Impact of mean LMX on team innovation: An empirical study of the mediating effect of team cooperation and the moderating effect of LMX differentiation in China

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The purpose of this study was to examine the impact of mean Leader member exchange (LMX) on team innovation within team, and the mediating effect of team cooperation as well as the moderating effect of LMX differentiation between the mean LMX and team innovation. Based on a sample (n = 245) from China, questionnaire surveys were carried out to explore the relations among variables. All analyses were conducted at the team level. As expected, mean LMX within teams was positively related to team innovation, and the team cooperation was the mediator between mean LMX and team innovation. Furthermore, we found that mean LMX interacted with relationship differentiation within teams to explain team innovation. The results were discussed in terms of their implications for related theories and management practice.

Key words: Mean Leader member exchange (LMX), team cooperation, team innovation, Leader member exchange (LMX) differentiation.

INTRODUCTION

Given increasingly turbulent environments, intense competition, and unpredictable technological changes, more and more managers are coming to realize that they should encourage employees' innovation (Shalley and Gilson, 2004). At the same time, many researchers have pointed out that creativity—the generation of novel and useful ideas (Amabile, 1988, 1996) is critical for organizations' survival and development (e.g., George and Zhou, 2002; Oldham and Cummings, 1996; Zhou, 1998). However, with the increase of innovation task's complexity, it becomes more and more difficult to complete innovation task only relying on individual endeavor. In this circumstance, as teams become the most important performers in organizational innovation strategy, scholars pay more attentions to team innovation performance and the influence mechanism of it (Anderson et al., 1992; Burningham and West, 1995; Cady and Valentine, 1999; De Dreu, 2002; Eisenbeiss et al., 2008; Tjosvold et al., 2004). Therefore, exploring how to improve the team innovation performance is a critical field in the current study.

According to the existing research, we have discovered that leadership is one of significant antecedents on creativity. Especially, Leader member exchange (LMX), as the most popular variable in recent 30 years research of leadership domain, has been demonstrated to have close connection with individual creativity (e.g., Tierney et al., 1999; Hui et al., 2010). Specifically, in high LMX relationships, subordinates receive trust and respect from their leaders (Graen and Uhl-Bien, 1995), may improve employees' efficacy beliefs (Gerstner and Day, 1997), and receive better performance evaluations (Graen et al.,...
1982) which is crucial to the individual's creativity (Tierney and Farmer, 2002). In contrast, low-quality LMX relationships restrain the individual's creativity (Dienesch and Liden, 1986; Gerstner and Day, 1997; Hui et al., 2010).

Although the LMX and creativity relationship has been examined at the individual level, it does not preclude interpretation at higher levels of analysis (Cogliser and Schriesheim, 2000). In support of this assertion, recent empirical studies have generally found that LMX occurs at the team level. For example, Kathleen and Jane (2006) examined the relationship between LMX and team-level outcomes, and found that mean LMX within teams was positively related to team potency and negatively related to team conflict. Ma and Qu (2010) explored the association between LMX in group-level and employees' performance evaluation, the result of which indicated that group-level LMX was positively related to leaders' subjective performance ratings of employees.

Despite that the extant research has successfully addressed the possible consequences of LMX at the team level, it is still an understudied phenomenon. Especially, none of researchers has directly integrated team-level LMX with team innovation performance together. Therefore, the purpose of this paper is to discuss the relationship and mechanisms between LMX and innovation at the team level.

In order to understand the relationship deeply, it is helpful to delve into the mechanisms how the team-level LMX relationship affects the team innovation. Therefore, based on the conservation of resources theory (Hobfoll, 1989), this study argues that the extent of LMX determines the quantity of resources received by subordinates, which subsequently influences the team cooperation and ultimately impacts team outcome of innovation. In short, we suggest that team cooperation will serve as a mediator between LMX and team innovation.

Recently, LMX research attention has shifted toward LMX differentiation which refers to the degree of within-group variation that exists when a leader develops different LMX relationships with different members. In the present study, some scholars have found the interaction effect of LMX differentiation and team-level LMX on outcome variables (e.g., Nishii and Mayer, 2009; Kathleen et al., 2006). Hence, as an important situation element, LMX differentiation can help to understand the complicated relationship among variables. Therefore, this study draws on LMX differentiation as a moderator and examines how it affects the relationship between LMX and team innovation.

To sum up, our study goes above and beyond past studies in several respects. Firstly, we test the relationship between LMX and team innovation; secondly, we elucidate team cooperation as a mediator of the influence of LMX on team innovation; thirdly, we investigate LMX differentiation as a moderator of the relationship between LMX and team cooperation; finally, we test for these relationships using Chinese samples.

LITERATURE REVIEW AND HYPOTHESES

Leader member exchange (LMX) and team innovation

Team innovation has been defined as the intentional introduction and application within a role, group or organization, of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society (De Dreu and West, 2001), which is different from individual creativity. In contrast with the individual creativity, the formation and development of team innovation is restricted and affected by some team factors, such as leadership style, team characteristics, team goals and team atmosphere (West, 2002; Hirst et al., 2004; Kim et al., 1999; Somech, 2006; Forrester and Dawson et al., 2001).

The studies that focus on the influence mechanism of team innovation, mostly use the input-process-output (IPO) as theory framework in team context (Guzzo and Shea, 1992), such as team innovation IPO model (West and Anderson, 1996), and team innovation integration model (West, 2002).

In team innovation investigation, although the link between LMX and team innovation has not been examined, there are sufficient empirical evidences of LMX-creativity relationship at the individual or dyad level hinting out their close connection at the higher level. For example, the research by Eisenberger et al. (1990) found that employees' general perception of being valued and cared about by the organization was positively related to innovation on the behalf of the organization in the absence of anticipated direct reward or personal recognition.

Hui et al. (2010) proposed a cross-level contingent process model based on social cognitive theory to explain how and when the quality of LMX affects individual creativity in work teams. Besides, some team-level studies also showed the consistent inference that team-level LMX may influence the team innovation. Kathleen and Jane (2006) examined how mean level of LMX explains team potency and team conflict within team. Hypotheses were tested in a team-based organization, the Canadian Forces. All analyses were conducted at the team level. As expected, mean LMX within teams was positively related to team potency and negatively related to team conflict.

According to relative theories and present literatures, we argue that high-quality LMX can make some contribution to the development of team innovation. Specifically, we propose:

H1: Mean LMX will be positively related to team
innovation.

Team cooperation and team innovation

Cooperation at the team level is defined as teammates’ behavioral decisions about whether to act in promoting the objectives of the team (Tyler and Blader, 2000). Tyler and Blader identified two basic ways in which teammates cooperate with one another. The first is by proactively engaging in behaviors that promote the effectiveness of the team, for example, by offering assistance, sharing in ideas, and formulating channels for exchanging information. The second is by refraining from behaviors that inhibit the effectiveness of the team, for example, by refraining from using team resources for personal benefit.

As a cross-functional integration process, innovation usually involves the relevant personnel’s coordination and cooperation including Research and development (R&D), marketing and manufacturing and so on. Griffin and Hauser (1996) found that cooperation between R&D personnel and marketing personnel could help improving the success of the new product development in cross-functional team.

Jassawalla and Sashittal (1998) suggested that the new product development process not only needed to build cooperative mechanism, including shared vision, shared resources, understand each other (Frishhammar and Horte, 2005), shared benefit openness, no hidden items, accept each other differences at the same time focused on the common goal (Jassawalla and Sashittal,1998). Related researches indicate that the high level of cooperation relations can produce creative execution knowledge network (Shipton and West, 2006), so as to enhance the innovative performance (Frishhammar and Horte, 2005). Therefore, on the basis of the previous mentioned literature, the following hypothesis is proposed:

H2: Team cooperation will be positively related to team innovation.

LMX and team cooperation

Usually, LMX happens between at least two persons: leader and subordinate. Leaders develop exchange relationships with their subordinates ranging from low-quality required by their job descriptions but little more, to high-quality characterized by mutual trust, respect, and obligation (Graen and Uhl-Bien, 1995). Meanwhile, as a multilevel concept, LMX can be discussed in broader context, such as the group, the department, or the organization.

In most situations, high-quality relationships and low-quality relationships simultaneously happen in a work team. At team-level, scholars usually adopt “mean LMX” to measure team-level LMX. Related researches put forward that the more group members overall feel validated and accepted by virtue of their high-quality relationships with the leader, the more they will feel empowered, motivated, and psychologically safe about engaging in interpersonal risk taking and sharing, as they have been validated by the support received from their group leader (Gomez and Rosen, 2001; Schyns et al., 2005).

Cogliser and Schriesheim (2000) found that LMX was positively related to work climate, which they defined as a perception of less conflict and more cooperation within work units. Paglis and Green (2002) reported that when both parties in a dyad (leader and follower) reported high LMX (when the dyads agreed and mean LMX was high), there was less dyad conflict. They argued that in such relationships, there would be more frequent or effective communication, and therefore less conflict or misunderstandings. Therefore, on the basis of previous mentioned opinions, the following hypotheses are proposed:

H3: Mean LMX will be positively related to team cooperation.

H4: Team cooperation will mediate the relationships between mean LMX and team innovation.

The moderation effect of LMX differentiation

In addition to the main effect of mean LMX on team innovation, differentiation in work team may influence how large the inflation in team innovation could be. Previous studies have examined interaction effects between LMX and LMX differentiation on relevant variables.

For example, Kathleen and Jane (2006) investigated the mean LMX interacting effect with relationship differentiation within teams on team potency and team conflict. When team members reported differentiated relationships with their leader (high LMX differentiation), the relation between mean LMX and team potency was stronger than in the low differentiation case. The form of the interaction for team conflict was similar. When differentiation was high, the negative relation between mean LMX and team conflict was stronger.

Hui et al. (2010) examined that team’s LMX differentiation moderates the relationship between team member’s LMX quality and self-efficacy, and the positive relationship was stronger when the team’s LMX differentiation was higher. At the same time, they found self-efficacy could help to improve individual’s creativity. Henderson et al. (2008) suggested that group-level variability in LMX quality moderated the positive relationship between RLMX quality and PC fulfillment, such that the relationship was stronger as group-level variability in LMX increased.

On the basis of previous research, we expect that the
more differentiation in terms of LMX a team possesses, the more team innovation will generate. Specifically, when LMX differentiation levels are high, members of the same leader may identify both clear boundaries and different treatments between “in-groups” and “out-groups.”

Tajfel and Turner (1986) explicitly argued that the more salient the out-group is (such as in situations with intense intergroup conflict), the more likely that individuals’ behaviors will favor in-groups and disfavor out-groups. It would make for reducing conflict, increasing key staff subordinates’ self-efficacy, and improving the effectiveness of the team action. Therefore, on the basis of the previous mentioned opinions, the following hypothesis is proposed:

**H3**: Relationship differentiation within teams will moderate the relation between mean LMX and team innovation. The relationship between mean LMX and team innovation will be stronger for high LMX differentiation teams than for low LMX differentiation teams.

### METHODS

#### Sample and procedure

We collaborated with the Beijing Zhi Xu treasury consulting company. The samples were series of long-term cooperative enterprises of Zhi Xu consulting company from Beijing, Shanghai, JiangSu and AnHui provinces in China, including 3 industries of automobile manufacturing, communications and transportation, and trade manage and agency. After having agreed to participate, we communicated with the enterprises’ human resource managers and asked to provide a list of work units that would participate in this study, with leader and member’s name of each team. Then, we used a code on the last page of the questionnaire to ensure that responses of leader and members belonging to the same team could be matched afterwards. We conducted the survey on-site in all the organizations. Team members were surveyed about perceptions of their team leader’s exchange relationship, LMX differentiation, team cooperation and team innovation.

During the survey, we sent out 315 copies of questionnaires and responses were obtained from 45 teams, and data were collected in scheduled meetings on company time. Participants were assured of confidentiality and then were given privacy during the actual data collection. Surveys were collected in sealed envelopes, which were then forwarded to project team members. After removing the incomplete questionnaires, the final sample consisted of 45 teams (including 245 team members, 45 team leaders and department managers respectively) for data analysis. Of the 245 employees included in our final sample, 57.4% were female, with a mean age and leader-member dyad tenure of 24.53 and 1.51 years, respectively. Team size ranged from 4 to 12 members, with a mean team size of 6.74 members. All analyses are conducted at the team level of analysis.

#### Measure

**Mean leader–member exchange (LMX)**

Individual LMX quality was measured using the 7-item scale (Graen and Uhl-Bien, 1995). Example items included “My supervisor recognizes my potential” and “I would characterize my working relationship with my supervisor as extremely effective”. Each team member independently assessed the quality of their relationship with their leader. Then, Mean LMX refers to the mean of each team member’s ratings of the quality of his or her own relationship with his or her leader. Responses were made on a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alpha for this scale was 0.87 (for team-level data).

#### Team cooperation

The team cooperation scale, based on the scales of Lechler (2001), we measures four aspects of team cooperation, namely: (a). Problem-solving through support and integration; (b). Open authentic communication; (c). Cohesion including the mutual attracting by team members, the commitment of team task and the sense of team honors; (d). Criterion-the common expectations according to the team behavior; Responses to the scale were scored in a 5-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cooperation scores were recorded so that high scores denote higher team cooperation level in team. Coefficient alpha was 0.90, indicating that it was appropriate to aggregate the data.

#### Team innovation

Team innovation was measured using the three items suggested by Miller and Peter (1982) and West (2002). High team innovation level means the existence of a strong emphasis on R&D, the introduction of many new products/services over time, and changes in products/services having been significant. Conversely, low innovation performance means the opposite. Mean LMX refers to the mean of each team member’s ratings of the quality of his or her own relationship with his or her leader. Responses were made on a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alpha for this scale was 0.91.

#### LMX differentiation

In accordance with Kathleen Boies and Jane (2006) dispersion model and a LMX differentiation measure method, we operationalized this variable as the within-team variance across all team members on LMX scores. Higher within-team variance reflects higher LMX differentiation.

### RESULTS

Table 1 shows the means, standard deviations, and intercorrelations among the variables in this study. Hypothesis 1 predicted that there would be a positive relation between mean LMX and team innovation, and this relation was found ($r=0.47, p<0.01$). Furthermore, as hypothesized, there was a positive correlation between team cooperation and team innovation ($r=0.43, p<0.01$). Thus, Hypothesis 2 was also supported. As can be seen, mean LMX was positively related to team cooperation ($r=0.64, p<0.01$). Hypothesis 3 was also supported.

Accor ding to Baron and Kenny’s (1986), there have been four necessary conditions to identify the occurrence of mediation, which can be examined through a set of regression analyses. First, the independent variable
Table 1. Descriptive statistics and correlations for all variables (N=245).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>24.53</td>
<td>4.12</td>
<td>–0.06</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team size</td>
<td>6.74</td>
<td>4.71</td>
<td>–0.07</td>
<td>0.08</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyad tenure</td>
<td>1.51</td>
<td>1.03</td>
<td>0.11</td>
<td>0.51**</td>
<td>0.18</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean LMX</td>
<td>3.18</td>
<td>0.62</td>
<td>0.11</td>
<td>0.11</td>
<td>–0.19</td>
<td>0.08</td>
<td>–</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LMX differentiation</td>
<td>0.81</td>
<td>0.13</td>
<td>–0.03</td>
<td>0.04</td>
<td>0.26*</td>
<td>0.16</td>
<td>0.15</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Team cooperation</td>
<td>3.19</td>
<td>0.72</td>
<td>–0.19</td>
<td>0.08</td>
<td>–0.33*</td>
<td>0.13</td>
<td>0.64**</td>
<td>0.28*</td>
<td>–</td>
</tr>
<tr>
<td>Team innovation</td>
<td>2.86</td>
<td>0.63</td>
<td>–0.12</td>
<td>0.13</td>
<td>–0.22*</td>
<td>0.12</td>
<td>0.47**</td>
<td>0.07</td>
<td>0.43**</td>
</tr>
</tbody>
</table>

*p < 0.05. ** p < 0.01.

(mean LMX) must affect the mediator (team cooperation) [Analysis 1]; second, the independent variable (mean LMX) must affect the dependent variables (team innovation) [Analysis 2]; third, the mediator (team cooperation) must affect the dependent variables (team innovation) when controlling for the independent variable (mean LMX) [Analysis 3]; fourth, the relationship between the independent variable (mean LMX) and the dependent variables (team innovation) [Analysis 2] must either reduce or become non-significant when controlling for the mediator (team cooperation) [Analysis 3]. In all analyses in the foregoing, the following variables were controlled: gender, age, team size, leader–employee dyad tenure. Table 2 shows the results of hierarchical regression analyses.

Analysis 1 indicates that mean LMX was related to team cooperation ($\beta = 0.53$, $p < 0.01$), which supports the Hypothesis 3. Analysis 2 indicates that mean LMX was positively related to team innovation ($\beta = 0.43$, $p < 0.01$). These findings support Hypothesis 1 mean LMX is positively related to team innovation. Analysis 3 indicates that, after controlling for mean LMX, cooperation within teams was positively related to team innovation ($\beta = 0.23$, $p < 0.05$) both of which support Hypothesis 2. Condition 4 of mediation indicates that the initially significant relationship between mean LMX and team innovation (Analysis 2) reduced to be non-significant when controlling for team cooperation (Analysis 3) for team innovation ($\beta = 0.29$). Therefore, according to the findings form condition 1 to 4, the Hypothesis 4 that the relationship between mean LMX and team innovation would be mediated by team cooperation, was supported.

Table 3 showed the interaction effect between mean LMX and LMX relationship differentiation. This hypothesis was tested using hierarchical linear regression. First, all variables used to compute these regression equations were mean centered in order to reduce the multi-collinearity between the main effect and the interaction variables. Then, mean LMX and LMX differentiation were entered in Step 1, which yielded marginally significant $R^2$ for team innovation. Finally, as expected, the addition of the interaction term after the two main effect variables in Step 2 explained a significant amount of the variance in team innovation. The beta weights associated with the interaction term in both regression equations were significant.

All these regression analyses were presented in Tables 3 and the corresponding figure of interactions was depicted in Figure 1. Following Aiken and West’s (1991) guidelines, “low differentiation” corresponds to one standard deviation above the mean $r_{wg}$, and “high differentiation” corresponds to one standard deviation below the mean $r_{wg}$.

As shown in Figure 1, when team members reported differentiated relationships with their leader (high LMX differentiation), the relation between mean LMX and team innovation was strong and positive. However, when team members reported similar relationships (low differentiation), team innovation appeared moderate, and the relation between mean LMX and team innovation was weaker than in the high differentiation case, although it remained positive. The regression analyses showed that the interactions were significant, and the nature of the interactions supported Hypotheses 5.

**DISCUSSION AND CONCLUSION**

The primary aim of this research is to examine the effects of mean LMX on team innovation. The findings indicate that mean LMX positively affects team innovation via the team cooperation. Normally, higher LMX relationship quality may be in favor of fostering shared assumptions or consistent mental models among team members, thus lead team members to believe in their capacity to succeed. Team members may feel that they can succeed because they share expectations with leader and other members. These shared expectations may also contribute to improving trust and cooperation within team. In this situation, it will be more favorable to members’ communication, more helpful for knowledge sharing, so as to improve team innovation performance. Moreover, higher LMX relationship quality leads more emotion.
exchange among team leader and members, then the personal emotions are closer. These are benefit for the formation of team trust, so as to promote team cooperation and team innovation.

With respect to the interaction effect, as expected, when overall level of team LMX was high, the relationship between mean LMX and team innovation was stronger when team members reported differentiated relationships with their leader (high differentiation) than when they viewed their relationships as similar (low differentiation); however, when overall level of team LMX was low, the relations were stronger when low differentiation than high differentiation.

We try to explain the reasons and find when the mean LMX is low, higher differentiation will be easy to make employees explain the differentiation by leaders’ unfair behavior, thus produce more negative emotions, and influence on team communication and team cooperation, ultimately restrain team innovation. In contrast, when the difference is low, the distinction between in-group and out-group is not clear, thus communication relatively smooth between team members, to team members formed the shared mental models, thus to the benefit of innovation. When the mean LMX is high, higher differentiation means most members’ LMX quality is high, only a small fraction LMX is low. In this situation, low LMX member ascribe to internal factor, not to the leadership behavior, thus they will strengthen self-learning, industriously transform to the high LMX relationship. And the members with high LMX relationship will also have the sense of urgency, and make themselves better, consequently to promote the innovation of team level.

This research makes some contribution to both LMX theory and innovation theory. First, little research has investigated the effects of team-level LMX on team innovation. Results from this research provide the evidence that mean LMX has positive effects on team cooperation and team innovation. Second, this research is the joint effect of these variables, as LMX differentiation moderates the mean LMX-innovation associations. In particular, we find that LMX differentiation exhibited a similar moderating effect on the relationships between mean LMX and the consequences we examined.

Finally, cross-cultural studies of team-level LMX and differentiation have been conducted in some countries such as Canada, Great Britain, Australia, and Singapore, this study extended research on mean LMX and

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Table 2. Standardized betas for hierarchical regressions (N=245).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Analysis 1 Team cooperation</th>
<th>Analysis 2 Team innovation</th>
<th>Analysis 3 Team innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.09</td>
<td>-0.04</td>
<td>-0.05</td>
</tr>
<tr>
<td>Age</td>
<td>0.043</td>
<td>0.051</td>
<td>0.04</td>
</tr>
<tr>
<td>Team size</td>
<td>-0.21</td>
<td>-0.09</td>
<td>-0.08</td>
</tr>
<tr>
<td>Dyad tenure</td>
<td>0.10</td>
<td>0.11</td>
<td>0.21</td>
</tr>
<tr>
<td>Mean LMX</td>
<td>0.53**</td>
<td>0.43**</td>
<td>0.29*</td>
</tr>
<tr>
<td>Team cooperation</td>
<td></td>
<td></td>
<td>0.23*</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.18</td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>2.78*</td>
<td>5.74**</td>
<td></td>
</tr>
<tr>
<td>$R^2$ changed</td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td>$F$ changed</td>
<td></td>
<td></td>
<td>3.29*</td>
</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.

Table 3. Hierarchical regression analysis with team innovation as a criterion.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SEB</th>
<th>β</th>
<th>Adj $R^2$</th>
<th>$ΔR^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Mean LMX</td>
<td>0.36</td>
<td>0.21</td>
<td>0.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LMX differentiation</td>
<td>1.15</td>
<td>0.87</td>
<td>0.27**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean LMX</td>
<td>1.21</td>
<td>0.35</td>
<td>0.77**</td>
<td>0.34**</td>
<td>0.16*</td>
</tr>
<tr>
<td>LMX differentiation</td>
<td>1.32</td>
<td>0.81</td>
<td>0.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean LMX* LMX differentiation</td>
<td>-6.35</td>
<td>2.57</td>
<td>-0.64**</td>
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</tr>
</tbody>
</table>

*p < 0.05. **p < 0.01.
differentiation to Chinese context which made up for the inadequacy of the existing literatures and proved the effectiveness of LMX theory in China.

Although this study makes a contribution to the extant literature, there are limitations that must be highlighted. The first limitation is the use of cross-sectional self-report data. Thus, future research that uses a longitudinal methodology will be particularly useful in establishing the causal status of the variables examined in this study. The second limitation concerns that our sample may be considered somewhat unique, the generalizability of which might be questioned among the larger population. Hence, future research should replicate this study’s findings with a more diverse sample.

Another limitation is that our results may have problems related to common source and common method variance (CMV). But we conducted a Harmon one-factor test (Podsakoff and Organ, 1986) on the data, and the results of this test, which found that the first factor explained only 35% of the variance, provided evidence that CMV was not a pervasive problem. At the same time, extant research has shown that CMV actually decreases the probability of finding significant interactions (Wall et al., 1996).

The results of this study have practical implications for leaders’ decision-making within teams. Our findings provide evidence that the mean LMX and differentiation impacts important team innovation through the intermediary mechanism of team cooperation. The findings imply that leaders need to carefully handle LMX relationships among team members. In such teams requiring close collaboration of team members as R&D teams and scientific research teams, group solidarity is of primary importance and leaders may need to maintain an appearance of treating all team members equally. Second, in team-based organization, relationship building on the part of the leader needs to focus both on individual members as well as on the unity within the team (Cogliester and Shriesheim, 2000). According to this study results, these differentiated relationships will be beneficial if they are generally positive, in line with the postulates of LMX theory.

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mean LMX in explaining team-level outcomes. Leadersh Q. 17(3):246-257.


