changed all the group references in the original scale to organization ones. For example, the original item "My supervisor represents what is characteristic about my team" was adapted to "My supervisor represents what is characteristic about my organization." Team leaders rated their superior's organizational prototypicality at Time 1. Cronbach's alpha for this scale was .88.

3.2.3 | Team leader self-efficacy

This variable was self-reported by team leaders using three items adapted from the self-efficacy scale developed by Jones (1986), and this scale has been used in Spreitzer (1995). A sample item is "I am confident about my ability to do my job." Cronbach's alpha for this scale was .86.

3.2.4 | Team leader group prototypicality

This variable was rated by team members using the five-item scale developed by van Knippenberg and van Knippenberg (2005). A sample item is "My supervisor is a good example of the kind of people in my team." Team members rated team leaders' group prototypicality at Time 2. Cronbach's alpha for this scale was .87. To justify whether individual member evaluations can be aggregated to represent team leader group prototypicality, we assessed interrater agreement by calculating $r_{wg(j)}$ value and compared it with the conventional cut-off value of .70 (James et al., 1984). The mean $r_{wg(j)}$ value for team leader group prototypicality was .94, ranging from .43 to 1.00, suggesting a high within-group agreement among team members in their team leader group prototypicality ratings. We then conducted one-way analyses of variance (ANOVA) and found significant between-groups variance ($F = 4.20$, $p < .001$). We also obtained the intraclass correlation (ICC1) value of .47, and the reliability of group mean (ICC2) value of .76, which further justified the appropriateness of aggregating individual scores to the team level to form team collective efficacy beliefs.

3.2.5 | Team collective efficacy

This variable was rated by team members using the three-item scale developed by Kirkman and Rosen (1999), and the same scale has been used in Hu and Judge (2017). A sample item is "My team can get a lot done when it works hard." Cronbach's alpha for this scale was .88. Scores of team collective efficacy were aggregated from individual ratings to the team level. In support of aggregation, the mean $r_{wg(j)}$ for team collective efficacy across the teams was .96, ranging from .42 to 1.00. In addition, one-way ANOVA results showed that there were significant differences in team-level means of team collective efficacy ratings ($F = 2.80$, $p < .001$). Additional support for aggregating team leader group prototypicality scores to the team level was provided by interrater reliability indices (ICC1 = .33 and ICC2 = .64).

3.2.6 | Team performance

We measured team in-role performance by using the objective financial data provided by the company's finance department. We obtained the latest quarter's team profit data at Time 3, 6 months after Time 1. Consistent with previous studies (e.g., Ling et al., 2008; McKay et al., 2009; Waldman et al., 2004), team performance was calculated as the percentage change in store unit quarterly profit, relative to the same quarter 1 year earlier. In the current study, changes in profit range from −100% to 240%. Positive values indicate profit growth, whereas negative values denote profit decline.

3.2.7 | Control variables

We controlled for team leader gender, education, and team leader core self-evaluations (Judge et al., 2003) as these leader characteristics have been shown to influence team outcomes (Ahn et al., 2018; Scott & Brown, 2006; Wayne et al., 2002). To better tease out the effect of LLX on team outcomes, we also controlled for several team characteristics including team members' average tenure, team gender composition, and team size (i.e., the number of team members). We also controlled for the city location of the retail store, square meters of the store area, and age of the store to rule out their potential influences on team performance.

3.3 | Confirmatory factor analyses

We performed all analyses using Mplus 8. Given that we collected data from both team leaders and team members, our data are multilevel. Accordingly, we conducted multilevel confirmatory factor analysis (CFA) to examine whether the scores on team leaders' and team members' self-report measures captured distinctive constructs. Specifically, at Level 1 (within-teams), we modeled team members' ratings of team leader group prototypicality and team collective efficacy, and at Level 2 (between-teams), we modeled team leaders' ratings of LLX, superior organizational prototypicality, efficacy, and core self-evaluations. The six-factor model provided adequate fit to the data ($\chi^2[202] = 475.99$, $p < .001$, comparative fit index [CFI] = 0.93, root mean square error of approximation [RMSEA] = 0.04, standardized root mean square residual [SRMR] = 0.04 for within and 0.05 for between) (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003). All indicators loaded significantly on their respective latent variables. The six-factor model has a significantly better fit than two alternative five-factor models, wherein LLX and superior organizational prototypicality measured at Time 1 were combined as one factor and all other four factors kept unchanged ($\Delta\chi^2[3] = 57.18$, $p < .001$, CFI = 0.91, RMSEA = 0.04, SRMR = 0.04 for within and 0.06 for between), or team leader group prototypicality and team collective efficacy were combined as one factor and all other four factors kept unchanged ($\Delta\chi^2[1] = 439.70$, $p < .001$, CFI = 0.74, RMSEA = 0.08, SRMR = 0.13 for within and 0.06 for between). The five-factor model

also yielded a better fit than a three-factor model, wherein team leader rated variables at Time 1 (i.e., LLX, superior organizational prototypicality, and leader core self-evaluations) were combined as one factor and the variable rated at Time 2 (i.e., leader self-efficacy) were treated as a second factor, and team members rated variables (i.e., team collective efficacy and team leader group prototypicality) were combined as a third factor ($\Delta\chi^2[6] = 663.96$, $p < .001$, CFI = 0.70, RMSEA = 0.08, SRMR = 0.13 for within and 0.08 for between) and better than a two-factor model with all team leader rated variables combined as one factor and all team member rated variables combined as another factor ($\Delta\chi^2[7] = 3695.63$, $p < .001$, CFI = 0.65, RMSEA = 0.09, SRMR = 0.13 for within and 0.10 for between). These results supported the measurement and discriminant validity of the variables.

3.4 | Analytic strategy

We conducted path analysis to test the hypotheses in an integrated manner using Mplus 8 (Preacher et al., 2007). Following Preacher et al.'s (2010) recommendation, we used a Monte Carlo simulation with 20 000 replications to calculate bias-corrected confidence intervals (CIs) for the indirect effects. This method accurately assesses the non-normally distributed indirect effects and conditional indirect effects hypothesized in our theoretical model.

4 | RESULTS

Table 1 presents the means, standard deviations (SDs), reliabilities, and intercorrelations of the study variables. Table 2 shows the path analysis results when testing all the hypotheses simultaneously.

Hypothesis 1 proposes that leader self-efficacy belief mediates the relationship between LLX and team performance. As Table 2 shows, the relationship between leader self-efficacy belief and team performance was not significant ($\beta = .01$, $SE = .08$, n.s.). Therefore, Hypothesis 1 is not supported.

Hypothesis 2 states that team collective efficacy mediates the relationship between LLX and team performance. As Table 2 shows, team collective efficacy was positively related to team performance ($\beta = .14$, $SE = .07$, $p < .05$). To estimate the hypothesized indirect relationship, we used a parametric bootstrap procedure (Preacher et al., 2010). However, with 20 000 Monte Carlo replications, results showed that the indirect relationships between LLX and team performance via team collective efficacy (indirect effect = .008, 95% bias-corrected bootstrap CI [−0.002, 0.018]) was not significant. Therefore, Hypothesis 2 is not supported.

Hypothesis 3 posits that team leader self-efficacy belief mediates the relationship between LLX and team collective efficacy. As Table 2 shows, leader self-efficacy belief was positively related to team collective efficacy ($\beta = .32$, $SE = .05$, $p < .001$). With 20 000 Monte Carlo replications, results showed that there was a positive indirect relationship between LLX and team collective efficacy via leader

TABLE 1 Means, standard deviations, and intercorrelations among variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Team leader gender (T1L)	1.01	0.13	—														
2. Team leader education (T1L)	1.95	0.62	.16*	—													
3. Team leader tenure (T1L)	1.98	1.49	-.06	.07	—												
4. Team leader core self-evaluations (T1L)	4.65	0.56	.04	.10	-.08	—											
5. Team member average tenure (T2T)	1.04	0.74	.04	.04	.25**	.00	(.95)										
6. Team size (T2T)	3.94	1.01	.07	.15*	.13	-.02	.09	—									
7. City location of the store (T1L)	2.18	0.84	.06	.24**	-.01	.10	-.07	.00	—								
8. Square meters of the store area (T1L)	73.30	34.34	.00	-.04	.12	-.12	.11	.29**	-.41**	—							
9. Age of the store (T1L)	3.72	1.89	.10	-.10	.37**	-.10	.12	.06	-.12	.20**	—						
10. LLX (T1L)	5.49	0.79	.04	-.05	-.02	-.07	.02	.03	.00	-.11	-.10	—					
11. Superior organizational prototypicality (T1L)	5.65	0.83	.03	-.02	-.04	-.03	-.01	-.01	-.04	-.02	-.12	.73**	(.85)				
12. Team leader self-efficacy (T2L)	6.03	0.64	.15*	.07	.07	-.02	.08	-.06	.13	.00	-.03	.21**	.13*	(.88)			
13. Team leader group prototypicality (T2T)	5.67	0.67	.07	.07	.00	-.03	-.05	-.02	.11	-.04	-.10	.16*	.14*	.17**	(.86)		
14. Team collective efficacy (T2T)	6.05	0.51	.00	.04	.06	.05	.10	.03	.24**	.00	-.05	.15*	.15*	.36**	.08	(.87)	
15. Team objective performance (T3F)	1.42	0.44	-.01	-.03	.12	-.10	.05	.00	-.04	.07	.12	.01	.06	.07	.00	.16*	—

Note: $N = 231$ work teams and 890 employees. Reliabilities are shown in parentheses along the diagonal. Gender was coded as $1 =$ female and $2 =$ male. Education was coded as $1 =$ middle school or lower, $2 =$ high school or equivalent degree, $3 =$ bachelor's degree, and $4 =$ master's degree or higher. City location was coded as $1 =$ Shanghai, $2 =$ Hangzhou, and $3 =$ Nanjing.

Abbreviations: LLX, leader–leader exchange; SD, standard deviation;T1L, variables rated by team leaders at Time 1; T2L, variables rated by team leaders at Time 2, 3 months after Time 1; T2T, variables rated by team members at Time 2, 3 months after Time 1; T3F, archival records obtained from the Finance Department of the company at Time 3, 6 months after Time 1.

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

TABLE 2 Summary of path-analytic model results

	Team leader self-efficacy		Team collective efficacy		Team objective performance	
	β	SE	β	SE	β	SE
Intercept	−1.67	.82	11.47	1.11	1.44	1.14
Controls						
Team leader gender	.15*	.07	−.05	.04	.00	.03
Team leader education	.04	.07	.00	.06	−.06	.08
Team leader tenure	.09	.08	−.00	.05	.12	.07
Team leader CSE	.03	.07	.08	.06	.04	.06
Team member average tenure	.02	.05	.06	.06	.01	.08
Team size	−.09	.06	.04	.06	−.01	.07
City location of the store	.06	.07	−.12	.07	−.10	.07
Square meters of the store area	.13	.07	−.00	.05	.03	.05
Age of the store	−.05	.06	.10	.06	.03	.06
Predicting variables						
LLX	.23*	.10	.11	.06	−.02	.06
Superior organizational prototypicality	.05	.11				
Team leader group prototypicality			.04	.08		
Team leader self-efficacy					.01	.08
Team collective efficacy			.32***	.05	.14*	.07
Moderation						
LLX * superior organizational prototypicality	.14*	.07				
LLX * team leader group prototypicality			.26***	.07		
Team leader self-efficacy * team leader group prototypicality			−.01	.07		

Note: N = 231 teams and 890 team members. Standardized coefficients were reported. Significance of the relationships remains the same when testing the hypothesized model without control variables, and such results are available upon request. The R^2 for team leader self-efficacy is .12, $p < .01$, for team collective efficacy is .22, $p < .001$, and for team objective performance is .06, $p < .05$.
*$p < .05$. **$p < .01$. ***$p < .001$.

self-efficacy belief (indirect effect = .048, 95% bias-corrected bootstrap CI [0.012, 0.083]). Therefore, Hypothesis 3 is supported.

Hypothesis 4 predicts that superior organizational prototypicality moderates the relationship between LLX and leader self-efficacy so that as superior organizational prototypicality increases, the relationship between LLX and leader self-efficacy increases. As Table 2 shows, LLX and superior organizational prototypicality had significantly positive interaction on leader self-efficacy ($\beta = .14$, $SE = .07$, $p < .05$). To further illustrate whether the interaction pattern was consistent with our expectation, in Figure 2, we plotted the relationship between LLX and team leader self-efficacy belief at higher (1 SD above the mean) and lower (1 SD below the mean) levels of superior organizational prototypicality. Simple slope test showed that LLX and team leader self-efficacy belief was more positively related under high superior organizational prototypicality ($\beta = .27$, $t = 2.82$, $p < .01$) in contrast with low superior organizational prototypicality, with an insignificant beta coefficient ($\beta = .11$, $t = 1.36$, n.s.). Thus, Hypothesis 4 is supported.

Hypothesis 5 predicts that team leader group prototypicality moderates the relationship between LLX and team collective efficacy so that as leader group prototypicality increases, the relationship between LLX and team collective efficacy increases. As Table 2 shows, LLX and leader group prototypicality had significantly positive interaction on team collective efficacy ($\beta = .26$, $SE = .07$, $p < .001$). To further illustrate the interaction pattern, in Figure 3, we plotted the relationship between LLX and team collective efficacy at higher (1 SD above the mean) and lower (1 SD below the mean) levels of leader group prototypicality. Simple slope test showed that LLX and team collective efficacy was more positively related under high leader group prototypicality ($\beta = .23$, $t = 3.91$, $p < .001$) in contrast with low leader group prototypicality, with an insignificant beta coefficient ($\beta = −.09$, $t = −1.71$, n.s.). Thus, Hypothesis 5 is supported.

Hypothesis 6 posits that superior organizational prototypicality moderates the indirect effects of LLX on team performance through leader self-efficacy such that the relationship is stronger when superior organizational prototypicality is high than when superior organizational prototypicality is low. However, the relationship between leader self-efficacy belief and team performance was not significant ($\beta = .01$, $SE = .08$, n.s.). Thus, Hypothesis 6 is not supported.

FIGURE 2 The moderating effect of perceived superior organizational prototypicality on the relationship between LLX and team leader self-efficacy.
Note: LLX and team leader self-efficacy belief was positively related when perceived superior organizational prototypicality was high ($\beta = .27$, $t = 2.82$, $p < .01$) but not when it was low ($\beta = .11$, $t = 1.36$, *n.s.*)
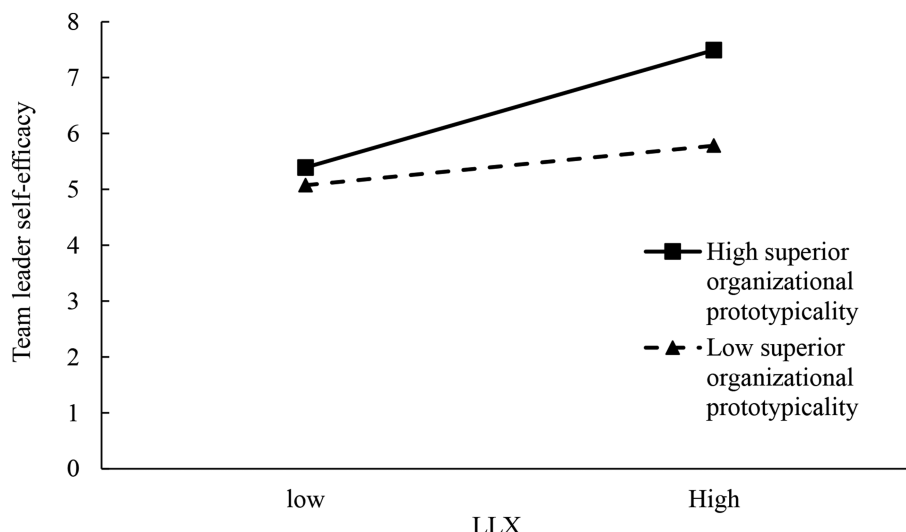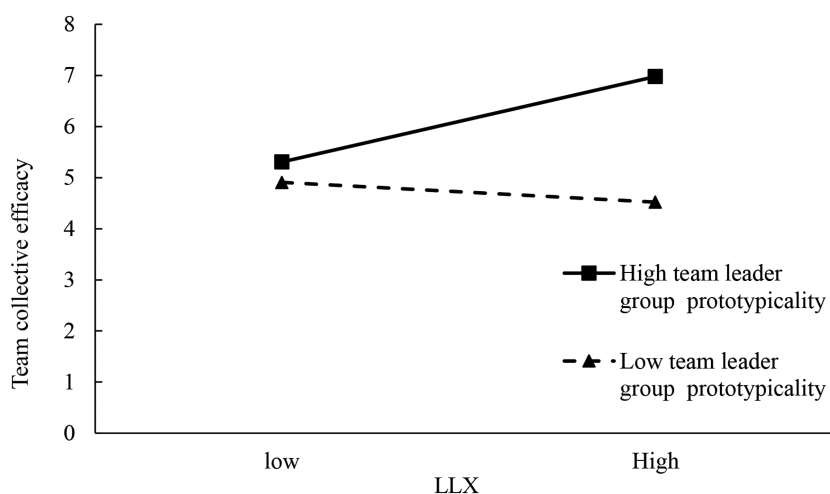

FIGURE 3 The moderating effect of perceived team leader group prototypicality on the relationship between LLX and team collective efficacy.
Note: LLX and team collective efficacy was positively related when perceived team leader group prototypicality was high ($\beta = .23$, $t = 3.91$, $p < .001$) but not when it was low ($\beta = -.09$, $t = -1.71$, *n.s.*)

Hypothesis 7 states that team leader group prototypicality moderates the indirect effects of LLX on team performance through team collective efficacy such that the relationship is stronger when leader group prototypicality is high than when leader group prototypicality is low. Again, leader group prototypicality and LLX had a significantly positive interaction with team collective efficacy, which was then positively related to team performance. Results further revealed that there was significant indirect relationship between LLX and team performance via team collective efficacy at high levels of leader group prototypicality (indirect effect = .027, 95% bias-corrected bootstrap CI [0.002, 0.053]), while the indirect relationship was not significant at low levels of leader group prototypicality (indirect effect = −.011, 95% bias-corrected bootstrap CI [−0.025, 0.003]) and the difference between the two indirect relationships was significant (difference = .038, 95% bias-corrected bootstrap CI [0.003, 0.074]). Thus, Hypothesis 7 is supported.

In summary, we found that superior organizational prototypicality significantly moderated the relationship between LLX and team leader self-efficacy while team leader group prototypicality significantly

moderates the relationship between LLX and team collective efficacy. Moreover, team leader self-efficacy belief mediated the relationship between LLX and team collective efficacy. In addition, superior organizational prototypicality did not moderate the indirect effects of LLX on team performance through team leader self-efficacy, while team leader group prototypicality moderated the indirect effects of LLX on team performance through team collective efficacy. The path analysis model provides estimates of the proportion of variance accounted for in each dependent variable. The R^2 for team leader self-efficacy is .12, $p < .01$, for team collective efficacy is .22, $p < .001$, and for team performance is .06, $p < .05$.

5 | DISCUSSION

Integrating two social cognition-based theories (the social cognitive theory and implicit leadership theory), we developed and tested a theoretical model that speaks to the leader and team level outcomes of LLX as well as the mediating and moderating mechanisms of the

relationships. We found that the positive link between LLX and team leaders' self-efficacy is contingent on perceptions of superiors' organizational prototypicality and that the positive value of LLX for team collective efficacy depends on perceptions of team leaders' group prototypicality. Furthermore, LLX can positively influence team performance through the mediating role of team collective efficacy only when team leaders' group prototypicality is high. Thus, the current study makes several contributions to literature and practice.

5.1 | Theoretical implications

Our central contribution to the team leadership literature is to simultaneously examine how LLX relationship quality and perceived leader characteristics interacted to impact team processes and team outcomes. We contribute new insights on *when* LLX will be most beneficial to the efficacy beliefs of team leaders and team members and subsequently to team performance. Specifically, we considered two modes of perceived prototypicality: perceived superior organizational prototypicality and perceived team leader group prototypicality. Previous research on leader prototypicality has mainly focused on leader group prototypicality (e.g., Giessner & van Knippenberg, 2008; van Knippenberg & van Knippenberg, 2005). We built on this prototypicality concept and included the notion of organizational prototypicality. This extension is in line with the conceptualization of leader group prototypicality that from a social psychological perspective, organizations themselves can function as social groups (Ashforth & Mael, 1989; Dutton et al., 1994; Hogg & Terry, 2000). We found that perceived high superior organizational prototypicality strengthened the relationship between LLX and team leader self-efficacy. This is because when perceived superior organizational prototypicality is high, team leaders tend to believe that their good relationships with superiors embody the organization's attitudes, and team leaders are likely to have enhanced confidence to deal with team demands in their workplace. We also found that perceived team leader group prototypicality strengthened the effects of LLX on team collective efficacy. This finding suggests that when team members see their team leaders having high group prototypicality, they expect such leaders to understand their needs better and then have increased confidence in working together to meet team demands.

In addition, we provide a more complete understanding of team leaders' linking-pin positions by considering how their upward social exchange relationships with superiors connect to their downward influences on teams. Extant research has informed us about how LLX may influence employee outcomes and team psychological states (e.g., Herdman et al., 2017; Lorinkova & Perry, 2017; Tangirala et al., 2007; Venkataramani et al., 2010; Zhou et al., 2012), but we know relatively less about how LLX may affect a critical team outcome: team performance. Addressing this gap and extending this line of research, our study provided a comprehensive account of how and when LLX may relate to an important team effectiveness outcome (i.e., team performance). As LLX is an important interpersonal contextual factor that influences the resources and information to which

teams may have access (Tangirala et al., 2007), it has implications for the work experiences of team leaders and team members (Cashman et al., 1976), which may in turn impact team effectiveness.

Furthermore, we elucidated the mediating processes of LLX on team outcomes by examining team leaders' and members' efficacy beliefs. Our study is the first one to reveal the effects of LLX on team leader self-efficacy, and this is important because as direct recipients of the LLX relationships, team leaders' perception of their work capabilities is likely to be influenced by the quality of their relationships with superiors, which provides important information cues (e.g., feedback, benefits, and persuasion) involved in the formation of efficacy beliefs (Bandura, 1986; Gist & Mitchell, 1992). We also highlighted the trickle-down effects of LLX by examining its effects not only on the direct recipient of LLX (the team leader) but also on team members who do not normally interact directly with upper level leaders. Extant research has shown that LLX can increase team empowerment (Zhou et al., 2012), and our study extends this line of research by documenting the influence of LLX on team collective efficacy directly and indirectly through team leader self-efficacy beliefs. The relationship between team leader self-efficacy beliefs and team collective efficacy endorses the key linking role of team leaders' self-efficacy beliefs in translating LLX into team members' collective efficacy beliefs.

Surprisingly, we did not find support for the mediating role of team leader self-efficacy belief in the relationship between LLX and team performance with or without the moderation of perceived superior organizational prototypicality. One possible reason may be that team leaders' own perceived efficacy may be difficult to directly relate to teams' performance and that it may have indirect influence through first influencing team members' beliefs. Indeed, we found a positive relationship between leader self-efficacy and team collective efficacy, and therefore with team performance. Thus, we encourage future research to verify our findings and to explore how team leaders' beliefs may indirectly influence team performance.

The hypothesized indirect effects of team collective efficacy in the relationships between LLX and team performance did not emerge. However, the indirect effects of team collective efficacy became significant when perceived team leader group prototypicality was high. This pattern highlights the importance of perceived team leader group prototypicality in translating LLX to team outcomes. By default, the positive effects of team leaders' high-quality LLX relationship remain in dyadic relationships. By influencing how team members perceive the functional value of their team leaders' LLX relationships, perceived team leader group prototypicality holds great potential to extend the benefits of high-quality LLX from leaders themselves to their teams as a whole. This is because perceived high leader group prototypicality allows team members to believe that their leaders' actions will be aligned with their teams' values and interests (van Knippenberg & van Knippenberg, 2005). We thus suggest that further research dig deeper into the moderating role of perceived leader group prototypicality in the LLX processes and measure the way it works to influence team processes.

5.2 | Practical implications

Our findings also provide several practical implications. First, organizations should not simply promote strong LLX relationships but also make sure that LLX relationships provide perceived functional value to both team leaders and team members. According to our findings, one way to do this is to increase perceptions of leaders' prototypicality. Organizations may promote individuals with high prototypicality to leadership positions and consider different types of prototypicality for leaders at different levels. Research has shown that group prototypicality is not a fixed attribute (Reicher & Hopkins, 2003; Turner, 1987). Thus, leaders may actively build an image of prototypicality. Upper level leaders may emphasize to lower level leaders how they represent organizational values, norms, and standards. Team leaders may explain to team members their similarities and how their actions are consistent with group norms and group identity. Reicher and Hopkins (2003) offered another promising approach and suggested that leaders can be entrepreneurs of identity by defining organizational identities in ways that make themselves prototypical within their organizations.

Second, our findings show that team leaders' relationships with their superiors relate to their own and their overall teams' efficacy beliefs, which have implications for team performance. Hence, relevant training may be useful in the organization to help team leaders to develop social skills so that they know how to build high-quality relationships with superiors. One the other hand, organizations may try to encourage superiors to engage in more social interactions with their subordinates to facilitate the development of LLX.

5.3 | Limitations and directions for future research

Our research has several limitations, which point to meaningful directions for future research. First, although we collected data from multiple sources at different times and we measured team performance using objective data, which reduces potential common method bias (Podsakoff et al., 2003), we still cannot rule out the possibility that some hypothesized relationships may involve reverse causality. For example, we theorized that team leaders' efficacy belief enhances team collective efficacy. However, leaders of highly confident team members may have more confidence in their team management. Thus, future research may clarify the causal order by either collecting longitudinal data or running experiments.

Second, many studies have found the effects of relationship quality with leaders (i.e., LMX) on various outcomes at both the individual and team levels. However, we did not collect data such as mean LMX and/or LMX differentiation, so we were not able to control for such variables to exclude alternative explanations. Another limitation is that we measured superiors' organizational prototypicality from team leaders but failed to collect information regarding whether team leaders were under the supervision of the same superior. This omission resulted in us not being able to control for a superior effect at a higher level. Also, although we collected data from multiple stores of one company that are located in different cities, the use of research data from a single company may still limit generalizability of our study. Future research is needed to control for the effects of LMX when examining the influence of LLX on team outcomes and to collect data regarding team leaders' nested higher level teams from companies in different industries to further elucidate the effects of LLX on various team outcomes in different contexts.

Third, although culture does not bound our hypotheses and using a sample from China may extend the external validity of team-based leadership research primarily taking place in the West, we need to consider the uniqueness of Chinese culture, which is highly collective and in which people prioritize the group over the self (Hofstede, 2001). In a collectivist culture, the moderating effect of perceived leader prototypicality on the relationship between LLX and efficacy beliefs is likely to be stronger than that in cultures with low collectivism, as individuals in highly collectivist cultures attach more importance to group norms and values. Thus, we encourage future research to consider the potential societal and cultural influences on the moderating role of perceived leader prototypicality and to use cross-cultural samples to examine the interactions between LLX and leader prototypicality more rigorously.

Fourth, we focus on exploring how LLX influences team leaders' and overall teams' efficacy beliefs. However, there are other possible psychological and motivational outcomes. For example, leaders and teams may have different emotional responses to varying levels of LLX. In addition, further research may explore whether other team motivational process such as team trust and team obligation play a role in the LLX effects on team outcomes.

Lastly, following prior research on LLX and leader prototypicality, we proposed and examined their positive interactive influence on team outcomes. However, we cannot rule out the possibility that high LLX and leader prototypicality may have some negative impact on certain team processes and outcomes. For example, according to the similarity–attraction theory (Byrne, 1961), team leaders in high LLX are more likely to share similar values and preferences as their superiors, and this similarity would be reinforced by perceived superior prototypicality. It has been found that team members in homogeneous groups have more conformity pressure (Hoffman & Maier, 1961) and are more likely to form groupthink (Turner & Pratkanis, 1998). Hence, when both perceived LLX and leader prototypicality are high, team leaders and team members tend to comply with the collective beliefs and current thinking, which may discourage different ideas and perspectives and in turn harm team creativity (De Dreu & West, 2001; Obstfeld, 2005). In addition to potential within-group outcomes, the combination of high LLX and high perceived leader prototypicality is likely to lead to dysfunctional intergroup behaviors. For instance, both high LLX and high perceived leader prototypicality indicate that there are deep and close ingroup connections and ties within the organization and work groups, which have been found to be positively related with ingroup-directed favoritism (Greenwald et al., 2002; Heider, 1958). Ingroup favoritism in turn is likely to lead to negative stereotypes and discrimination toward other groups, and hostile intergroup attitudes and behaviors

(Greenwald & Pettigrew, 2014). Hence, future research may examine the potential dark side of having high LLX and high leader prototypicality on both within-group and intergroup outcomes.

5.4 | Conclusion

Despite the fact that the LLX relationship as a contextual feature is of central importance for teams, we lack knowledge about its boundary conditions in impacting team processes and team outcomes. Integrating social cognitive theory with implicit leadership theory, this study addressed this gap by simultaneously examining the influence of LLX and perceived leader prototypicality (i.e., perceived team leader group prototypicality and perceived superior organizational prototypicality) on team leaders' self-efficacy belief and overall teams' collective efficacy, and team performance. By examining the LLX relationship quality and perceived leader prototypicality simultaneously, we were able to shed light on the roles played by perceived leader prototypes in making the LLX relationship quality influence stronger or weaker, therefore expanding our knowledge of the boundary conditions of LLX influence. The current study painted a more complete picture of LLX influence and highlighted the significance of followers' perceptions in impacting their responses to relationship quality and leader characteristics. We hope this study can encourage further research on the boundary conditions and the underlying mechanisms of LLX.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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REFERENCES

Ahn, J., Lee, S., & Yun, S. (2018). Leaders' core self-evaluation, ethical leadership, and employees' job performance: The moderating role of employees' exchange ideology. *Journal of Business Ethics*, *148*(2), 457–470. https://doi.org/10.1007/s10551-016-3030-0

Armeli, S., Eisenberger, R., Fasolo, P., & Lynch, P. (1998). Perceived organizational support and police performance: The moderating influence of socioemotional needs. *Journal of Applied Psychology*, *83*(2), 288–297. https://doi.org/10.1037/0021-9010.83.2.288

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, *14*(1), 20–39. https://doi.org/10.5465/amr.1989.4278999

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122–147. https://doi.org/10.1037/0003-066X.37.2.122

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology*, *45*(5), 1017–1028. https://doi.org/10.1037/0022-3514.45.5.1017

Brislin, R. W. (1980). Translation and content analysis of oral and written material. In H. C. Triandis & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (pp. 349–444). Allyn & Bacon.

Byrne, D. (1961). Interpersonal attraction and attitude similarity. *The Journal of Abnormal and Social Psychology*, *62*(3), 713–715. https://doi.org/10.1037/h0044721

Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, *46*(4), 823–847. https://doi.org/10.1111/j.1744-6570.1993.tb01571.x

Carver, C. S., Peterson, L. M., Follansbee, D. J., & Scheier, M. F. (1983). Effects of self-directed attention on performance and persistence among persons high and low in test anxiety. *Cognitive Therapy and Research*, *7*(4), 333–353. https://doi.org/10.1007/BF01177556

Cashman, J., Dansereau, F. Jr., Graen, G., & Haga, W. J. (1976). Organizational understructure and leadership: A longitudinal investigation of the managerial role-making process. *Organizational Behavior and Human Performance*, *15*(2), 278–296. https://doi.org/10.1016/0030-5073(76)90042-8

Chemers, M. M., Watson, C. B., & May, S. T. (2000). Dispositional affect and leadership effectiveness: A comparison of self-esteem, optimism, and efficacy. *Personality and Social Psychology Bulletin*, *26*(3), 267–277. https://doi.org/10.1177/0146167200265001

Cronshaw, S. F., & Lord, R. G. (1987). Effects of categorization, attribution, and encoding processes on leadership perceptions. *Journal of Applied Psychology*, *72*(1), 97–106. https://doi.org/10.1037/0021-9010.72.1.97

Dansereau, F. Jr., Graen, G., & Haga, W. J. (1975). A vertical dyad linkage approach to leadership within formal organizations: A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance*, *13*(1), 46–78. https://doi.org/10.1016/0030-5073(75)90005-7

de Dreu, C. K. W., & West, M. A. (2001). Minority dissent and team innovation: The importance of participation in decision making. *Journal of Applied Psychology*, *86*(6), 1191–1201. https://doi.org/10.1037/0021-9010.86.6.1191

Duchon, D., Green, S. G., & Taber, T. D. (1986). Vertical dyad linkage: A longitudinal assessment of antecedents, measures, and consequences. *Journal of Applied Psychology*, *71*(1), 56–60. https://doi.org/10.1037/0021-9010.71.1.56

Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational images and member identification. *Administrative Science Quarterly*, *39*, 239–263. https://doi.org/10.2307/2393235

Eisenberger, R., Karagonlar, G., Stinglhamber, F., Neves, P., Becker, T. E., Gonzalez-Morales, M. G., & Steiger-Mueller, M. (2010). Leader–member exchange and affective organizational commitment: The contribution of supervisor's organizational embodiment. *Journal of Applied Psychology*, *95*(6), 1085–1103. https://doi.org/10.1037/a0020858

Eisenberger, R., Rhoades, L., & Cameron, J. (1999). Does pay for performance increase or decrease perceived self-determination and intrinsic motivation? *Journal of Personality and Social Psychology*, *77*(5), 1026–1040. https://doi.org/10.1037/0022-3514.77.5.1026

Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, *87*(3), 565–573. https://doi.org/10.1037/0021-9010.87.3.565

Foti, R. J., Fraser, S. L., & Lord, R. G. (1982). Effects of leadership labels and prototypes on perceptions of political leaders. *Journal of Applied Psychology*, 67(3), 326–333. https://doi.org/10.1037/0021-9010.67.3.326

Gerstner, C. R., & Day, D. V. (1997). Meta-analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of Applied Psychology*, 82(6), 827–844. https://doi.org/10.1037/0021-9010.82.6.827

Giessner, S. R., & van Knippenberg, D. (2008). "License to fail": Goal definition, leader group prototypicality, and perceptions of leadership effectiveness after leader failure. *Organizational Behavior and Human Decision Processes*, 105(1), 14–35. https://doi.org/10.1016/j.obhdp.2007.04.002

Gist, M. E. (1987). Self-efficacy: Implications for organizational behavior and human resource management. *Academy of Management Review*, 12(3), 472–485. https://doi.org/10.5465/amr.1987.4306562

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17(2), 183–211. https://doi.org/10.5465/amr.1992.4279530

Graen, G., Cashman, J. F., Ginsburg, S., & Schiemann, W. (1977). Effects of linking-pin quality on the quality of working life of lower participants. *Administrative Science Quarterly*, 22, 491–504. https://www.jstor.org/stable/2392185, https://doi.org/10.2307/2392185

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6, 219–247. https://doi.org/10.1016/1048-9843(95)90036-5

Greenwald, A. G., Banaji, M. R., Rudman, L. A., Farnham, S. D., Nosek, B. A., & Mellott, D. S. (2002). A unified theory of implicit attitudes, stereotypes, self-esteem, and self-concept. *Psychological Review*, 109(1), 3–25. https://doi.org/10.1037/0033-295X.109.1.3

Greenwald, A. G., & Pettigrew, T. F. (2014). With malice toward none and charity for some: Ingroup favoritism enables discrimination. *American Psychologist*, 69(7), 669–684. https://doi.org/10.1037/a0036056

Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of team-efficacy, collective efficacy, and performance: Interdependence and level of analysis as moderators of observed relationships. *Journal of Applied Psychology*, 87(5), 819–832. https://doi.org/10.1037/0021-9010.87.5.819

Heider, F. (1958). *The psychology of interpersonal relations*. Wiley. https://doi.org/10.1037/10628-000

Herdman, A. O., Yang, J., & Arthur, J. B. (2017). How does leader-member exchange disparity affect teamwork behavior and effectiveness in work groups? The moderating role of leader-leader exchange. *Journal of Management*, 43(5), 1498–1523. https://doi.org/10.1177/0149206314556315

Hirst, G., van Dick, R., & van Knippenberg, D. (2009). A social identity perspective on leadership and employee creativity. *Journal of Organizational Behavior*, 30(7), 963–982. https://doi.org/10.1002/job.600

Hoffman, L. R., & Maier, N. R. F. (1961). Quality and acceptance of problem solutions by members of homogeneous and heterogeneous groups. *The Journal of Abnormal and Social Psychology*, 62(2), 401–407. https://doi.org/10.1037/h0044025

Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions and organizations across nations. *Sage*. publications

Hogg, M. A. (2001). A social identity theory of leadership. *Personality and Social Psychology Review*, 5(3), 184–200. https://doi.org/10.1207/S15327957PSPR0503_1

Hogg, M. A. (2003). Social identity. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 462–479). Guilford.

Hogg, M. A., & Terry, D. J. (2000). The dynamic, diverse, and variable faces of organizational identity. *Academy of Management Review*, 25(1), 150–152. https://doi.org/10.5465/amr.2000.27711645

Hoyt, C. L., Murphy, S. E., Halverson, S. K., & Watson, C. B. (2003). Group leadership: Efficacy and effectiveness. *Group Dynamics: Theory, Research, and Practice*, 7(4), 259–274. https://doi.org/10.1037/1089-2699.7.4.259

Hu, J., & Judge, T. A. (2017). Leader–team complementarity: Exploring the interactive effects of leader personality traits and team power distance values on team processes and performance. *Journal of Applied Psychology*, 102(6), 935–955. https://doi.org/10.1037/apl0000203

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. https://doi.org/10.1080/10705519909540118

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69(1), 85–98. https://doi.org/10.1037/0021-9010.69.1.85

Jones, G. R. (1986). Socialization tactics, self-efficacy, and newcomers' adjustments to organizations. *Academy of Management Journal*, 29(2), 262–279. https://doi.org/10.5465/256188

Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology*, 56(2), 303–331. https://doi.org/10.1111/j.1744-6570.2003.tb00152.x

Kirkman, B. L., & Rosen, B. (1999). Beyond self-management: The antecedents and consequences of team empowerment. *Academy of Management Journal*, 42, 58–74. https://doi.org/10.2307/256874

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader-member exchange theory: The past and potential for the future. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 15) (pp. 47–119). JAI.

Lindsley, D. H., Brass, D. J., & Thomas, J. B. (1995). Efficacy-performing spirals: A multilevel perspective. *Academy of Management Review*, 20(3), 645–678. https://doi.org/10.5465/amr.1995.9508080333

Ling, Y. A. N., Simsek, Z., Lubatkin, M. H., & Veiga, J. F. (2008). Transformational leadership's role in promoting corporate entrepreneurship: Examining the CEO-TMT interface. *Academy of Management Journal*, 51(3), 557–576. https://doi.org/10.5465/amj.2008.32626023

Lord, R. G., & Brown, D. J. (2001). Leadership, values, and subordinate self-concepts. *The Leadership Quarterly*, 12(2), 133–152. https://doi.org/10.1016/S1048-9843(01)00072-8

Lord, R. G., & Brown, D. J. (2004). *Leadership processes and follower self-identity*. Erlbaum.

Lord, R. G., Foti, R. J., & De Vader, C. L. (1984). A test of leadership categorization theory: Internal structure, information processing, and leadership perceptions. *Organizational Behavior and Human Performance*, 34(3), 343–378. https://doi.org/10.1016/0030-5073(84)90043-6

Lorinkova, N. M., & Perry, S. J. (2017). When is empowerment effective? The role of leader-leader exchange in empowering leadership, cynicism, and time theft. *Journal of Management*, 43(5), 1631–1654. https://doi.org/10.1177/0149206314560411

MacDonald, H. A., Sulsky, L. M., & Brown, D. J. (2008). Leadership and perceiver cognition: Examining the role of self-identity in implicit leadership theories. *Human Performance*, 21(4), 333–353. https://doi.org/10.1080/08959280802347031

Manz, C. C., & Sims, H. P. Jr. (1981). Vicarious learning: The influence of modeling on organizational behavior. *Academy of Management Review*, 6(1), 105–113. https://doi.org/10.2307/257144

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34(3), 410–476. https://doi.org/10.1177/0149206308316061

Mathieu, J. E., Hollenbeck, J. R., van Knippenberg, D., & Ilgen, D. R. (2017). A century of work teams in the journal of applied psychology. *Journal of Applied Psychology*, 102(3), 452–467. https://doi.org/10.1037/apl0000128

McKay, P. F., Avery, D. R., & Morris, M. A. (2009). A tale of two climates: Diversity climate from subordinates' and managers' perspectives and their role in store unit sales performance. *Personnel Psychology*, 62, 767–791. https://doi.org/10.1111/j.1744-6570.2009.01157.x

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management*, 36(1), 5–39. https://doi.org/10.1177/0149206309347376

Obstfeld, D. (2005). Social networks, the *tertius iungens* orientation, and involvement in innovation. *Administrative Science Quarterly*, 50(1), 100–130. https://doi.org/10.2189/asqu.2005.50.1.100

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, 42(1), 185–227. https://doi.org/10.1080/00273170701341316

Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, 15(3), 209–233. https://doi.org/10.1037/a0020141

Prussia, G. E., & Kinicki, A. J. (1996). A motivational investigation of group effectiveness using social-cognitive theory. *Journal of Applied Psychology*, 81(2), 187–198. https://doi.org/10.1037/0021-9010.81.2.187

Reicher, S., & Hopkins, N. (2003). On the science and art of leadership. In D. van Knippenberg & M. A. Hogg (Eds.), *Leadership and power: Identity processes in teams and organizations* (pp. 197–209). SAGE.

Scandura, T. A., & Graen, G. B. (1984). Moderating effects of initial leader–member exchange status on the effects of a leadership intervention. *Journal of Applied Psychology*, 69(3), 428–436. https://doi.org/10.1037/0021-9010.69.3.428

Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: Divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology*, 51(6), 1257–1264. https://doi.org/10.1037/0022-3514.51.6.1257

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23–74.

Scott, K., & Brown, D. (2006). Female first, leader second? Gender bias in the encoding of leadership behavior. *Organizational Behavior and Human Decision Making Processes*, 101, 230–242. https://doi.org/10.1016/j.obhdp.2006.06.002

Shea, G. P., & Guzzo, R. A. (1987). Groups as human resources. In K. R. Rowland & G. R. Ferris (Eds.), *Research in personnel and human resources management* (pp. 323–356). JAI Press.

Shondrick, S. J., Dinh, J. E., & Lord, R. G. (2010). Developments in implicit leadership theory and cognitive science: Applications to improving measurement and understanding alternatives to hierarchical leadership. *The Leadership Quarterly*, 21(6), 959–978. https://doi.org/10.1016/j.leaqua.2010.10.004

Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal*, 38(5), 1442–1465. https://doi.org/10.5465/256865

Stajkovic, A. D., Lee, D., & Nyberg, A. J. (2009). Collective efficacy, group collective efficacy, and group performance: Meta-analyses of their relationships, and test of a mediation model. *Journal of Applied Psychology*, 94(3), 814–828. https://doi.org/10.1037/a0015659

Tangirala, S., Green, S. G., & Ramanujam, R. (2007). In the shadow of the boss's boss: Effects of supervisors' upward exchange relationships on employees. *Journal of Applied Psychology*, 92(2), 309–320. https://doi.org/10.1037/0021-9010.92.2.309

Thoresen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, 129(6), 914–945. https://doi.org/10.1037/0033-2909.129.6.914

Timmerman, T. A. (2005). Missing persons in the study of groups. *Journal of Organizational Behavior*, 26(1), 21–36. https://doi.org/10.1002/job.306

Tse, H. H. M., Troth, A. C., & Ashkanasy, N. M. (2016). Leader—Member exchange and emotion in organizations. In T. N. Bauer & B. Erdogan (Eds.), *Oxford library of psychology. The Oxford handbook of leader-member exchange* (pp. 209–225). Oxford University Press.

Turner, J. (1987). *Rediscovering the social group: A self-categorization theory*.

Turner, M. E., & Pratkanis, A. R. (1998). Twenty-five years of groupthink theory and research: Lessons from the evaluation of a theory. *Organizational Behavior and Human Decision Processes*, 73(2–3), 105–115. https://doi.org/10.1006/obhd.1998.2756

van Knippenberg, B., & van Knippenberg, D. (2005). Leader self-sacrifice and leadership effectiveness: The moderating role of leader Prototypicality. *Journal of Applied Psychology*, 90(1), 25–37. https://doi.org/10.1037/0021-9010.90.1.25

van Knippenberg, D. (2011). Embodying who we are: Leader group prototypicality and leadership effectiveness. *The Leadership Quarterly*, 22(6), 1078–1091. https://doi.org/10.1016/j.leaqua.2011.09.004

van Knippenberg, D. (2020). Meaning-based leadership. *Organizational Psychology Review*, 10(1), 6–28. https://doi.org/10.1177/2041386619897618

van Knippenberg, D., Van Knippenberg, B., & van Dijk, E. (2000). Who takes the lead in risky decision making? Effects of group members' risk preferences and prototypicality. *Organizational Behavior and Human Decision Processes*, 83(2), 213–234. https://doi.org/10.1006/obhd.2000.2907

Venkataramani, V., Green, S. G., & Schleicher, D. J. (2010). Well-connected leaders: The impact of leaders' social network ties on LMX and members' work attitudes. *Journal of Applied Psychology*, 95(6), 1071–1084. https://doi.org/10.1037/a0020214

Waldman, D. A., Javidan, M., & Varella, P. (2004). Charismatic leadership at the strategic level: A new application of upper echelons theory. *The Leadership Quarterly*, 15(3), 355–380. https://doi.org/10.1016/j.leaqua.2004.02.013

Watson, C. B., Chemers, M. M., & Preiser, N. (2001). Collective efficacy: A multilevel analysis. *Personality and Social Psychology Bulletin*, 27(8), 1057–1068. https://doi.org/10.1177/0146167201278012

Wayne, S. J., Shore, L. M., Bommer, W. H., & Tetrick, L. E. (2002). The role of fair treatment and rewards in per ceptions of organizational support and leader-member exchange. *Journal of Applied Psychology*, 87, 590–598. https://doi.org/10.1037/0021-9010.87.3.590

Zhou, L., Wang, M., Chen, G., & Shi, J. (2012). Supervisors' upward exchange relationships and subordinate outcomes: Testing the multilevel mediation role of empowerment. *Journal of Applied Psychology*, 97(3), 668–680. https://doi.org/10.1037/a0026305

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