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Conflict, Justice, and Inequality: Why Perceptions of Leader-Member Exchange Differentiation Hurt Performance in Teams

Abstract

To better understand why leader-member exchange (LMX) differentiation in teams may be detrimental to individual and team performance, we propose that member's perception of LMX differentiation (PLMXD) is more important than statistical measures of LMX differentiation. Specifically, we hypothesize a multilevel model in which relationship conflict and procedural justice (climate) mediate the relationship of individual and collective PLMXD with individual and team performance, respectively. Using a sample of 235 individuals in 53 teams, we found individual PLMXD was negatively related to individual performance through relationship conflict perceptions, controlling for LMX. At the team level, collective PLMXD was negatively related to team performance through procedural justice climate and relationship conflict, controlling for a statistical measure of LMXD. Theoretical implications and directions for future research are explored.

Keywords: leader-member exchange; differentiation; justice; conflict; multilevel

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A high quality leader-member exchange (LMX) relationship with one's leader—indicated by high levels of mutual trust, liking, respect, and loyalty (Liden & Maslyn, 1998)—is positively associated with individual performance (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Gerstner & Day, 1997; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016). However, it is not clear that a team leader can or should develop a high quality relationship with every team member, since not every team member will be equally capable and dependable (Bauer & Green, 1996). Instead, team leaders may choose to form relationships of differing quality with each of the team members, a process known as LMX differentiation (Dansereau, Graen, & Haga, 1975; Liden, Erdogan, Wayne, & Sparrowe, 2006).

The effects of LMX differentiation in teams are, however, unclear due to an inherent tension. Developing higher quality relationships with the most capable team members is consistent with the equity principle of reward fairness and is likely to promote individual performance, but inconsistent with the equality principle of reward fairness and may lead to a loss of harmony in the team (Leventhal, 1976). To better understand this important theoretical and practical issue, much of the research in this area has shifted from studying dyadic LMX to the team level and the consequences of LMX differentiation (Anand, Vidiyarthi, & Park, 2015). However, to date, research evidence has been inconclusive and contradictory (Anand et al., 2015; Martin, Thomas, Legood, & Dello Russo, 2018; Yu, Matta, & Cornfield, 2018). For example, the relationship between LMX differentiation and team performance has been found to be negative (Li & Liao, 2014), positive (Naidoo, Scherbaum, Goldstein, & Graen, 2011), or

curvilinear (Sui, Wang, Kirkman, & Li, 2016). Research on the impact of LMX differentiation on individual performance has been more limited, but has shown positive effects only under certain conditions, such as low individual LMX quality (Liden et al., 2006) and high levels of distributive justice climate (Haynie, Cullen, Lester, Winter, & Svyantek, 2014).

We argue that these inconsistent findings are due to three problems in the LMX differentiation literature that our work seeks to remedy. First, LMX differentiation has been operationalized in many different ways, including objective indirect statistical measures (i.e., standard deviation or variance of LMX scores within team), subjective indirect measures of the pattern of the relationships in the team, and (less often) subjective direct measures of perceptions of LMX differentiation (Martin et al., 2018). We discuss this issue in more detail in the next section. Second, as Martin et al. (2018) noted, the majority of researchers use indirect statistical measures of LMX differentiation, which is not well suited to capture the underlying explanatory concepts, such as justice (e.g., Chen, He, & Weng, 2018; Cobb & Lau, 2015; Erdogan & Bauer, 2010), social comparisons (e.g., Henderson, Wayne, Shore, Bommer, & Tetrick, 2008), and social identity perspectives (e.g., Sui et al., 2016). Such statistical measures reflect aggregate group properties that are not necessarily known to any individual team member, making it hard to understand how or why differentiation will affect team member attitudes and behavior. Third, perhaps related to the conceptualization of differentiation as a statistical group property, there has been little theoretical work explaining why and how LMX differentiation is related to both team and individual performance. Instead of focusing on explanatory mechanisms (i.e.,

mediators), much of the research has examined boundary conditions (i.e., moderators). As Yu et al. (2018) noted, although the moderator approach is informative, it usually relies on implicit assumptions about the logic relating differentiation to performance, but does not directly test such assumptions.

To address these limitations, we develop a novel approach to conceptualizing and operationalizing LMX differentiation at both the individual and team levels. We then test a multilevel mediated model explaining the LMX differentiation-performance relationship. Building upon Martin et al.'s (2018) argument, we introduce perception of LMX differentiation (PLMXD) as a construct that can be defined and measured at the individual and team levels. We define *individual perception of LMX differentiation* (individual PLMXD) as an individual's perception of the extent to which the leader treats some team members better than others. At the team level, we define *collective perception of LMX differentiation* (collective PLMXD) as members' shared perceptions of the extent to which the leader treats some team members better than others. We argue that individual and collective PLMXD negatively relate to individual and team performance, respectively, mediated by justice (climate) and relationship conflict.

Our study contributes to the LMX differentiation literature in three ways. First, we develop and validate the PLMXD construct. PLMXD is a construct that directly captures team members' perceptions that the leader treats some members better than others. From a theoretical perspective, it is better suited, than statistical measures of LMX differentiation, to test the effects of LMX differentiation on social construction processes, such as justice and conflict perceptions

(Martin et al., 2018). Given that most LMX differentiation research relied on social construction processes to explain the LMX differentiation-performance relationship, statistical measurements of LMXD is misaligned with the theory. PLMXD resolves this misalignment as it is a direct measure of LMX differentiation perceptions. Due to the ubiquitous use of indirect statistical measures, it has been overlooked how important individual perceptions of LMX differentiation are to explaining performance and to what extent indirect statistical measures overlap with actual perceptions of LMX differentiation. The potential gap between direct perceptual and indirect statistical measures is not uncommon in other literatures such as person-environment fit (see Kristof-Brown & Guay, 2011 for a review). Our development and empirical validation of the new PLMXD construct should thus facilitate future empirical testing of other theoretical mechanisms relating the consequences of LMX differentiation at the individual and team levels.

Second, our work extends the LMX differentiation literature by examining LMX differentiation in a way consistent with the subjective and emergent processes associated with differentiation at the individual and team levels. Our theoretical model is built upon an equality perspective of allocation preference theory (Leventhal, 1976), which argues that individual and collective PLMXD are negatively related to individual and team performance, respectively, because team members tend to prefer having resources equally, rather than equitably, allocated among team members. We provide conceptual explanations to explain why PLMXD captures the equality perspective better as well as clear and consistent empirical evidence with regard to the negative relationship between LMX differentiation and performance. We recognize that Yu and

colleagues (2018) found a positive direct relationship between LMX differentiation and team performance (in addition to a negative relationship), however, none of their mediators could explain this positive relationship. Further, their meta-analysis clearly showed that LMX differentiation is negatively related to team performance through several social construction processes such as justice and conflict. Consistent with this, we propose and test a negative relationship between PLMXD and performance through justice and conflict because PLMXD is likely to capture such social construction processes (Martin et al., 2018).

Third, we test the relationships of PLMXD not only with team performance but also with individual performance, which has been examined in only a handful of studies (e.g., Gooty & Yammarino, 2016; Haynie et al., 2014; Henderson et al., 2008; Liden et al., 2006). We note that Yu et al.'s (2018) meta-analysis is also limited to the team level. Because PLMXD is a perceptual measure, it can be examined at the individual or team level, with the latter as an emergent team perception. This helps validate our new PLMXD construct and produces greater clarity in the literature regarding the empirical effects of LMX differentiation in teams. Together, these contributions will help us understand the consequences of LMX for individuals and teams.

Perception of Leader-member Exchange Differentiation (PLMXD)

Theoretically, PLMXD captures individual team members' perceptions regarding the degree to which the leader treats team members differently through their behaviors and actions. Consistent with LMX theory (Liden & Maslyn, 1998), the leader's differential treatment may be based on liking, loyalty, support, and/or professional respect. In comparison, LMX

differentiation has been defined as the “process by which a leader, through engaging in differing types of exchange patterns with subordinates, forms different quality exchange relationships (ranging from low to high) with them” (Henderson, Liden, Glibkowski, & Chaudhry, 2009, p. 519). Most often, researchers operationalize LMX differentiation with a statistical measure of the varying LMX relationships within a team, such as the standard deviation or variance of members’ LMX scores. For this reason, we refer to this traditional measure of LMX differentiation as statistical LMX differentiation. PLMXD differs from statistical LMX differentiation in two important ways. First, PLMXD is a subjective, perceptual construct that directly captures the extent to which the member perceives the leader treats some group members better than others in terms of liking, loyalty, support, and respect. In contrast, statistical LMX differentiation is an objective, descriptive measure based on the range of LMX scores among the team members, where each team member assesses their own LMX quality with the leader. Second, PLMXD can be defined and measured at the individual or team level, whereas, statistical LMX differentiation can only be defined and measured at the team level; it is a team-level property.

As a team level construct, we expect perceptual similarities of PLMXD to exist within teams because team members work together within the same structural environment and under the supervision of the same team leader (Jones & James, 1979). In multilevel theory terms, we propose that collective PLMXD emerges as a team level construct via direct consensus (Chan, 1998), indicating that the conceptual meaning of collective PLMXD lies in the consensus among

individual members that their leader treats some member better than other members. We thus operationalize collective PLMXD as the mean level of the individuals' PLMXD within a team. The mean level of collective PLMXD can be described as ranging from low, where on average, members perceive that the leader does not differentiate among members, to high, where on average, members perceive that the leader does have different quality relationships.

Individual PLMXD is also distinct from other similar individual-level variables, including LMX social comparison (LMXSC; Vidyarthi, Liden, Anand, Erdogan, & Ghosh, 2010) and perceived LMX variability (Hooper & Martin, 2008). LMXSC is defined as the individual's "comparison between one's own LMX and that of coworkers" (Vidyarthi et al., 2010, p. 850). Like PLMXD, it is a subjective perception, but the focus is on one's relative LMX compared to others in the group. LMXSC is measured with scale items that ask individuals to indicate the degree to which their relationship with their manager is better than most other members in the group on attributes that define a high quality LMX relationship (e.g., support, loyalty, liking). Thus, LMXSC is both conceptually and operationally distinct from PLMXD, which does not concern whether one's own LMX relationship is better or worse than that of the other team members. Perceived LMX variability is defined as individual members' perceptions of "the amount of variability in LMX relationships...within their team" (Hooper & Martin, 2008, p. 21); its focus is on the pattern of LMX relationships within the team rather than the leader's behaviors toward team members. Perceived LMX variability is measured by asking each team member to rate the overall relationship quality between the leader and each of their team members (from

“very poor” to “very good”) and then the coefficient of variation is calculated for each individual. Thus, this is an indirect measure of the individual’s perception of the extent to which the leader treats each member differently, whereas our measure of PLMXD directly asks individuals their perceptions that the leader treats members differently based on the leader’s behaviors that demonstrate loyalty, support, and liking.

We believe that PLMXD plays a key role in explaining individual and team performance for three reasons. First, employees tend to respond to the work environment based upon their own perceptions, rather than objective reality per se, because perceptions can shape expectancies, instrumentalities, and emotional reactions (James, Hartman, Stebbins, & Jones, 1977). Second, LMX theory views the development of dyadic LMX relationships as a perceptual process involving a number of evaluative and attributional steps where members’ subjective interpretations of their exchange relationships with the leader is central (Dienesch & Liden, 1986). We believe a similar subjective process underlies the development of PLMXD. Despite the important theoretical role that individual perceptions of LMX play in LMX theory, individual’s perception of the leader’s behaviors that create LMX differentiation has not previously been directly assessed in the LMX literature. Third, as Martin et al. (2018) argued, individual’s direct perceptions of LMX differentiation may be more appropriate, than indirect measures, for examining social construction processes, such as justice and team dynamics, as we do in our theoretical model. This is because perceptual measures better capture subjective experiences than do indirect measures.

Taken together, we propose that PLMXD can manifest at both the individual and team levels. PLMXD is shaped not only by individuals' descriptive and cognitive representation of the leader's behaviors with regard to how they treat different members of the team, but also by structural attributes of LMX differentiation processes within a team. The latter is likely to cause PLMXD to be shared among team members. Yet, consensus will be made only to some degree because individual members are idiosyncratic and active perceivers and cognitive processors due to their own personal attributes and tendency to transform their perceptions into psychologically meaningful descriptions (Jones & James, 1979).

Hypothesis Development

We develop and test a multilevel model in which individual and collective PLMXD relate to individual and team performance, respectively, mediated by perceptions of procedural justice (climate) and relationship conflict.

LMX Differentiation and Performance: The Equality Principles

Team leaders face an inherent tension regarding the allocation of resources, including interpersonal resources such as support, loyalty, liking and respect, to team members (Dansereau et al., 1975). According to allocation preference theory (Leventhal, 1976), if the leader's intent is to increase task productivity, s/he should choose to adopt an equity principle and make allocations based on each member's contribution, capability, and dependability. This allocation norm optimizes the use of resources, incentivizing individuals to perform at higher levels. On the other hand, if maintaining social cohesiveness is the primary goal, the leader should choose to

adopt an equality principle, treating each member equally by allocating the same level of resources to each member (Leventhal, 1976). Such an allocation strategy is likely to deemphasize differences and encourage shared identity and shared goal pursuits. The tension arises because, although both task productivity and social cohesiveness are important in teams and organizations (Bales, 1950), the corresponding distributive rules cannot stand together; the equity rule is inherently and unavoidably incompatible with the equality rule (Kabanoff, 1991).

LMX processes are based on the equity principle by nature, since higher performing team members receive higher levels of resources and support (Dansereau et al., 1975). This implies high levels of LMX differentiation within a team, while consistent with equity principles, violates equality principles. How important is violation of equality principles likely to be to individual team members? Research on fairness perceptions shows that individuals, as opposed to leaders, prefer equality, over equity, as the distribution heuristic (De Cremer, 2003; Deutsch, 1975). The equality principle is simple to apply since it doesn't require deliberate calculation of input-output ratios (Snizek, May, & Sawyer, 1990); simply minimizing the differences in final outcomes provides a sense of fairness (De Cremer, 2003; Van Dijk & Wilke, 1994).

The preference toward equality is likely to become even stronger in group contexts. Equality norms are more strongly preferred in uncertain situations (Folger & Konovsky, 1989; Van Dijk & Wilke, 1994). Due to task interdependence, individual contributions cannot be unambiguously identified and measured in teams, creating performance uncertainty (Rynes, Gerhart, & Parks, 2005). In the face of this uncertainty, team members tend to compare

themselves with other members by heuristically judging whether they are receiving the *same* treatment (i.e., equality), rather than rationally calculating equity, the input and outcome ratio (Lind, 2001). Consistent with Martin et al.'s (2018) conclusion, we suggest that the equality principle plays a pivotal role in interpreting and reacting to LMX differentiation, especially individuals' subjective perceptions of differentiation. Accordingly, we expect that individuals in team contexts are likely to react negatively to perceived LMX differentiation within a team because it violates equality principles within the team (Gooty & Yammarino, 2016; Hooper & Martin, 2008; Van Breukelen, Konst, & Van Der Vlist, 2002).

PLMXD, Justice, and Performance

We expect the negative effect of PLMXD on performance to be partially mediated by procedural justice perceptions. Perceptions of procedural justice refer to the extent to which decisions are made using processes that are consistent, accurate, correctable and unbiased (Thibaut & Walker, 1975) and are formed based on three attributes of the team leader: neutrality, trustworthiness, and status (Tyler, 1989). Neutrality refers to the extent to which the leader treats everyone equally in an unbiased manner, trustworthiness refers to the extent to which members trust the leader will treat them in an unbiased manner, and status refers to the extent to which the leader communicates social information regarding one's own social status (Chen et al., 2018). We propose that these three components of procedural justice capture the equality perspective and carry over the impact of PLMXD to performance at the individual and team levels.

At the individual level, perceived LMX differentiation is likely to make individuals concerned with whether the leader displays the three justice attributes (status, neutrality, and trustworthiness). Members who perceive that the leader provides more support and resources to some members relative to other members (i.e., high PLMXD), may be more concerned with their social status and social inclusion. This is because LMX differentiation creates a social context in which a social status hierarchy exists among team members as a result of the leader's differentiated LMX relationships (Hooper & Martin, 2008). When status concerns are salient, individuals tend to become highly attentive to the leader's justice attributes (Van Prooijen, Van den Bos, & Wilke, 2002). Perceptions that the leader treats team members differently may also lead to team members believing their leaders are more biased in their behaviors and actions towards some team members (the violation of neutrality; Hooper & Martin, 2008). Furthermore, team members who perceive high PLMXD may have more doubts about the leader's implicit good intentions regarding his or her willingness to develop high quality relationships with team members, thereby questioning the leader's trustworthiness (the violation of trustworthiness; Tyler, 1989). In sum, due to the salient manifestation of status concerns and violations of neutrality and trustworthiness principles, PLMXD is likely to be detrimental to procedural justice perceptions (Chen et al., 2018).

Decreased levels of procedural justice perceptions are, in turn, critical to individual performance because they influence individuals' sense of their self-worth and value to the team (Tyler & Lind, 1992). Uncertainty regarding one's standing in the team impedes performance

because it is an off-task distraction that limits the amount of time and attention the individual can devote to work tasks, performance improvement, and job success (Colquitt, LePine, Piccolo, Zapata, & Rich, 2012).

At the team level, we expect there is a similar functional effect (Morgeson & Hofmann, 1999) of PLMXD on performance, such that collective PLMXD and team performance is partially mediated by procedural justice climate (e.g., Chen et al., 2018; Yu et al., 2018). Procedural justice climate is the degree to which individual perceptions of procedural justice is shared among team members (Naumann & Bennett, 2000; Roberson & Colquitt, 2005). When team members share perceptions of LMX differentiation, they are likely to share perceptions that the leader is biased against some group members and creates social hierarchy within a team. Low levels of procedural justice climate have been shown to be negatively related to team performance (Colquitt, Noe, & Jackson, 2002).

Hypothesis 1a: Procedural justice partially mediates the negative relationship between individual perceptions of LMX differentiation and individual performance.

Hypothesis 1b: Procedural justice climate partially mediates the negative relationship between collective perception of LMX differentiation and team performance.

PLMXD, Conflict, and Performance

We propose that a second mechanism that may explain the negative relationship between PLMXD and performance is relationship conflict. Relationship conflict occurs when team members perceive interpersonal incompatibilities with other members that include feelings of

tension, friction, dislike, annoyance, frustration, and irritation (Jehn & Mannix, 2001). As we have argued, the principle of equality (rather than equity) is most likely to preserve harmonious working relationships and solidarity within a team (Meindl, 1989; Yu et al., 2018), and thus, we expect PLMXD to be positively related to relationship conflict.

At the individual-level, members who perceive high LMX differentiation in the team, are likely aware that a status hierarchy exists within the team (Liden et al., 2006; Sparrowe, Soetjito, & Kraimer, 2006). Due to the psychological impact of status differences on team members' own self-evaluations, members may develop feelings of interpersonal dislike, tension, and friction towards their team members, which is manifested as relationship conflict (Jehn & Mannix, 2001). Such negative emotions and perceived conflict tend to decrease individuals' cognitive and attentional capacities, thereby inhibiting them from performing tasks (Carnevale & Probst, 1998; Jiang, Zhang, & Tjosvold, 2013). Due to depleted attentional resources, team members tend to simplify or reduce channels through which information is exchanged and processed and to restrict their scope of information processing (Staw, Sandelands, & Dutton, 1981). As such, individual performance is undermined.

At the team level, when there is agreement among the team members that the leader treats some members better than others (e.g., high collective PLMXD), the team members are unlikely to share a sense of membership in the team as a whole. Instead, in- and out-group members may categorize themselves into different subgroups (Hogg, Martin, & Weeden, 2003), which often leads to subgroup members having more hostility and/or dissatisfaction towards the other

subgroup members such that there is collective agreement that relationship conflict exists within the team (Jehn & Bezrukova, 2010). Thus, high levels of collective PLMXD is expected to be positively related to collective relationship conflict. Relationship conflict means that team members will need to resolve off-task issues collectively, which drains tangible and intangibles team resources that otherwise could be used more efficiently to attain team goals and objectives (De Wit, Greer, & Jehn, 2012). Depleted cognitive resources from individuals can interfere with team information processing capacity and collaborative problem solving (De Dreu & Weingart, 2003; De Wit et al., 2012). They also suffer from destructive team processes including the lack of team trust (Langfred, 2007), team cohesion (Jehn & Mannix, 2001), and positive team affect (Janssen, Van de Vliert, & Veenstra, 1999), which in turn obstruct team performance.

Hypothesis 2a: Relationship conflict partially mediates the negative relationship between individual perception of LMX differentiation and individual performance.

Hypothesis 2b: Collective relationship conflict partially mediates the negative relationship between collective perception of LMX differentiation and team performance.

Pilot Study

Before testing our hypothesized model, we developed six items to measure PLMXD per our definition (see Appendix A). We developed one general item regarding the differentiated pattern of LMX relationships within a team (Item 1), one general item about differential treatment from the leader (Item 2), and then one item for each of the four dimensions from the LMX-MDM scale (affect, contribution, loyalty, and respect). These four items were closely

based on the LMX-MDM scale so that they assess the leader's behaviours towards team members in terms of liking, support, loyalty, and respect (c.f., Liden & Maslyn, 1998).

Our new measure of PLMXD was necessary because previous measures of perceptions of LMX differentiation within a team (Hooper & Martin, 2008; Van Breukelen et al., 2002) have conceptual limitations. In particular, Van Breukelen et al. (2002) measured perceived differential treatment in friendliness and feedback, which does not reflect the conceptual definition of perceived LMX variability (Hooper & Martin, 2008). Hooper and Martin's (2008) scale is an indirect measure of LMX variability and is based on a single item of overall relationship quality between the leader and each member, which is unlikely to capture the construct reliably. We also note that Mayer, Erdogan, and Piccolo (2008) developed a four-item measure, but the scale consists of four general items regarding a differentiated pattern of LMX relationships within a team, whereas our PLMXD scale items focus on leader's behaviors and actions toward members.

In this Pilot study, we examined the psychometric properties of the six items using data from three on-line panel samples. We examined the six-item scale's reliability, convergent and discriminant validity, and nomological network. For convergent validity, we examined whether PLMXD is positively related to two theoretically related measures: Mayer et al.'s (2008) LMX differentiation scale and Hooper and Martin's (2008) perceived LMX variability. For discriminant validity, we performed confirmatory factor analyses (CFAs) with three related constructs: supervisory justice (Folger, 2001), LMXSC (Vidyarathi et al., 2010), and LMX (Liden & Maslyn, 1998). We also calculated average variance extracted and composite reliability. We

expect PLMXD to be distinct but negatively correlated with supervisory justice because differentiated treatment by the leader increases unfairness perceptions within a group (Chen et al., 2018), challenges expectations of fair treatment in the future, and undermines team members' trust in the leader's intentions underlying the leader's differential treatment (Liden et al., 2006). We also expect PLMXD to be positively associated with LMXSC because the higher LMXSC is, the greater differences exist between one's and other members' standings. We did not expect PLMXD to be theoretically correlated with LMX because one's own relationship quality with the leader does not itself infer whether the leader treats some members better than others; they are independent constructs. Finally, we examined criterion validity of PLMXD on two work attitudes: job satisfaction and turnover intention. Given its hypothesized association with procedural justice, we expect that PLMXD is related to job satisfaction (negatively) and turnover intention (positively).

Participants and Procedures

Sample 1. We collected two waves of data using Qualtrics, a third-party online survey administration company. Sample 1 consists of those who responded to the first wave. At the beginning of the survey, respondents working at Australian workplaces were asked a set of screening questions without any information regarding desirable sample characteristics for this study. The first three questions asked respondents if they currently worked 20 hours or more, interact with a leader, and work with more than three coworkers reporting to the same leader. If they answered no to any of these three questions, they were not allowed to continue with the

survey. Respondents were not aware that these three questions were screening questions. To eliminate careless responses, we asked a screening question on the first page of the survey: “Do you commit to thoughtfully provide your best answer to each question in this survey?” The survey continued only when respondents chose the option “I will provide my best answers.” In the middle of the survey, we also included two additional screening items: “How much effort did you put towards this survey?” and “How much attention did you pay to this survey?” If respondents chose either “Almost none” or “Very little”, the respondent was removed from the data. In addition, we also used four of the bogus items developed by Meade and Craig (2012), placing one item per page (screen). After screening, we collected 723 completed responses in the Time 1 data. We then removed respondents who completed the Time 2 survey sent three months later (see Sample 2) so that Sample 1 consists of 463 respondents who only completed the Time 1 survey. In terms of demographic characteristics, 41.5 percent of the Sample 1 respondents were male. Their average age was 40.4 years (s.d. = 11.6 years), and 57 percent of the respondents held a bachelor or higher degree. On average, they work 37.7 hours a week (s.d. = 8.5 hours), and their average team size was 11.9 (s.d. = 6.1).

Sample 2. Sample 2 consists of the unique respondents who completed both Time 1 and Time 2 surveys as described above. The Time 2 survey was sent three months later to the 723 respondents who replied at Time 1. The same items were used to eliminate careless responses, and data was matched by their own panel identification code. A total of 295 respondents attempted the Time 2 survey. However, 35 respondents (11.9%) were screened out by the

screening items, resulting in 260 completed responses for Sample 2 (subjects did not overlap across the two samples). With regard to demographic characteristics, 58.3 percent of the respondents were male. Their average age was 49 years (s.d. = 12.1 years), and 48.6 percent of the respondents held a bachelor or higher degree. On average, they work 36.8 hours a week (s.d. = 9.3 hours), and their average team size was 11.8 (s.d. = 6.2).

We checked for potential response bias between Sample 1 (those who only completed the Time 1 survey) and Sample 2 (those who completed both surveys) on demographic variables, including age, gender, working hours per week, education level, and team size. The results showed that the two samples are different in age ($t = -9.78, p < .001$) and education level ($\chi^2 [5] = 11.57, p < .05$). To minimize potential response bias, we used them as control variables when we test criterion validity of PLMXD (see Table 5).

Sample 3. We collected additional cross-sectional data using Qualtrics with the same procedures as used for Samples 1 and 2. After screening, we collected 202 completed responses. In Sample 3, 41.9 percent were male. Their average age was 36.3 years (s.d. = 12.0 years), and 51.1 percent of the respondents held a bachelor or higher degree. On average, they worked 36 hours a week (s.d. = 8.8 hours), and their average team size was 12 (s.d. = 6.0).

Measures

The respondents in Sample 1 completed the survey containing PLMXD, LMX, LMXSC, and supervisory justice scales at Time 1 only, whereas the respondents in Sample 2 completed the surveys containing PLMXD, LMX, LMXSC, and supervisory justice scales at both Time 1

and Time 2 along with job satisfaction and turnover intention scales at Time 2. The respondents in Sample 3 completed the survey containing PLMXD, LMX, leader-member social exchange (LMSX), perceived LMX standing, LMX variability, and Mayer et al.'s (2008) LMX differentiation scale. Except for perceived LMX standing and perceived LMX variability, we used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree),

LMX was assessed with the 12 item LMX-MDM scale (Liden & Maslyn, 1998). *LMXSC* (*social comparison*) was measured by Vidyarthi et al.'s (2010) six item scale. We measured *supervisory justice* by modifying Ambrose and Schminke's (2009) 6-item overall justice measure. All the items referred to their supervisor's treatments, rather than organizational fairness. We measured *LMSX* with the eight items developed by Bernerth, Armenakis, Feild, Giles, and Walker (2007). *Perceived LMX standing* was measured by a single item used in Hooper and Martin (2008), and *perceived LMX variability* was measured by the single item LMX distribution measure (Hooper & Martin, 2008). *Job satisfaction* was measured with Dunham and Smith's (1979) two items, and *turnover intention* was assessed using five items developed by Wayne, Shore, and Liden (1997). Cronbach alpha coefficients for all the measures are presented in Tables 1-3.

 Insert Tables 1-3 about here

Results

First, we performed exploratory factor analysis (with principal axis factoring) using data from Sample 1 ($N = 463$) to examine the dimensionality of the six items. The results supported that the one-factor solution fit the data well. Only one factor was found to have an eigenvalue greater than one, and the scree plot clearly showed one factor emerged before the “elbow”. The total eigenvalue was 4.04 and the single factor explained 67.3% variance in the PLMXD construct. All factor loadings for the six items ranged from .72 to .88 (see Appendix A). Thus, these results support the unidimensional structure of PLMXD.

Second, we performed CFAs using data from Sample 2 ($N = 260$) via MPlus 8.3 (Muthén & Muthén, 1998-2019) to verify the unidimensional factor structure of our new 6-item PLMXD scale. In this sample, PLMXD was measured at both Time 1 and Time 2 (3 months apart). The results showed the hypothesized one factor model fits both Time 1 and Time 2 data well (Time 1: $\chi^2 = 55.69$, $df = 9$; comparative fit index [CFI] = .96; Tucker Lewis index [TLI] = .94; standardized root mean square residual [SRMR] = .03; Time 2: $\chi^2 = 64.62$, $df = 9$; CFI = .96; TLI = .94; SRMR = .04). Factor loadings for the six items ranged from .76 to .92 (Time 1) and from .73 to .93 (Time 2) (see Appendix A).

Third, in regard to reliability, Cronbach’s alpha coefficients for the scale were above .90 (see Tables 1-3). Similarly, composite reliability values (Fornell & Larcker, 1981) were .92 for Sample 1, .94 for Sample 2 (Time 1), .94 for Sample 2 (Time 2), and .92 for Sample 3. Using data from Sample 2, we also assessed its test-retest reliability over three months; the bivariate correlation between Time 1 and Time 2 scores of PLMXD was significant ($r = .64$; $p < .05$) and

higher than any other correlations of PLMXD with the three constructs across Time 1 and Time 2 (see Table 2).¹

Fourth, we assessed convergent validity using data from Sample 3 by examining the correlations of PLMXD with two closely related measures. The correlations with Mayer et al.'s (2008) 4-item measure of perceived LMX differentiation and Hooper and Martin's (2008) perceived LMX variability were significant and positive, .69 and .34, respectively (see Table 3). The somewhat strong correlation between PLMXD and perceived LMX differentiation is likely due to both measures tapping into perceptions of differentiated LMX relationships within a team in general (e.g., "some group members have a better relationship with my manager than others"); yet we argue these are distinct in that our measure assesses not only general perceptions but also perceptions of leader behaviors and actions toward members (e.g., "my manager seems to like some group members more than others").

Fifth, we examined the extent to which PLMXD is a distinct construct from each related construct (i.e., LMX, LMSX, LMXSC, and supervisory justice) with separate CFAs. We compared a two-factor model (PLMXD is distinct from each related construct) with a one-factor model (PLMXD is not distinct from each related construct). We used four item parcels corresponding to the theoretical sub-dimensions as indicators of LMX and item scores for the other constructs. With respect to all constructs, the results of χ^2 difference tests showed that the two factor models fit the data better than the one factor models, supporting that PLMXD is distinct from the other relevant constructs (see Table 4). We also calculated average variance

extracted (AVE; Fornell & Lacker, 1981) and composite reliability of PLMXD. Specifically, the AVE values were .67 for Sample 1, .71 for Sample 2 (Time 1), .73 for Sample 2 (Time 2), and .67 for Sample 3. These AVE values were greater than any squared correlations of PLMXD with these related constructs.

Finally, with regard to criterion validity, PLMXD at Time 1 in Sample 2 was significantly correlated with job satisfaction at Time 2 ($r = -.31, p < .001$) and turnover intention at Time 2 ($r = .36, p < .001$); see Table 2. We also tested whether individual PLMXD predicts job satisfaction and turnover intention above and beyond related constructs. The results are shown in Table 5, PLMXD was significantly and positively related to turnover intention ($\beta = .16, p < .01$) but not significantly related to job satisfaction ($\beta = -.09$) after controlling for demographic variables and related constructs.

 Insert Tables 4 & 5 about here

Overall, these results provide support for the convergent and discriminant validity of the perceived LMX differentiation construct vis-à-vis the other three constructs measured at the individual level. As we expected, PLMXD is negatively correlated with supervisory justice and job satisfaction and positively correlated with turnover intention. It is notable that the correlations between PLMXD and LMXSC were only significant and positive in Sample 1 but not in Sample 2 (both Time 1 and Time 2).

Primary Study: Methods

Participants and Procedures

We recruited a total of 767 team members from 121 work teams in three organizations in South Korea and two organizations in the United States for survey participation. These five organizations have formally implemented work teams: tax and auditing teams in two of the organizations, one each in the US and South Korea; financial service teams at a US general hospital; research and development teams at a South Korean manufacturing company; and business planning teams at another South Korean manufacturing company. Data were collected from team members and team leaders.

Each team member was asked to rate the quality of his or her LMX relationship with the team leader, as well as perceptions of distributive and procedural justice, PLMXD, task and relationship conflict, and demographics. Once the team member had completed this Time 1 survey, team leaders were contacted and asked to rate each team member's performance. We received responses from 422 team members (56.1%) representing a total of 110 teams. Twenty-two team members' responses were subsequently excluded because the identification numbers for their team membership were omitted or incorrect. For team leaders, 78 completed the survey providing their ratings on each team member's performance and demographics, yielding a team leader response rate of 70.9%. After data aggregation, 55 teams provided data from three or more team members and leaders, justifying their use as a team (e.g., Tracey & Tews, 2005), yielding an effective team response rate of 50%. Three months later, team performance was measured from the second-level supervisors. We further excluded two teams because their low levels of

agreement on PLMXD and relationship conflict (r_{wg} values are lower than .60). The final sample consists of a total of 235 team members from 53 teams (39 teams from South Korea and 14 teams from USA; average team size = 4.43). Within-team response rate ranged from 50% to 100%, with a mean of 78.1%.

In terms of demographics, 58.9 percent of the team members were male. Their average age was 36.2 years (s.d. = 9.2 years), their average organizational tenure was 4.17 years (s.d. = 5.77 years), and their average team tenure was 1.86 years (s.d. = 2.44 years). They were well-educated with 81.3 percent of the team members holding a bachelor's or higher degree. Most (75.1 percent) were Asian.

Measures

For the South Korean employees, the scale items were translated into Korean. To verify the appropriateness and accuracy of translation of survey items, the items were translated into Korean and then back-translated into English by two different people fluent in English and Korean (Brislin, 1980). All ratings were made on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Leader-member exchange. LMX was assessed with the LMX-MDM (Liden & Maslyn, 1998). LMX-MDM is a 12-item measure which has four subscales with three items each: Affect (e.g., "I like my supervisor very much as a person"), Loyalty (e.g., "My supervisor defends my work actions to a superior, even without complete knowledge of the issue in question"), Contribution (e.g., "I do work for my supervisor that goes beyond what is specified in my job

description”), and Professional respect (e.g., “I am impressed with my supervisor’s knowledge of his/her job”). A second-order CFA using the individual level data in this study revealed that the four dimensions loaded on a second-order factor (γ s ranged from .56 to .83), and this second-order factor structure fit the data relatively well ($\chi^2 = 150.49$, $df = 50$; CFI = .96; TLI = .94; SRMR = .06). Accordingly, we aggregated the 12 items to measure overall LMX. Coefficient alpha for the aggregated scale was .93.

Perceived leader-member exchange differentiation. Team members rated PLMXD by using the same measure we developed in the Pilot Study (see Appendix A). The six items were averaged to create a scale score ($\alpha = .92$).

Collective perception of leader-member exchange differentiation. We averaged team members’ responses to the PLMXD items to measure collective perception of LMX differentiation. To justify data aggregation among the team members, we performed a one-way analysis of variance (ANOVA) and examined between-group variability and the reliability of the group means of PLMXD scores based on the intraclass correlations—the values of ICC (1) and ICC (2)—and F value. We examined within-group agreement by calculating $r_{wg(j)}$ values (James, Demaree, & Wolf, 1984). These values are ICC (1) = .24; ICC (2) = .59; median $r_{wg} = .96$ (ranging from .81 to 1.0); $F(52, 234) = 2.42$, $p < .001$).

Procedural justice. Team members reported their perceptions of procedural justice using Niehoff and Moorman’s (1993) six items. A sample item is “In this team, all job decisions are

applied consistently across all affected team members.” The six items were averaged to create a scale score ($\alpha = .86$).

Procedural justice climate. To measure procedural justice climate, we averaged team members’ procedural justice scores. The values of ICC (1) and ICC (2), F value, and median $r_{wg(j)}$ value are: ICC (1) = .23; ICC (2) = .57; ; $F(52, 234) = 2.34, p < .001$; median $r_{wg} = .96$ (ranging from .89 to .99).

Relationship conflict perception. The members reported their perceptions of relationship conflict within a group by responding to the 3-item measure developed by Jehn and Mannix (2001). A sample item is “How much relationship tension is there in your work group?” The three items were averaged to create a scale score ($\alpha = .90$).

Collective relationship conflict. The relationship conflict score at the team level was calculated by averaging the team members’ scores. The values of ICC (1) and ICC (2), F value, and median $r_{wg(j)}$ value are: ICC (1) = .11; ICC (2) = .36; $F(52, 234) = 1.57, p < .05$; median $r_{wg(j)} = .93$. $r_{wg(j)}$ values, ranged from .61 to .99.

The $r_{wg(j)}$ and ICC (1) values lend support for aggregation because these values show there is an acceptable amount of within-group agreement and between-group variance in the PLMXD, procedural justice, and relationship conflict scores (Bliese, 2000). It should be noted, however, that the ICC (2) value, the reliability of group means, is lower than desired (typically .70) for all of the team level constructs. It may be in part due to the small sizes of work groups in the current sample, which is typical in many organizational survey studies (Bliese,

2000). Further we note that ICC (2) values pertain to the reliability of the mean scores, rather than agreement among team member scores. Despite the low ICC (2) value, we therefore decided to aggregate these three variables to the team level. Particularly with regard to relationship conflict, we note that low ICC values of these scales are not uncommon in the conflict literature (Ayoko & Chua, 2014). For instance, Woehr, Loignon, Schmidt, Loughry, and Ohland (2015) reported that the mean ICC (2) value of relationship conflict was -.44, respectively, in their student team dataset (39,109 students nested within 9,660 teams from 1,064 classes at 195 institutions). Furthermore, the ICC (2) values lower than .70 were reported for the relationship conflict scale in 73% of their data set. Thus, we note that the group level examination of these constructs is still consistent with most team research.

Individual task performance. Team members' task performance was rated by their team leaders using three items (quality of work output, quantity of work output, and accuracy of work) developed by Welbourne, Johnson, and Erez (1998). The three items were averaged to create a scale score.

Team performance. Three months later, team performance was rated by upper-level supervisors using a 3-item measure ($\alpha = .91$) developed by Schaubroeck, Lam, and Cha (2007). An example item is "This team gets its work done very effectively."

Control variables. Following Spector and Brannick's (2011) recommendations to include control variables that may influence the hypothesized relations, we controlled for the following variables to test the hypotheses. First, we controlled for individual LMX to rule out its potential

impact on justice perceptions and individual performance. Second, we controlled for statistical LMX differentiation (i.e., the standard deviation within a team) to test the effect of collective PLMXD. As highlighted above, we test the role of team members' PLMXD, suggesting that collective PLMXD is significantly and negatively related to team performance above and beyond statistical LMX differentiation within a team. Furthermore, we also controlled for team mean LMX because means and standard deviations across teams can be confounded due to artifactual overlap (Harrison & Klein, 2007). Third, we controlled for team size and four dummy variables for the five organizations (organization 5 was the excluded category). These four dummy variables also control for nation (US vs. South Korea) as organizations 1-3 contain only South Korean employees and organizations 4 and 5 contain only US employees.²

Testing Discriminant Validity

To test the discriminant validity of study variables at the individual level, we compared the hypothesized five-factor model of LMX, individual PLMXD, procedural justice, relationship conflict, and task performance to several alternative models with CFAs. We used four item parcels as indicators of LMX and item scores for the other constructs. CFA results indicated that the hypothesized model of five factors fit the data well ($\chi^2 = 479.97$, $df = 199$; CFI = .91; TLI = .90; SRMR = .06). For the alternative models, we combined PLMXD with LMX (Model 1), relationship conflict (Model 2), procedural justice (Model 3), and task performance (Model 4). We also tested a rater effect by combining all of the four member-rated variables (LMX, PLMXD, relationship conflict, and procedural justice) into one factor and specifying task

performance as a second factor (Model 5). None of these alternative models fit significantly better than the hypothesized five-factor model as judged by a chi-square difference test; Model 1: $\Delta\chi^2(1) = 127.00$ ($p < .001$); Model 2: $\Delta\chi^2(1) = 230.32$ ($p < .001$); Model 3: $\Delta\chi^2(1) = 414.11$ ($p < .001$); Model 4: $\Delta\chi^2(1) = 322.26$ ($p < .001$); Model 5: $\Delta\chi^2(6) = 844.11$ ($p < .001$). In the five-factor model, all the factor loadings were statistically significant ($p < .001$). These results provide support for the discriminant validity of the constructs measured at the individual level.

Analysis

To test the Hypotheses, we used MPlus 8.3 (Muthén & Muthén, 1998-2019) specifying a two-level analysis to estimate all the path coefficients simultaneously. LMX was group-centered at the Level 1 and group mean of LMX was reintroduced at the Level 2 so that the effect of LMX at the Level 1 captures a within-group effect of LMX. In addition, PLMXD, relationship conflict, and procedural justice at the individual level were grand-mean centered, so as to examine the unique effect of PLMXD at one level controlling for the effect of PLMXD at the other level (Enders & Tofighi, 2007).

Results

Table 6 shows means, standard deviations, reliabilities, and zero-order correlations of the variables. Individual PLMXD was significantly correlated with procedural justice ($r = -.36$, $p < .001$), relationship conflict perceptions ($r = .53$, $p < .001$), and individual performance ($r = -.26$, $p < .001$). Collective PLMXD was significantly correlated with procedural justice climate ($r = -.49$, $p < .001$), relationship conflict ($r = .61$, $p < .001$), and team performance ($r = -.35$, $p < .05$).

It is also notable that statistical LMX differentiation and collective PLMXD was not significantly correlated ($r = .09$, *n.s.*).

To test our hypotheses, we first estimated all the paths simultaneously. The model included the direct paths from individual PLMXD and collective PLMXD to individual and team performance, respectively (i.e., a partial mediation model). This model fit the data well ($\chi^2 = 5.17$, $df = 2$, $p = .075$; CFI = .99; SRMR_{within} = .02; SRMR_{between} = .02). We then calculated total, direct, and indirect effects of individual and collective PLMXD on individual and team performance (Table 7). Following the Edwards and Lambert's (2007) approach, we also calculated bootstrapped bias-corrected 95% confidence intervals (CIs) around path estimates to examine whether each path estimate is different from zero.

 Insert Tables 6-7 about here

We predicted that the relationship between individual PLMXD and individual performance is mediated by procedural justice (Hypothesis 1a) and relationship conflict perception (Hypothesis 2a). Although PLMXD is negatively related to procedural justice, the relationship between individual PLMXD and individual performance was not significantly mediated by procedural justice (coefficient = $-.02$, 95% CI = $[-.06, .02]$). On the other hand, the indirect effect of individual PLMXD on individual performance was negative and significant through relationship conflict perceptions (coefficient = $-.06$, 95% CI = $[-.12, -.00]$). Therefore, only Hypothesis 2a was supported.

We also predicted that the relationship between collective PLMXD and team performance is mediated by procedural justice climate (Hypotheses 1b) and collective relationship conflict (Hypotheses 2b). We found both indirect paths significant and negative; collective PLMXD negatively related to team performance through procedural justice climate (coefficient = $-.14$, 95% CI = $[-.20, -.00]$). The indirect effect of collective PLMXD on team performance was negative and significant through relationship conflict as well (coefficient = $-.26$, 95% CI = $[-.51, -.00]$). Therefore, both Hypotheses 1b and 2b were supported. Additionally, the relationship between PLMXD and performance was fully mediated by procedural justice and relationship conflict at both the individual and team levels. The results are presented in Figure 1 (see Appendix B for the results of the full model with control variables).⁴

 Insert Figure 1 about here

In summary, our findings showed that (a) PLMXD is negatively related to performance at the individual and team levels and (b) the PLMXD-performance relationship is mediated by relationship conflict perceptions at the individual level and by procedural justice climate and relationship conflict at the team level. In the following section, we will discuss our findings and their implications for theorizing the role of perceptions in understanding the impact of LMX differentiation at the both individual and team levels.

Discussion

Whether LMX differentiation promotes or impedes performance in teams has been a critical question in the LMX literature. In the recent meta-analysis, Yu et al. (2018) concluded that “differentiation should not be thought of as being unilaterally good or bad (Anand et al., 2015), but as having tradeoffs that must be fully considered within the workgroup context” (p. 1179). We made a case, however, that the current measures of LMX differentiation (i.e., standard deviation or variance of members’ LMX scores) may not capture the individual’s experience of LMX differentiation. Instead, we tested the PLMXD-performance relationship by focusing on a perceptual nature of LMX differentiation and tested a multilevel model of PLMXD and individual and team performance. Our results have implications for LMX theory and practice.

Theoretical Implications

Our first contribution is that we developed and validated a new construct, PLMXD, capturing a direct measure of LMX differentiation that also focuses on whether the leader treats some members better than others. We, along with others (e.g., Chiniara & Bentein, 2018; Martin et al., 2018; Mayer et al., 2008), argue that a direct measure of LMX differentiation based on the individual’s own perceptions is most likely to capture social construction processes, such as justice, social comparisons, or role identity, thought to underlie the effects of differentiation. At the same time, we argue that the best way to resolve disputes regarding the nature of the LMX differentiation effect is to have a direct measure that is not confounded with any one of these specific theoretical perspectives so that alternative mechanisms can be tested. Our six-item scale was found to be a reliable measure capturing individual PLMXD, and this construct was

distinguishable from other relevant constructs such as LMX, LMSX, LMXSC, and supervisory justice perceptions. We also provided evidence showing that individual PLMXD is positively related to turnover intention above and beyond LMX, LMXSC, and supervisory justice. These findings demonstrate that individual PLMXD is related to key attitudinal outcomes in meaningful ways. Furthermore, we showed PLMXD can be shared among team members and varies in meaningful ways between teams; 20 percent of variance in PLMXD was manifest between groups. This level of between-groups variance is consistent with that found in Chiniara and Bentein's (2018) study that used Mayer et al.'s (2008) measure. Together, these results suggest that PLMXD is a valid construct of the team member's perception that the leader treats some members better than others and can be used at both the individual and group levels of analysis.

Second, we developed a theoretical framework and provided empirical evidence to help resolve questions surrounding the effects of LMX differentiation in teams. Our results showed that individual and collective PLMXD are detrimental to individual and team performance. Our results suggest that we may revisit the current conclusion in the LMX differentiation literature that the LMX differentiation-performance relationship is neither positive nor negative (Liden et al., 2006; Yu et al., 2018). Our empirical evidence clearly showed that team members' PLMXD is more strongly and negatively related to individual and team performance than one's own LMX or differentiated patterns of LMX relationships within a team (e.g., standard deviation of LMX within a team). Thus, our findings emphasize the criticality of subjective experiences of LMX

differentiation in a team as the key variable to explain how team members react, in terms of performance, to differentiated treatment by the leader.

It is important to highlight the fact that our multilevel model included a full range of LMX and LMX differentiation constructs simultaneously at the individual and team levels: individual and collective PLMXD as well as all three statistical properties of LMX differentiation (LMX team mean, LMX differentiation assessed as standard deviation, and individual LMX standing within a team). By doing so, we tested the complex and nuanced nature of LMX differentiation process within a team, and accordingly advanced our current knowledge of how LMX differentiation influences performance at the both levels. In addition, separating individual and collective PLMXD, we also provided evidence showing that individual level (or within) effect is distinguishable from team level (or compositional) effects (Raudenbush & Bryk, 2002) and that both effects can explain significant variance in performance. Taken together, our findings make a critical contribution to theoretical advancement in the LMX differentiation research by demonstrating that PLMXD is significantly and negatively related to both individual and team performance above and beyond LMX, team mean LMX, and statistical LMX differentiation. We take Martin et al.'s (2018) theoretical discussion one step further because they proposed that PLMXD explains LMX differentiation processes only at the individual level.

Third, we provide an important theoretical implication to the LMX literature by demonstrating that the indirect negative relationship between PLMXD and performance is mediated by relationship conflict perceptions at the individual level and by procedural justice

climate and relationship conflict at the team level. This is interesting because both procedural justice and relationship conflict can be two strong explanatory mechanisms relevant to the equality principle of resource allocation. As noted earlier, when team members perceive high levels of LMX differentiation, they tend to be anxious about whether team members are equally treated by the leader. If unequal, they are likely to suffer from high levels of relationship conflict (Heider, 1958) and low levels of procedural justice (Cobb & Lau, 2015). Thus, we demonstrated that a justice and conflict perspective of resource allocation can be applied to link LMX differentiation to team performance, when LMX differentiation is measured as a shared perception among team members. At the individual level, we note that procedural justice did not mediate the PLMXD-performance relationship due to its weak effect on individual performance, but it was related to PLMXD. Our finding advances the LMX differentiation literature by suggesting that equality plays a pivotal role in understanding the impact of LMX differentiation not only on team emergent states and processes (Yu et al., 2018) but also on individual's perceptions of team processes and fairness.

Practical Implications

Our findings also have important implications for managerial practices by highlighting the role of PLMXD in explaining why high LMX differentiation teams and their team members perform worse than low LMX differentiation teams and their members. Building upon this finding, we recommend that managers build high quality LMX relationships with all his or her team members by treating them all in a similar manner with respect to providing support,

showing loyalty and respect. To encourage leaders to invest his or her time and effort to develop high quality LMX relationships, organizations can provide formal and informal coaching and mentoring programs to strengthen leaders' interpersonal skills and emotional awareness (Antonakis, Ashkanasy, & Dasborough, 2009). More importantly, leaders should pay close attention to their team members' PLMXD. We emphasize the criticality of team members' PLMXD to performance. Research evidence suggests that team members tend to have their own ways of perceiving their own and other members' LMX relationships and their perceptions of LMX can be different from leaders' LMX perceptions (Schriesheim, Castro, Zhou, & Yammarino, 2001). Therefore, leaders should remain vigilant to how team members perceive their own LMX qualities as well as the level of differentiation in the team. Given the idiosyncratic nature of LMX quality perceptions, we encourage leaders to engage in a deep level communications and social interactions with all team members. This in turn will help both the team leader and team members build a mutual understanding of working relationships, thereby leading team members to perceive a lesser degree of LMX differentiation.

Limitations and Directions for Future Research

Several limitations of our study merit discussion. First, we cannot draw any strong causal inferences from our findings as we measured four of the variables (PLMXD, procedural justice, relationship conflict perceptions, and individual performance) at the same time. Although we draw on the LMX literature and related theories to propose that (collective) PLMXD is the antecedent of procedural justice (climate), and relationship conflict, and performance, the

causality among these variables could be reciprocal.³ For example, on one hand, a high level of PLMXD impedes individual performance, and on the other hand, low performers might attribute their poor performance to the leader's poor treatment of some team members (Dasborough & Ashkanasy, 2002). Future research is warranted to test these relationships over time and conduct experimental studies. Second, individual performance was rated only by team leaders. Although a team leader's rating of team member performance is frequently used in the LMX literature, it should be noted that this rating can be inflated by LMX quality (Ma & Qu, 2010) and biased due to idiosyncratic tendencies of an individual leader (Scullen, Mount, & Goff, 2000). And, the relationships among PLMXD, procedural justice, and relationship conflict perceptions might be influenced by single source rating. Third, the ICC (2) values for collective PLMXD, procedural justice climate, and relationship conflict were lower than the desired value (.70). As an ICC (2) value captures the reliability of the aggregated scores, our results should be regarded as a conservative test. Lastly, the majority of our sample was Asian (76.6%) and hold a bachelor degree or higher (81.7%), and thus our results are likely to be interpreted with this limited generalizability.

Though these limitations are not to be dismissed, our findings also pave the way for a more integrative theoretical framework of LMX differentiation at multi-levels. We suggest three avenues for future research. First, in order to further establish the construct validity of PLMXD, its nomological network is required to be extended to include various leadership and perceptual variables. For instance, we found that LMX is negatively related to individual PLMXD, and

future research is warranted to explain why low LMX members tend to perceive higher level of LMX differentiation within a team. One plausible explanation is that low and high LMX members differ in their self-concept, values, and emotional experiences (Hu & Liden, 2013; Tse, Ashkanasy, & Dasborough, 2012), and these differences result in different levels of PLMXD within a team. According to a vigilant perspective (see Feldman-Barrett & Swim, 1998 for a review), individuals with lower social status tend to be more vigilant than those with higher social status to the signs of discrimination and prejudice. This is because low status individuals are likely to have experienced unfairness and prejudice more frequently than high status individuals. As a result, low status individuals are likely to report incidents of discrimination more frequently than high status individuals. LMX differentiation “creates a context in which members’ social status within the group is hierarchically positioned as a result of their differential exchange relationships with the leader” (Chen et al., 2018, p. 953). Applying this perspective to PLMXD, we expect that low LMX members are likely to experience negative treatment from the leader more frequently than high LMX members and therefore to perceive higher degrees of LMX differentiation within a team because they are more sensitive to signs of unfairness. This perspective can provide an important building block that helps us better understand how team members’ individual LMX quality can relate to a “sense-making” process of differentiated LMX relationships within a team.

Second, it is imperative to develop an integrative theoretical framework to explain when PLMXD has a stronger or weaker negative impact on performance, or if there are times when

PLMXD might positively relate to performance. Potential moderators of the PLMXD–performance relationship include social identity or collective identity, resource allocation norms (equity vs equality), and individual preferences for resource allocations. Social identity or collective identity, the extent to which individuals see themselves in terms of shared group membership, may be associated with how team members react to PLMXD. This is because their own group identity is likely to influence what they value and how they think and feel about differential treatment by the leader (Sui et al., 2016). A strong sense of shared membership may be associated with team members’ tendency to prefer equality norms to equity norms as their primary concern is to maintain team solidarity rather than to enhance economic gains (Kabanoff, 1991). Furthermore, equity sensitivity is one potential individual level moderator as it relates to individuals’ different preferences for equity (Huseman, Hatfield, & Miles, 1987). We expect that PLMXD is more detrimental to performance at the individual and team levels when individuals or team members as a whole endorse the equality norms than the equity norms. The construct and the measure of PLMXD should prove useful in testing this and other related theoretical perspectives.

In this vein, culture may be another moderator of the PLMXD-performance relationship because culture is associated with resource allocation norms (e.g., Fischer & Smith, 2003; Leung & Bond, 1984). Equity norms are preferred more in collectivist vertical cultures (high collectivism and high power distance cultures), and may be formed and applied on different bases (Fischer & Smith, 2003). Individuals in collectivistic vertical cultures tend to regard social

skills, tenure, or loyalty as a base of equity rules whereas individuals in individualistic horizontal cultures tend to rely on performance, and efficiency (Silva & Caetano, 2016). Yet research on how cultural values influence the effect of LMX on outcomes is in its infancy, and its theoretical framework and empirical evidence have not been established. For instance, we note that LMX differentiation was found to have a stronger detrimental impact on team processes in high power distance cultures (Yu et al., 2018) whereas our supplementary analyses revealed that individual PLMXD is more strongly and negatively related to procedural justice at the individual level. Our PLMXD construct can initiate future research examining cross-cultural differences in why, how, and when PLMXD harms performance at the multiple levels.

Third, future research should further examine the relationship between PLMXD and justice perceptions. Consistent with Yu et al. (2018), we hypothesized and found procedural justice to be an outcome of PLMXD. On the other hand, Erdogan and Bauer (2010) suggested justice climate may be a buffer (moderator); individuals would react negatively to LMX differentiation only when group members have a low level of justice climate. Taking this further, Chen et al. (2018) found that LMX differentiation is negatively related to procedural justice perceptions when task performance-based LMX differentiation is low, but they are positively related with each other when task performance-based LMX differentiation is high. Thus, the research evidence suggests that the PLMXD-justice relationship may be more complicated than we hypothesized. We call for future multilevel research to unravel this relationship by considering moderators as well as time. For example, it is plausible that perceptions of LMX

differentiation may have a negative direct impact on individuals' justice perceptions at early stages, whereas once justice climate is shaped in a group, it can play a buffering role as a heuristic guide in interpreting leader behaviors and its underlying intentions.

Lastly, future research is warranted to further explore the antecedents of PLMXD. What makes individuals perceive LMX differentiated within a team is a theoretically important question because it helps us better understand the origin of PLMXD and clarify specific underlying mechanisms whereby PLMXD influences performance. In this line of reasoning, how differential leadership (as a broader construct than LMX differentiation) is related to PLMXD should be examined at the team level. For example, Wu, Tsui, and Kinicki (2010) referred to differentiated leadership as "the case in which a leader exhibits varying levels of individual-focused leadership behavior to different group members" (p. 90) and used transformational leadership theory. By testing the relationships of collective PLMXD with differentiated leadership variables based on the multiple theories of leadership, the construct validity of PLMXD can be strengthened in the context of leadership theories, not merely LMX theory.

Conclusion

The question of whether team leaders should differentiate among team members or not remains unanswered in the LMX literature. Our findings suggest that team leaders should not differentiate, or at least not in a way that team members can perceive it, because when team members perceive their leader treats some members better than others, they are likely to experience low levels of procedural justice and high levels of relationship conflict within the

team, and their performance level is likely to decrease. We recommend that managers should pay close attention to how team members perceive their own LMX qualities as well as other team members' LMX qualities. We hope this study motivates future research on how LMX differentiation is perceived, interpreted, and attributed by team members and how perceived LMX differentiation relates to individual and team outcomes.

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Footnotes

1. In sample 3, we added 7 additional items to the PLMXD scale for a total of 13 items so that there were 3 items for each of the LMX-MDM dimensions and one general item to capture PLMXD (item 1 in the Appendix). Using the 13-items, a principal axis factor analysis also indicated a single factor structure. The correlation between our 6-item and 13-item scales was .95, and the increase in reliability by adding the 7 items was not large (.92 vs. .95). Furthermore, the correlations of the 6-item and 13-item scales with other variables were similar. Finally, when we use only the 6 items, the single factor explained 67.4% variance in the PLMXD construct, which is greater than that explained by the 13 items. All together, the evidence suggests our 6-item scale is as valid as a 13-item scale.
2. For informational purposes, we analyzed the data using country as a control variable, instead of organization. The pattern of results was consistent with the one with organization as a control variable. Detailed results are available from the first author upon request.
3. To further check potential reversed causality, we analyzed a multilevel path model with justice and relationship conflict as the exogenous variables, and PLMXD as the mediator at both levels. All the paths coefficients were estimated simultaneously via MPlus 8.3. The results indicated that PLMXD was not a significant mediator at either the individual or team level because PLMXD is not significantly related to performance above and beyond procedural justice and relationship conflict at either level. Furthermore, none of the indirect effects of procedural justice and relationship conflict on performance through PLMXD were significant at the individual or team level. These results are available from the first author upon request.
4. At the suggestion of our two anonymous reviewers, we tested LMX and procedural justice as potential moderators. LMX may potentially moderate the PLMXD – procedural justice/relationship conflict relationships at the individual level because high LMX members generally tend to see LMX differentiation as fair while low LMX members tend to perceive otherwise (Sias & Jablin, 1995). At the individual and team levels, procedural justice (Sias & Jablin, 1995) and procedural justice climate (Erdogan & Bauer, 2010) have been shown to moderate the relationship between PLMXD and performance, at the individual and team levels, respectively. Accordingly, we ran two models to test these potential moderation effects. In one model, we tested the moderating role of LMX in the relationships between PLMXD and the two mediators (relationship conflict and procedural justice). However, the interaction term was not statistically significant in predicting procedural justice nor relationship conflict. In the other model, we examined

procedural justice (climate) as a moderator at both levels and the results indicated that the interaction of PLMXD and justice was not statistically significant in predicting performance at either level. Details of these results are available from the first author upon request.

Table 1
Descriptive Statistics and Intercorrelations (Pilot Study, Sample 1)

	<i>Mean</i>	<i>SD</i>	1	2	3	4
1. PLMXD	3.36	.92	(.94)			
2. LMX	3.69	.72	-.20***	(.96)		
3. LMX social comparison	3.04	1.00	.12*	.58***	(.92)	
4. Supervisory justice	3.74	.88	-.42***	.66***	.13**	(.92)

Note. N = 463; Cronbach alpha coefficients are presented on the diagonal in parentheses; PLMXD = perception of leader-member exchange differentiation; LMX = leader-member exchange

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table 2
Descriptive Statistics and Intercorrelations (Pilot Study, Sample 2)

	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. PLMXD (T1)	3.11	.96	(.94)									
2. LMX (T1)	3.64	.92	-.37***	(.96)								
3. LMX social comparison (T1)	2.76	.98	-.05	.56***	(.92)							
4. Supervisory justice (T1)	3.84	.97	-.39***	.82***	.39***	(.84)						
5. PLMXD (T2)	3.17	.98	.64***	-.29***	-.05	-.33***	(.94)					
6. LMX (T2)	3.57	.96	-.33***	.70***	.44***	.65***	-.33***	(.97)				
7. LMX social comparison (T2)	2.74	.98	-.07	.43***	.67***	.34***	-.04	.64***	(.93)			
8. Supervisory justice (T2)	3.77	.94	-.33***	.61***	.28***	.72***	-.35***	.80***	.42***	(.91)		
9. Job satisfaction (T2)	3.77	1.03	-.31***	.59***	.37***	.60***	-.24***	.70***	.45***	.64***	(.86)	
10. Turnover intention (T2)	2.55	1.19	.36***	-.52***	-.21**	-.55***	.37***	-.56***	-.28***	-.61***	-.68***	(.91)

Note. N = 260; Cronbach alpha coefficients are presented on the diagonal in parentheses; PLMXD = perception of leader-member exchange differentiation; LMX = leader-member exchange; T1 = Time 1; T2 = Time 2

*** $p < .001$; ** $p < .01$.

Table 3
Descriptive Statistics and Intercorrelations (Pilot Study, Sample 3)

	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6	7
1. PLMXD 6 items ^a	3.40	.99	(.92)						
2. PLMXD 13 items ^a	3.30	.95	.95***	(.95)					
3. LMX differentiation ^b	3.12	.97	.69***	.73***	(.87)				
4. LMX variability ^c	.63	.45	.34***	.35***	.32***	-			
5. LMX ^d	3.71	.85	-.31***	-.34***	-.23**	-.24**	(.94)		
6. LMSX ^e	3.41	.88	-.34***	-.36***	-.25***	-.23**	.82***	(.94)	
7. Perceived LMX standing ^c	3.88	1.01	-.38***	-.39***	-.31***	-.17*	.74***	.73***	-

Note. N = 202; Cronbach alpha coefficients are presented on the diagonal in parentheses; PLMXD = perception of leader-member exchange differentiation; LMX = leader-member exchange; LMSX = leader-member social exchange

^a developed in the current study

^b Mayer et al.'s (2008) four-item measure

^c Hooper and Martin (2008)

^d Liden and Maslyn (1998)

^e Bernerth et al. (2007)

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table 4

Results of χ^2 Difference Tests Between PLMXD and Related other constructs (Pilot Study)

	One factor model				Two factor model				$\Delta\chi^2$
	χ^2	df	CFI	SRMR	χ^2	df	CFI	SRMR	
PLMXD and LMX									
Sample 1	1097.36***	35	.66	.21	126.17***	34	.97	.04	971.19***
Sample 2 (T1)	758.84***	35	.65	.21	136.64***	34	.95	.07	622.20***
Sample 2 (T2)	835.55***	35	.66	.21	93.68***	34	.97	.04	741.87***
Sample 3	463.59***	35	.70	.16	93.46***	34	.96	.05	343.13***
PLMXD and LMSX									
Sample 3	984.63***	77	.60	.20	194.58***	34	.95	.05	790.05***
PLMXD and LMXSC									
Sample 1	2201.25***	54	.49	.29	241.11***	53	.95	.05	1960.14***
Sample 2 (T1)	1354.39***	54	.49	.30	140.02***	53	.97	.06	1214.37***
Sample 2 (T2)	1407.51***	54	.51	.30	150.20***	53	.97	.05	1257.31***
PLMXD and supervisory justice									
Sample 1	1060.47***	54	.61	.20	535.12***	53	.88	.14	525.35***
Sample 2 (T1)	1302.22***	54	.56	.26	187.58***	53	.95	.07	1114.64***
Sample 2 (T2)	1350.98***	54	.55	.24	297.29***	53	.92	.08	1053.69***

Note. PLMXD = perception of leader-member exchange differentiation; LMX = leader-member exchange; LMSX = leader-member social exchange; LMXSC = leader-member exchange social comparison; T1 = Time 1; T2 = Time 2.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table 5
Regression Results of Job Satisfaction and Turnover Intention (Pilot Study, Sample 2)

	Job satisfaction	Turnover intention
Gender (0 = male; 1 = female)	.01	-.00
Age	.05	-.06
Team size	-.01	.01
Working hours per week	-.05	.05
Education: High school	.03	.02
Education: Technical/vocational education	.06	.03
Education: Bachelor's degree	.08	.03
Education: Master	-.01	.06
Education: PhD	.04	.01
LMX	.21*	-.24*
LMX social comparison	.12	.03
Supervisor justice	.34***	-.29**
PLMXD	-.09	.16**
R ²	.41***	.35***

Note. N = 260; regression coefficients are standardized; LMX = leader-member exchange; PLMXD = perception of leader-member exchange differentiation comparison.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table 6
Descriptive Statistics and Intercorrelations (Primary Study)

	Mean	SD	1	2	3	4	5	6	7	8	9	10
Individual level (N = 235)												
1. LMX	3.95	.72										
2. Procedural justice	3.55	.73	.62***									
3. Relationship conflict perception	2.57	.97	-.27***	-.28***								
4. Individual PLMXD	2.97	.88	-.40***	-.36***	.53***							
5. Individual performance	3.92	.82	.17*	.17*	-.23***	-.26***						
Team level (N = 53)												
1. Organization dummy 1	.08	.27										
2. Organization dummy 2	.06	.23	-.07									
3. Organization dummy 3	.17	.38	-.13	-.11								
4. Organization dummy 4	.21	.41	-.15	-.13	-.23							
5. Team size	4.43	1.87	-.18	-.06	-.35*	-.05						
6. Team mean LMX	3.89	.46	-.20	.08	.13	-.10	.31*					
7. Statistical LMxD ^a	.56	.32	.06	-.08	-.32*	.04	.09	-.37**				
8. Collective PLMXD	3.05	.60	-.09	.05	.52***	-.19	-.35*	-.41**	.09			
9. Procedural justice climate	3.48	.48	-.21	.16	-.07	-.25	.35*	.78***	-.20	-.49***		
10. Relationship conflict	2.67	.58	.31*	-.05	.54***	-.04	-.42**	-.16	-.11	.61***	-.42***	
11. Team performance	4.09	.71	-.04	.28*	-.44**	-.05	.07	-.08	.19	-.35*	.27	-.54***

Note. LMX = leader-member exchange; PLMXD = perceptions of leader-member exchange differentiation; scale reliabilities for the individual level variables are on the diagonal

^a Standard deviation of LMX scores within a team

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table 7

Bootstrapped Conditional Indirect and Total Effects of Perceptions of LMX differentiation on Individual and Team Performance

	Direct effects	Indirect effects	Total effects
Path 1: Individual PLMXD → individual performance	-.15 (-.31, -.01)		-.23*** (-.35, -.11)
Mediators			
Procedural justice		-.02 (-.06, .02) (H1a)	
Relationship conflict		-.06* (-.12, -.00) (H2a)	
Path 2: Collective PLMXD → team performance	-.12 (-.46, .23)		-.55*** (-.81, -.30)
Mediators			
Procedural justice		-.14* (-.28, -.00) (H1b)	
Relationship conflict		-.26* (-.51, -.00) (H2b)	

Note. N = 235 (Level 1) and N = 53 (Level 2); values in parentheses are the lower and upper limits of 95% confidence interval; LMX = leader-member exchange; PLMXD = perceptions of leader-member exchange differentiation.

*** $p < .001$; ** $p < .01$; * $p < .05$.

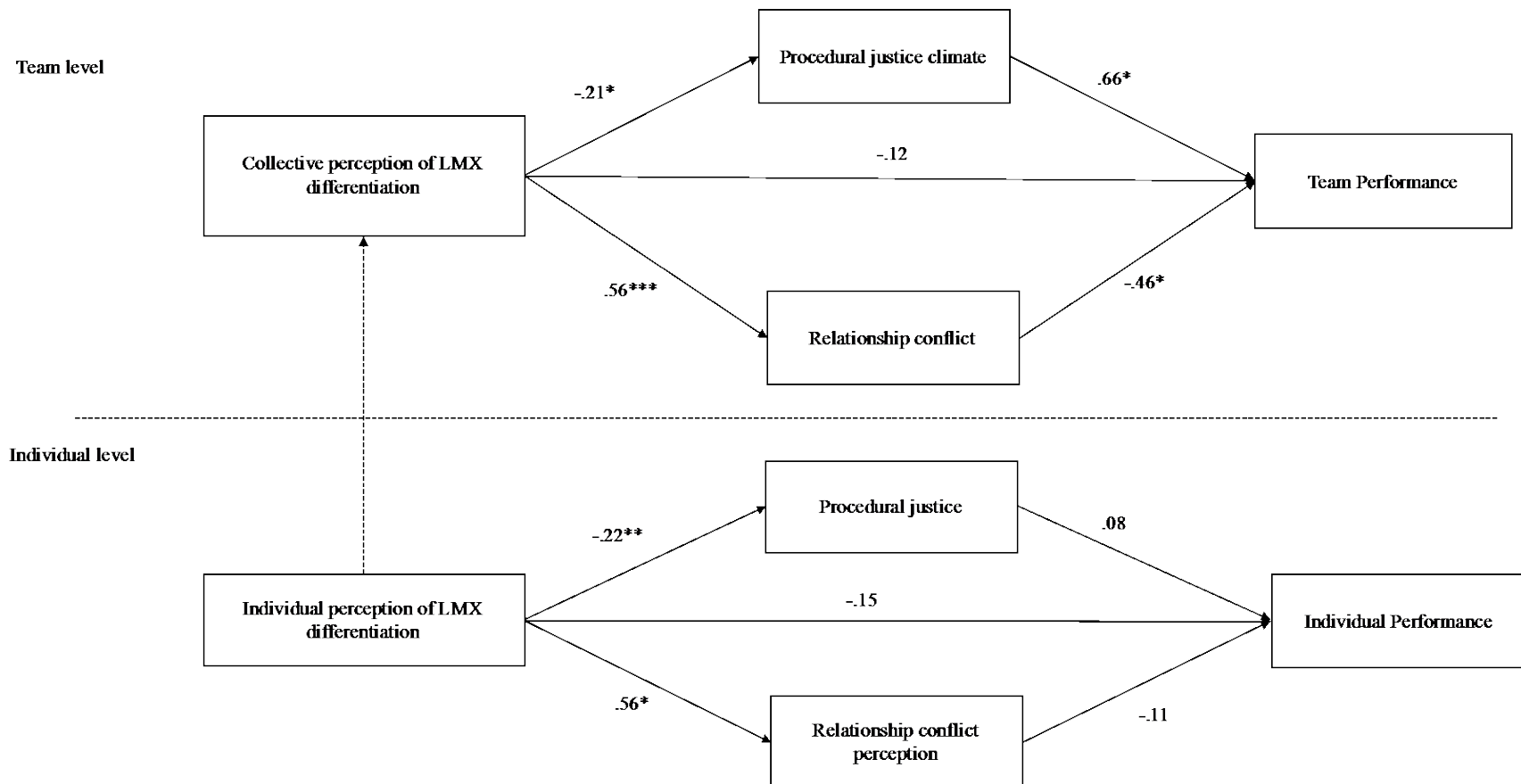


Figure 1. Multilevel Path Modeling Results.

Note. N = 235 (Level 1) and N = 53 (Level 2); LMX = leader-member exchange; paths from control variables are omitted

*** $p < .001$; ** $p < .01$; * $p < .05$.

APPENDIX A
Factor Loadings for the 6-Item Perceived LMX Differentiation Scale (Pilot Study)

Items	Sample 1	Sample 2 Time 1	Sample 2 Time 2	Sample 3
1. Some group members have a better relationship with my manager than others.	.72	.76	.73	.59
2. My manager treats some group members better than others.	.88	.92	.92	.92
3. My manager is more loyal to some group members compared to others.	.87	.88	.87	.86
4. Relative to the others in my work group, some group members receive more support from my manager.	.72	.80	.79	.79
5. My manager seems to like some group members more than others.	.88	.87	.93	.91
6. My manager respects some group members more than others.	.84	.83	.88	.82

Note. Values are standardized factor loadings.

APPENDIX B
Unstandardized Path Coefficients of the Multilevel Model of Perceived LMX Differentiation

	Endogenous variables					
	Procedural justice	Relationship conflict perceptions	Individual performance	Procedural justice climate	Relationship conflict	Team performance
Intercept	.00***	.00***	3.92***	.12	-.10	4.37***
Individual level						
LMX	.43***	-.16	-.01			
Individual PLMXD	-.22**	.56***	-.15			
Procedural justice			.08			
Relationship conflict perception			-.11			
Team level						
Organization 1				-.29	.99***	.11
Organization 2				.15*	-.02	.65***
Organization 3				-.10	.43*	-.19
Organization 4				-.32	.30*	-.02
Team size				-.01	-.02	-.06
Team mean LMX				.68***	.20	-.68**
Statistical LMXD				.10	-.08	.18
Collective PLMXD				-.21*	.56***	-.12
Procedural justice climate						.66*
Relationship conflict						-.46*

Note. N = 235 (Level 1) and N = 53 (Level 2); LMX = leader-member exchange; PLMXD = perceptions of leader-member exchange differentiation; statistical LMXD = standard deviation of LMX scores within team

*** $p < .001$; ** $p < .01$; * $p < .05$.