AMERICAN PSYCHOLOGICAL ASSOCIATION

Journal of Applied Psychology

ISSN: 0021-9010

2022, Vol. 107, No. 9, 1498–1523
https://doi.org/10.1037/apl0000750

I Know How I Feel but Do I Know How You Feel? Investigating Metaperceptions to Advance Relationship-Based Leadership Approaches

Zhenyu Yuan[1], Frederick P. Morgeson[2], and Xiaoyu Wang[3]

[1] Department of Managerial Studies, College of Business Administration, University of Illinois Chicago
[2] Department of Management, Eli Broad College of Business, Michigan State University
[3] Advanced Institute of Business, School of Economics and Management, Tongji University

Although Leader–Member Exchange (LMX) theory suggests that leaders and followers see their relationship similarly as a function of repeated role exchanges, empirical research has found only modest levels of agreement between leader and follower LMX ratings. This is not only problematic theoretically, it also brings up the question as to whether leader–follower dyad members are even aware of the lack of convergence of their relationship perceptions. To explore this issue, we draw from social psychology research on close relationships to introduce the construct of LMX metaperceptions (i.e., a person's inference of how the other person in the dyad feels about their relationship) and then utilize the dyadic model of metaperceptions to investigate the accuracy (i.e., the extent to which LMX metaperceptions are consistent with the other dyad member's LMX ratings) and bias (i.e., the extent to which LMX metaperceptions are colored by the dyad member's own LMX ratings) of LMX metaperceptions. We find that LMX metaperceptions are not only inaccurate but also biased. To shed light on what can alleviate bias and promote accuracy, we examine power dependence—an inherent feature of leader–follower relationships—and highlight its downside in engendering greater levels of bias for more powerful leaders. Moreover, we revisit LMX agreement through dyadic analyses and find that at the dyadic level it may be even weaker than what previous research has found. Overall, this research offers a more complete picture of leader–follower relationship perceptions and provides an important dyadic perspective for future research aimed at promoting mutual understanding between leaders and followers.

Keywords: leader–member exchange, metaperception, power, dyadic analysis, one-with-many model

The leader–follower relationship is one of the most important work-related relationships a person can have. There are many reasons for the importance of this relationship, including its role as a conduit of resources and support for both parties (Liden et al., 2016). Considerable research has attested to the importance of the leader–follower relationship, demonstrating that high-quality relationships motivate employees' work performance (Dulebohn et al., 2012), facilitate professional development (Scandura & Schriesheim, 1994), and promote well-being (Sparr & Sonnentag, 2008). Further, positive exchange of resources is also beneficial for leaders' career development and success (Sparrowe & Liden, 1997; Wilson et al., 2010).

Because of its importance, a body of theoretical and empirical research has been published over the last 45 years outlining the development and maturation of leader–follower relationships. According to Leader–Member Exchange (LMX) theory (Dienesch & Liden, 1986; Graen, 1976; Graen & Scandura, 1987), leaders and followers "test out" their relationship through a series of role-taking and role-making episodes until the relationship "becomes institutionalized, and the understandings are widely visible and understood," resulting in what has been termed "role routinization" (Graen & Scandura, 1987, p. 185). Although a wealth of research supports LMX theory's suggestion that high-quality relationships are associated with desirable outcomes (Dulebohn et al., 2012; Graen & Uhl-Bien, 1995; Martin et al., 2016), there has been less empirical support for other key aspects of LMX theory.

Importantly, LMX theory suggests that mutuality (i.e., that leaders and followers see the relationship similarly as a function of repeated role exchanges) is an outcome of leader–follower relationship building (Graen & Scandura, 1987). Yet, two large-scale meta-analytic reviews found that the relationship between leader- and follower-reported LMX was moderate ($\rho = .37$; Gerstner & Day, 1997; Sin et al., 2009). Although this effect size might be viewed as substantial when considering predictor–criterion relationships more generally (Bosco et al., 2015), it is surprisingly small given that it putatively reflects LMX agreement between the two dyadic partners. A reasonable conclusion is that sharing less than 14% of the variance in reports of their experienced relationship with each other falls short of the mutuality posited in the original LMX theory.

This low level of convergence between leader- and follower-reported LMX has been identified as an important theoretical question in and of itself (Erdogan & Bauer, 2014). Because the original theoretical mechanism of role routinization is insufficient to explain the persistently low level of LMX agreement, research is needed in order to extend our understanding of leader–follower relationships. Toward that end, scholars have begun to question

This article was published Online First October 4, 2021.

Zhenyu Yuan https://orcid.org/0000-0002-7971-887X
Frederick P. Morgeson https://orcid.org/0000-0001-6858-2594
Xiaoyu Wang https://orcid.org/0000-0002-3632-7086

This research was supported by the National Natural Science Foundation of China (Grant: 72002155). Special thanks to Chloe Saucedo for her copyediting assistance.

Correspondence concerning this article should be addressed to Xiaoyu Wang, Advanced Institute of Business, School of Economics and Management, Tongji University, Tongji Building A, 1500 Siping Road, Shanghai 200092, China. Email: xiaoyuwang@tongji.edu.cn

whether leaders and followers are even aware of the lack of LMX convergence (Matta et al., 2015).

Better understanding the nature of leader–follower relationship awareness can help identify potential relational blind spots that might be negatively impacting leader–follower relationships. In so doing, this would help fill important gaps in LMX theory and guide future relationship-based leadership research. For example, if dyad members are accurately aware of the lack of convergence, this implies that LMX scholars should seek to further understand why dyad members are not motivated to solve the divergence in their relational experience. Alternatively, if dyad members lack awareness of their discrepant relationship perceptions, the bottleneck of leader–follower relationships could then be attributed to the possibility that dyad members are limited by certain factors from having accurate insights about each other. As these examples show, investigating the extent to which leaders and followers are accurately aware of the lack of convergence in their relationship perceptions can shed light on an important aspect of LMX theory that has long puzzled leadership scholars.

Notably, focusing on leader- and follower-reported LMX without explicitly modeling the inference each relationship partner makes about the other partner creates difficulties when investigating whether such relational insights are consistent with the other party's relational perception. In this regard, some leadership scholars have noted that "integrating some of the theoretical concepts and methodologies developed within the close relationship literature with relationship-based approaches to leadership can give new insights into the leader-follower relationship" (Thomas et al., 2013, p. S64). Accordingly, we draw from social psychology research on interpersonal perceptions (Kenny & DePaulo, 1993) and incorporate metaperceptions—defined as a person's inference of how the other person in the dyad feels about their relationship (Laing et al., 1966)—into LMX inquiries.[1]

As with other types of relationships, leaders and followers are often motivated to make inferences about each other due to the importance of their ongoing work relationships. In other words, *LMX metaperceptions* (i.e., dyad members' inferences of how the other party feels about their leader–follower relationship) should be an important component of LMX accounts. In addition to enriching scholarly conceptualization of leader–follower relationships, the introduction of LMX metaperceptions allows for a much-needed empirical examination of the extent to which leaders and members are accurately aware of the lack of LMX agreement as noted by Matta et al. (2015). Specifically, the social psychology model of dyadic metaperceptions provides a comprehensive framework that dissects the sources of accuracy and bias in relationship perceptions (Kenny & DePaulo, 1993; West & Kenny, 2011), thus holding great promise in illuminating the blind spots of leader–follower relational cognitions.

In addition, investigating LMX metaperceptions along with LMX provides an opportunity to clarify the theoretical meaning of each construct. Although LMX theorizing centers around dyad members' contribution of resources to their relationship (i.e., mutual exchange of resources; see Dienesch & Liden, 1986; Graen & Scandura, 1987; Sparrowe & Liden, 1997), existing LMX conceptualizations (and associated operationalizations) do not always unambiguously capture dyad members' resource contributions to the relationship (see Liden et al., 2015 for a review). Further, some commonly used LMX measures may inadvertently assess LMX and LMX metaperceptions, as they contain items that reflect both aspects (e.g., "do you usually know how satisfied your leader is with what you do" from LMX-7, Graen & Uhl-Bien, 1995). As such, distinguishing LMX from LMX metaperceptions can provide much-needed clarity to the relationship-oriented leadership literature.

Furthermore, leadership scholars have made repeated calls to identify relational factors that can alleviate misunderstanding in leader–follower relationships (e.g., Erdogan & Bauer, 2014; Sin et al., 2009), which echoes social psychologists' emphasis on identifying moderators that can influence the accuracy and bias of metaperceptions (West & Kenny, 2011). This line of inquiry will extend LMX theory by identifying what factors can potentially promote mutual awareness between the leader and the follower. Toward that end, the leader–follower relationship is characterized by power dependence, with the leader usually controlling the positional and personal resources that the follower values (Graen & Scandura, 1987; Pfeffer, 1981). Problematically, research on power dependence indicates that the experience of power can induce biased information processing (Fiske, 1993; Galinsky et al., 2006). Therefore, power dependence warrants attention from leadership scholars as it can potentially influence accuracy and bias in leader–follower relationship perceptions.

Finally, Graen and Uhl-Bien (1995) pointed out that LMX, which captures the relationship domain of leadership, can be studied from different (e.g., group, dyad, individual) levels of analysis. Although other levels can certainly yield important insights regarding LMX, dyadic inquiries—with the research design correctly aligned with the dyadic theory—should be the pivotal approach to studying this relationship-based approach to leadership. Yet surprisingly, Krasikova and LeBreton (2012) found that "dyadic constructs [including LMX] have rarely been examined from the perspectives of both dyad members and with dyadic analyses" (p. 741; see also Gooty et al., 2012; Schriesheim et al., 1999; Yammarino et al., 2005). Accordingly, both leadership and research methodology scholars (Joseph et al., 2011; Krasikova & LeBreton, 2012; Thomas et al., 2013) have called for researchers to employ the reciprocal one-with-many design (OWM; Kenny et al., 2006; Marcus et al., 2009) to study LMX. Using the reciprocal OWM design not only fits naturally with the dyadic questions raised earlier, but also allows researchers to revisit the issue of LMX agreement through a truly dyadic lens. This provides an opportunity to further deepen scholarly understanding of the nature of the moderate level of agreement between leaders and followers.

Given this context, the current research has three goals. First, we incorporate LMX metaperceptions into the conceptualization of leader–follower relationships and utilize the social psychology model of metaperceptions as the guiding framework to investigate the accuracy and bias of LMX metaperceptions. Second, we examine dyadic power dependence as a contingency factor that can influence the accuracy and bias of LMX metaperceptions. Third, we reanalyze the LMX agreement to gain a more comprehensive understanding of the relational nuances. Overall, the current research seeks to take stock of past LMX research by revisiting LMX agreement and extend the theoretical horizon of LMX research by investigating the accuracy and bias of LMX

[1] The term "metaperception" is often written as "meta-perception." Following the seminal work of Laing et al. (1966, p. 4), we are using the unhyphenated "metaperception" as it is consistent with their use of the term "metaperspectives" (i.e., "*my view* of the *other's* (your, his, her, their) *view* of me.")

metaperceptions and the moderating role of power dependence. To do so, we employ the reciprocal OWM model to align the research design with the dyadic nature of our research goals.

LMX Metaperceptions

Metaperceptions are prevalent in interpersonal relationships, as individuals are motivated to infer how other people feel about and tend to behave toward them (Laing et al., 1966; Swann, 1984). In other words, individuals make metaperceptions about the other party. For example, strangers try to figure out the first impression that they have made on others (Carlson et al., 2010). Romantic partners are motivated to discern whether they are living up to the ideal standard held by the other party (Campbell et al., 2013). In the workplace, coworkers want to find out whether their work partners are competing against them (Eisenkraft et al., 2017). In sum, a large body of research supports the importance of metaperceptions in interpersonal relationships (Eisenkraft et al., 2017; Elfenbein et al., 2009; Fletcher & Kerr, 2010; Kenny & DePaulo, 1993). That is, in any interpersonal relationship, the dyad member has their own affective and behavioral tendency toward the partner. Additionally, given the interdependent nature of relationships (Rusbult & Van Lange, 2003), the dyad member also has good reason to care about how the partner feels about their relationship. These two components—one being self-directed (i.e., one's own relationship perceptions) and the other being other-focused (i.e., metaperceptions)—tap into theoretically distinct elements of interpersonal perceptions and complement each other in offering a nuanced, dyadic account of relationships.

While social psychologists studying close relationships have long recognized the importance of both components in relationship research, applied psychologists studying workplace relationships have only recently started to investigate the topic of metaperceptions (Campagna et al., 2020; Eisenkraft et al., 2017; Elfenbein et al., 2009; Hu et al., 2014). We introduce the construct of LMX metaperceptions into research on relationship-based approaches to leadership and highlight how LMX metaperceptions and LMX perceptions are both important components of a truly dyadic account of leader–follower relationships.

Both role theory (Graen & Scandura, 1987) and social exchange theory accounts of LMX (Dienesch & Liden, 1986; Sparrowe & Liden, 1997) postulate that leaders and followers contribute valued resources (e.g., affect, loyalty) to foster their relationship with each other. The relationship quality varies in accordance with the extent to which the provision of resources is reciprocated (Sparrowe & Liden, 1997). In their review, Joseph et al. (2011) noted that it helps clarify the nature of leader–follower relationships by specifying whether the individual is providing the resources to the relationship or offering insights regarding the provision of resources by the other party. For example, a leader can report their provision of resources such as loyalty (e.g., *I would come to my follower's defense*) and their inference of the follower's provision of resources (e.g., *I think my follower would come to my defense*). Importantly, although the two components may be interrelated to varying degrees, they are theoretically distinct components in relationship perceptions (West & Kenny, 2011). Interestingly, although resource contribution is a fundamental aspect of LMX theory (Dienesch & Liden, 1986; Graen & Uhl-Bien, 1995; Sparrowe & Liden, 1997), it is not always acknowledged that dyad members not only make their own contribution to the relationship, but they also make inferences about their partner's contribution.

Based on this critical notion, we suggest that a dyadic approach to LMX involves two important components. First, a dyad member's LMX reflects their tendency to contribute important resources to the relationship. This is what is most typically conceptualized and studied under the auspices of LMX. Second, LMX metaperceptions reflect a dyad member's inference about the other member's likelihood of contributing important resources to the relationship. A focus on LMX metaperceptions enables us to explore an underappreciated element of leader–member relationships. This approach is not intended to minimize the value of other conceptualizations of LMX (see Liden et al., 2015 for a comprehensive review), but we believe that differentiating LMX from LMX metaperceptions is an important perspective that provides unique insight into the nuanced nature of leader–follower relationship perceptions. More importantly, it allows for an empirical investigation of whether leaders and followers are accurately aware of the lack of convergence between their relationship perceptions.

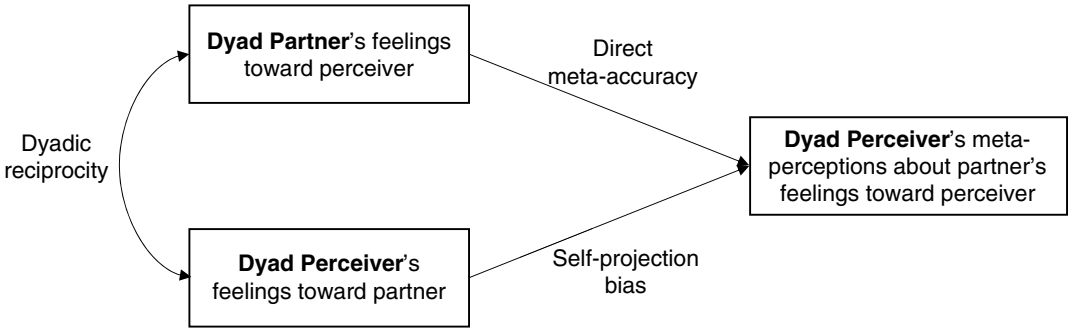
Accuracy and Bias of LMX Metaperceptions

Regarding the extent to which the leader and the follower are aware of their discrepant relationship perceptions, social psychology research on relationship perceptions offers a critical framework to understand the accuracy and bias of metaperceptions (Figure 1). Specifically, according to the model of interpersonal perceptions (Elfenbein et al., 2009; Kenny & DePaulo, 1993; West & Kenny, 2011), an individual's judgment can be inaccurate and/or biased to different degrees. In other words, the question of awareness regarding LMX disagreement is decomposed into accuracy and bias to take into account the dyadic nature of relationship perceptions. Supported by a large body of research on interpersonal perceptions (West & Kenny, 2011), this approach is superior to subjective assessments of discrepancy (e.g., asking leaders and followers to report if they perceive any LMX discrepancy), which may lack validity (e.g., Edwards et al., 2006).

Dyadic metaperceptions can be biased, as the dyad member may project how they feel about the relationship onto the inference about the other party. In other words, *self-projection bias* occurs when a dyad member's LMX metaperceptions are strongly colored by their own LMX. For example, when the follower is loyal toward the leader and thereby infers that the leader is also loyal toward them, the follower is committing self-projection bias. Further, metaperceptions about the other dyad member can be accurate to the extent that they closely match the other member's actual feeling. This relationship is referred to as *direct meta-accuracy*. In the example of loyalty, there is evidence for direct meta-accuracy if the follower's inference about the leader's loyalty toward them is consistent with the leader's loyalty toward the follower.

Together, self-projection bias and direct meta-accuracy highlight how one dyad member's metaperceptions about the other are jointly influenced by both parties, thus capturing the dyadic nature of interpersonal relationships. Importantly, self-projection bias and direct meta-accuracy are two distinct processes that do not necessarily trade-off (West & Kenny, 2011). Rather, they should be investigated simultaneously, as the lack of self-projection bias does not necessarily indicate metaperceptions are accurate. Further, as self-projection bias and direct meta-accuracy both capture relationships between variables, they provide more granular results (i.e., magnitude of a relationship) than a dichotomous answer as to whether or not there is accurate awareness.

Figure 1
Model of Dyadic Metaperceptions



Note. Generalized reciprocity is not included in the model as it is not at the dyadic level.

Accordingly, we draw from the relationship literature that has investigated bias and accuracy of interpersonal perceptions to hypothesize the magnitude of self-projection bias and direct meta-accuracy in LMX metaperceptions.

Regarding self-projection bias, Kenny and DePaulo (1993) reviewed the literature on interpersonal perceptions and concluded that the primary basis of metaperceptions is self-perceptions. In other words, there is a strong, robust self-projection bias. More recently, Carlson et al. (2011) showed, through a three-study investigation and a meta-analytic review, that there is a relatively reliable yet small direct meta-accuracy effect. Notably, most of this literature has been conducted in nonwork contexts (Carlson & Kenny, 2012; Kenny & DePaulo, 1993). To date, only a handful of studies on metaperceptions have been conducted in organizational settings. Specifically, using a sample of first-year MBA students assigned into groups, Elfenbein et al. (2009) found evidence for both self-projection bias and direct meta-accuracy in metaperceptions of respect. Notably, the magnitude of self-projection bias was greater than that of direct meta-accuracy. In another study, Eisenkraft et al. (2017) found significant self-projection bias in judgments of interpersonal liking among group members and salespeople. However, direct meta-accuracy was near zero and nonsignificant. Taken together, extant research from both nonwork and work settings suggests that self-projection bias is stronger than direct meta-accuracy in dyadic metaperceptions.

In dyadic cognitions, the strong self-projection bias may reflect a cognitive strategy whereby the dyad member relies on their own relationship perceptions when making inferences about the other member (Eisenkraft et al., 2017; Kenny & DePaulo, 1993). Moreover, the weak direct meta-accuracy may be largely due to the difficulty in gleaning relational cues from the dyad partner (Kenny & DePaulo, 1993). In other words, dyad members resort to their own relationship perceptions but fail to keep track of their partner's feelings when making metaperceptions. Notably, support for this notion was found among group members and colleagues (Eisenkraft et al., 2017; Elfenbein et al., 2009), whose work relationships are usually on an equal footing and thus free of obstacles such as status differential. In contrast, leaders and followers have a host of marked differences in terms of job responsibilities and organizational status, which can make it even more difficult for them to gain accurate insights of each other (Ferris et al., 2009; Graen & Scandura, 1987). Therefore, when making LMX metaperceptions, leaders and followers may heavily rely on their own LMX perceptions but fail to discern the other party's LMX perception. In other words, we expect self-projection bias to be substantially stronger than direct meta-accuracy such that a dyad member's LMX metaperceptions are more likely to be biased by their own LMX than to be accurate in relation to the other member's LMX.

Hypothesis 1: In dyadic LMX metaperceptions, self-projection bias is significantly stronger than direct meta-accuracy.

Power Dependence as a Moderator

Having hypothesized the accuracy and bias of LMX metaperceptions, we turn to power dependence as a moderator in leader–follower relationship perceptions. Due to its ubiquity in organizations (Emerson, 1962; Pfeffer, 1981), power dependence constitutes an inherent structural element of the leader–follower relationship. Early LMX theorizing emphasized the importance of the leader's power, positing that "the success of the role-emergence process" is partly contingent upon whether the leader has "reasonably attractive positional and personal (power) resources and the imagination to employ them" (Graen & Scandura, 1987, p. 185). As the follower can also possess resources that the leader values, subsequent theoretical work has highlighted the follower's potential power over the leader (Sparrowe & Liden, 1997; Wilson et al., 2010), recognizing that social exchange is predicated on the mutual dependence between two parties (Molm, 1991).

Critically, power dependence—a prominent feature of leader–follower relationships—can prove counterproductive for relationship cognitions. Fiske's (1993) power as control model posits that the powerless member is attentive to the powerful partner in order to enhance the prediction of those who control the valued resources. In contrast, as the powerful member lacks motivation and resources to pay close attention to the powerless, the powerful is likely to rely on mental shortcuts to form inferences about the powerless. In other words, power dependence affords the powerful the luxury of distorted relationship perceptions. In this regard, incorporating power dependence as a moderator extends LMX research by revealing the caveat of leader–follower power differentials.

Consistent with Emerson's (1962) formulation of power dependence, we investigate power dependence as a dyadic contingency, recognizing that within a given dyad, the leader and the follower can be dependent on each other to varying degrees. Critically, the dyadic view of power dependence allows for nuanced representations of

power dynamics between the leader and the follower in that dyad member A's dependence on B (e.g., the leader relies on the follower to finish a critical task) does not necessarily mean B is not dependent on A (e.g., the follower's promotion prospect is determined by the leader). In other words, the two parties' power dependence on each other is not on opposite ends of the same continuum.

Specifically, we expect that power dependence moderates self-projection bias, such that the powerful have free reign to rely on their own LMX perceptions when making LMX metaperceptions. In support of this prediction, in a series of experiments, participants primed with higher levels of power drew a letter "E" on their forehead from their own visual perspective, relied heavily on their own experience when inferring their partner's background and emotional experiences (Galinsky et al., 2006). Similarly, the LMX metaperceptions of the dyad member who has lower levels of dependence on the other dyad member and on whom the other dyad member is highly dependent on will be heavily biased by their own LMX. Moreover, we hypothesize that power dependence moderates direct meta-accuracy, such that the powerless will be more motivated to attend to relational cues from the powerful. In a study examining metaperceptions in outcome-dependent situations (Kaplan et al., 2009), participants interviewed by a stranger that they believed controlled their outcomes paid more attention to the interviewer in making metaperceptions of how the interviewer thought about them. In comparison, for those who were led to believe the interviewer did not control their outcomes, their metaperceptions were not as accurate. As such, it is reasonable to expect the powerless dyad member—who has higher levels of dependence on the other dyad member and on whom the other dyad member is less dependent on—will be more accurate and less biased when making LMX metaperceptions.

Hypothesis 2: Power dependence moderates self-projection bias such that the dyad member who is more dependent on the other member (2a) and on whom the other member is less dependent upon (2b) has weaker self-projection bias.

Hypothesis 3: Power dependence moderates direct meta-accuracy such that the dyad member who is more dependent on the other member (3a) and on whom the other member is less dependent upon (3b) has stronger direct meta-accuracy.

LMX Reciprocity

Importantly, the convergence of LMX and the accurate awareness of convergence provide a complete picture of dyadic LMX relationship cognitions. Therefore, after hypothesizing the nuances regarding LMX metaperceptions, we revisit the magnitude of the convergence of leader- and follower-reported LMX. Intuitively, when two parties' provisions of resources to their relationship are correlated, the relationship reflects the social exchange processes that form the foundation of LMX theory (Dienesch & Liden, 1986; Sparrowe & Liden, 1997). In this sense, investigating LMX convergence carries critical theoretical implications. To date, two meta-analytic reviews have been conducted to understand its magnitude (Gerstner & Day, 1997; Sin et al., 2009). Nevertheless, good reasons exist to further deepen scholarly understanding of this important issue.

First, when viewed through our conceptualizations of LMX vis-à-vis LMX metaperceptions, past LMX scales have largely conflated perceptions and metaperceptions in the operationalization of LMX (see the Method section for details). Therefore, the exact theoretical underpinning of the correlation between leader- and follower-reported LMX becomes less clear. Second, as a leader interacts with multiple followers (Graen & Uhl-Bien, 1995), social exchanges between leaders and followers can be described within a multilevel framework. The social exchange at the between-leader level reflects whether leaders offering more (compared with those who offer less) resources to their followers will receive more resources from their followers in return. In comparison, dyadic social exchange (i.e., at the within-leader level) captures for a given leader, whether the leader and their followers have similar exchange tendencies toward each other. In other words, analyzing LMX convergence through a multilevel lens holds promise to offer a more nuanced understanding of the social exchange processes underlying LMX.

These two social exchange levels are difficult to separate unless they are theorized and analyzed through a multilevel lens. Yet, despite the large volume of LMX research, LMX studies that have taken this approach are still rare (see Krasikova & LeBreton, 2012, for a review). As the level of analysis sits at the core of LMX theory (Erdogan & Bauer, 2014; Graen & Uhl-Bien, 1995), the two levels of LMX convergence warrant empirical attention. To be sure, submitting LMX convergence to multilevel analyses may not necessarily lead to meaningfully different conclusions. For example, social exchange at both the between-leader and within-leader levels might approximate the meta-analytic effect size reported in past research. In that case, empirically establishing this can add to the robustness of past findings.

Alternatively, it is possible that multilevel conceptualizations can yield new insights regarding leader–follower relationships. In that regard, recent research highlights that failing to take a multilevel lens risks masking important nuances underlying relational phenomena (e.g., Kluger & Malloy, 2019). For example, the moderate level of LMX convergence may be largely driven by the social exchange at one specific level but not the other. To explore this issue, we estimate LMX convergence at the between-leader and the within-leader levels. In keeping with the terminology of the multilevel method for dyadic analyses (Kenny et al., 2006), we refer to social exchange at the between-leader level as generalized reciprocity and social exchange at the within-leader level as dyadic reciprocity.

Research Question: What are the magnitudes of generalized and dyadic reciprocity of LMX?

Overall, we seek to understand the relational nuances underlying leader–follower metaperceptions by examining the self-projection bias and direct meta-accuracy of LMX metaperceptions (Hypothesis 1), the moderating role of power dependence (Hypotheses 2 and 3), and to evaluate the reciprocity of LMX (Research Question). Figure 2 summarizes our research model.

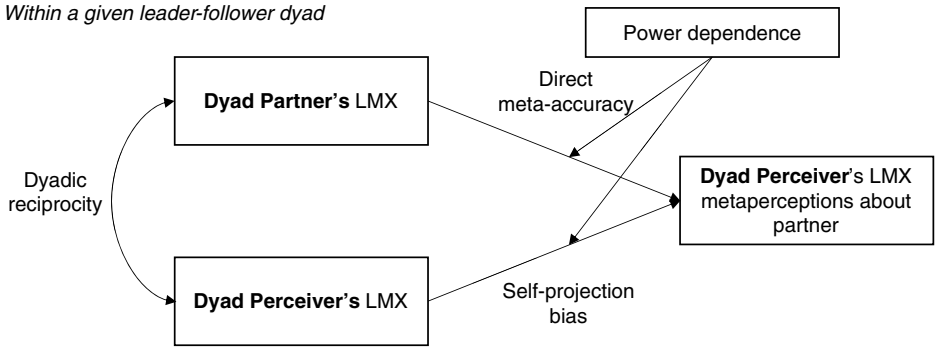
Method

Participants and Procedure

We invited 102 managers and 375 subordinates from 102 chain convenience stores in Eastern China to participate in this study.[2]

[2] This study was approved by the Institutional Review Board of the School of Management at Nanjing University (study title: "Meta-Perceptions for Leader-Follower Relationship"; Protocol 2018DE01). The data presented in this article were part of a broader data collection effort.

Figure 2
Research Model



Note. When the term dyad perceiver is used to describe the follower, the term dyad partner describes the leader; when the term dyad perceiver is used to describe the leader, the term dyad partner describes the follower. Generalized reciprocity is not included in the model as it is not at the dyadic level. LMX = Leader–Member Exchange.

Sponsored by the human resource department of the company, study information was circulated through the organization's internal listserv. Potential participants were informed that this study was for research purposes only and were ensured the confidentiality of their survey responses. Both managers and subordinates were asked to complete an online survey. Because multiple subordinates reported to a single manager, managers were asked to report their LMX, LMX metaperceptions, and power dependence in their relationship with every subordinate. For subordinates, they reported their LMX, LMX metaperceptions, and power dependence in their relationship with their manager. A total of 94 managers and 257 subordinates took the survey (overall response rate = 73.6%). The correct estimation of reciprocal one-with-many design requires complete data from the manager and more than one of their subordinates (Kenny et al., 2006; Marcus et al., 2009). Using this criterion, we kept complete data from 64 managers and 181 subordinates from 64 stores (average span of control = 2.83, *SD* = .90, *min* = 2, *max* = 5).[3] Managers were 67.2% female and subordinates were 90.6% female. On average, managers were 34.06 years old (*SD* = 6.97) and subordinates were 37.56 years old (*SD* = 6.94). As study measures were first developed in English, we followed Brislin's (1970) procedure for translation–back translation to ensure accuracy prior to data collection. A 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*) was used for all study measures.

Measures

LMX

Following several LMX scholars' recommendations (Erdogan & Bauer, 2014; Liden et al., 2015), we used the multidimensional LMX scale (LMX-MDM; Liden & Maslyn, 1998).[4] LMX-MDM went through a rigorous process of psychometric validation and measures four dimensions of leader–follower relationships (i.e., affect, loyalty, contribution, and professional respect). It was first developed from the follower's perspective. The original affect, contribution, and professional respect items assess the follower's tendency to contribute these resources to the leader. However, the loyalty dimension assesses the follower's inference about whether the leader would come to their defense, thus reflecting the follower's LMX metaperceptions. Therefore, we revised the loyalty items to measure the follower's tendency to be loyal toward the leader. Subordinates were asked to think about their relationship with their manager in the past month and complete the revised 12-item LMX-MDM (α = .87).

As each store manager supervised multiple subordinates, using the 12-item scale to assess their relationship with each subordinate would greatly increase survey length and result in respondent fatigue. To mitigate this concern, we administered a shortened four-item scale to managers, using the item with the highest factor loading from each dimension in Liden and Maslyn (1998). Managers were asked to think about their relationship with each subordinate in the past month when answering the questions (α = .64). In adapting these scales, we followed standard recommendations (Heggestad et al., 2019) and conducted a study to examine the validity of the scale adaptation (see Appendix A).

LMX Metaperceptions

We measured LMX metaperceptions such that all items reflected inferences about the other member's exchange tendencies, not how participants themselves felt about their relationship with the other members. Specifically, participants were asked to infer how the other dyad member felt about their relationship and indicate their agreement with the items. Similar to LMX, subordinates filled out a 12-item scale (α = .88) whereas managers completed a four-item measure for the relationship with every subordinate (α = .73). To minimize confusion and ensure measurement accuracy, we

[3] The final manager sample was not significantly different from the excluded managers with respect to age (mean difference = 2.01, $t(78) = 1.08$, *ns*) or gender ($\chi^2(1) = 2.75$, *ns*). Similarly, there were no significant differences between the final subordinate sample and those excluded with respect to age (mean difference = .42, $t(242) = .42$, *ns*) or gender ($\chi^2(1) = .21$, *ns*).

[4] The other commonly used LMX scale—LMX-7 (Graen & Uhl-Bien, 1995)—contains items assessing both relationship perceptions and metaperceptions. For example, items such as "do you usually know how satisfied your leader is with what you do" and "regardless of the amount of formal authority your leader has, what are the chances that they would 'bail you out' at their expense" are assessing the follower's inference of how the leader feels about and tends to behave toward them (i.e., metaperceptions). In contrast, other items such as "how would you characterize your working relationship with your leader" are measuring how the follower feels about their relationship with their leader (i.e., relationship perceptions). Given our focus on differentiating dyadic LMX perceptions and LMX metaperceptions, we did not use this measure.

presented LMX metaperception items in another block separate from LMX items. In the instructions, we emphasized that the following items were about their inferences of the other dyad member, not how they perceived the relationship themselves. Table 1 presents the original LMX-MDM, the revised follower's LMX, and the follower's LMX metaperceptions scales. Table 1 also notes how the measures were modified for use by leaders.

Power Dependence

As stated earlier, we examined power dependence as a dyadic variable. Subordinates rated their dependence on their manager using the five-item scale (e.g., *My supervisor has certain influence on my promotion prospects*; $\alpha = .73$) from Chou et al. (2005). Managers reported their dependence on each subordinate with the two-item scale (e.g., *I'm dependent on [name of subordinate] for career goals [e.g., promotion, development] that I care about*; $\alpha = .89$) from Wee et al. (2017).

Control

Past research indicates that dyadic interaction can influence leader–follower relationship agreement (Sin et al., 2009). Therefore, we measured subordinates' dyadic interaction with their leader with the five-item scale from Pearce and Gregersen (1991). Subordinates indicated their agreement to the five items (e.g., *I work closely with my supervisor in doing my work*; $\alpha = .71$).

Analytical Approach

We used the reciprocal OWM design to analyze study data through the linear mixed-effects model procedure in SPSS (Kenny et al., 2006; Marcus et al., 2009). This design can be thought of as a special case of multilevel modeling, where followers are nested within leaders (Marcus et al., 2009). However, what distinguishes the reciprocal OWM design from past multilevel LMX research that has only surveyed one party (e.g., followers) is its reciprocal nature (Krasikova & LeBreton, 2012). That is, both the leader and the follower report on their dyadic relationship. In other words, there are two outcomes from a dyad (i.e., each dyad member reports their outcome), although they are estimated simultaneously through one model (Kashy & Kenny, n.d.; Kenny et al., 2006; Marcus et al., 2009). In the current study, the two dyad members' LMX metaperceptions serve as the outcome variables when testing Hypotheses 1–3, whereas the Research Question involves the two dyad members' LMX perceptions as outcomes. To incorporate the reciprocal structure of dyadic data, reciprocal OWM analysis utilizes the two-intercept approach of multilevel modeling (e.g., Raudenbush et al., 1995) to estimate separate intercepts and residuals for both the leader's and the follower's ratings. Two dummy variables were created to designate the roles of leader and follower, respectively.

The reciprocal OWM design offers at least two important advantages when it comes to studying relationships. We illustrate its advantages with an example where the dyadic outcomes are LMX perceptions, though we note these advantages apply to any relational

Table 1
LMX-Related Measures

Original LMX-MDM (Liden & Maslyn, 1998)	Revised follower's LMX	Follower's LMX metaperceptions
Affect		
I like my manager very much as a person.	I like my manager very much as a person.	I think my manager likes me very much as a person.
My manager is the kind of person one would like to have as a friend.	My manager is the kind of person one would like to have as a friend.	I feel my manager considers me the kind of person one would like to have as a friend.
My manager is a lot of fun to work with.	My manager is a lot of fun to work with.	I feel my manager finds it a lot of fun to work with me.
Loyalty		
My manager defends (would defend) my work actions to a superior, even without complete knowledge of the issue in question.	I defend (would defend) my manager's work actions to others, even without complete knowledge of the issue in question.	I think my manager defends (would defend) my work actions to a superior, even without complete knowledge of the issue in question.
My manager would come to my defense if I were "attacked" by others.	I would come to my manager's defense if they were "attacked" by others.	I feel my manager would come to my defense if I were "attacked" by others.
My manager would defend me to others in the organization if I made an honest mistake.	I would defend my manager to others in the organization if they made an honest mistake.	I think my manager would defend me to others in the organization if I made an honest mistake.
Contribution		
I do work for my manager that goes beyond what is expected of me in my job.	I do work for my manager that goes beyond what is expected of me in my job.	I think my manager does work for me that goes beyond what is expected of him/her in the job.
I am willing to apply extra efforts, beyond those normally required, to meet my manager's work goals.	I am willing to apply extra efforts, beyond those normally required, to meet my manager's work goals.	I think my manager is willing to apply extra efforts, beyond those normally required, to help meet my work goals.
I do not mind working my hardest for my manager.	I do not mind working my hardest for my manager.	I feel my manager does not mind working their hardest to help me.
Professional respect		
I am impressed with my manager's knowledge of their job.	I am impressed with my manager's knowledge of their job.	I think my manager is impressed with my knowledge of my job.
I respect my manager's knowledge of and competence on the job.	I respect my manager's knowledge of and competence on the job.	I think my manager respects my knowledge of and competence on the job.
I admire my manager's professional skills.	I admire my manager's professional skills.	I think my manager admires my professional skills.

Note. Leaders completed shortened LMX and LMX metaperception scales in which underlined items were changed to the leader's perspective. Original LMX-MDM is reprinted from Liden & Maslyn, 1998.

outcomes analyzed through the reciprocal OWM design. First, it takes into account both parties' views. Collecting relationship data from only one dyad member—a common practice in previous LMX research (see Hiller et al., 2011, for a review)—assumes convergent views between dyad members, which has been proven not to be the case in LMX research (Gerstner & Day, 1997; Sin et al., 2009). Omitting the other party's perspective runs the risk of model misspecification and may lead to biased parameter estimates (Kline, 2005). Second, the recriprocal OWM design provides a more accurate decomposition of relational dynamics at different levels. Recognizing the importance of surveying both members, some LMX research has used data collected from independent leader–follower dyads. For example, only one of the followers, Follower 2, may be surveyed along with the leader, thus constituting one independent leader–follower dyad (see Figure 3a). However, this approach is also limited, as it conflates relational processes at the generalized and dyadic levels (Kenny et al., 2006; Marcus et al., 2009).

According to the reciprocal OWM design, the leader's LMX with Follower 2 partly reflects the leader's tendency to perceive a certain level of LMX across followers (see Figure 3b). This component is referred to as *leader perceiver* effect (Table 2). Note the use of "perceiver" is only from the terminology of OWM analysis and does not necessarily indicate the stable tendency is due to the leader's perceptual bias. For example, certain leaders may be better able than other leaders to foster effective relationships regardless of followers and thus may perceive higher levels of LMX across followers. Once this component is parsed out, the remainder of the leader's LMX rating with Follower 2 reflects their unique relationship with this particular follower, herein referred to as *leader relationship* effect.[5] Similarly, Follower 2's LMX with the leader contains a *leader partner* effect, such that the followers of certain leaders tend to report consistently higher levels of LMX than the followers of other leaders. After this component is removed, the remainder of Follower 2's LMX score captures their dyadic relationship with the leader, herein referred to as *follower relationship* effect.

Based on such variance decomposition, the reciprocal OWM design offers insights into relational processes at two levels. The correlation between the leader perceiver and leader partner variance components taps into the extent to which certain leaders are better than others in creating mutually reciprocated relationships (i.e., *generalized reciprocity*).[6] In comparison, the correlation between the leader relationship and follower relationship variance components is referred to as *dyadic reciprocity* and reflects the extent to which an average leader can foster mutually reciprocated relationships across their followers. However, when LMX reports from independent leader–follower dyads are correlated, it becomes difficult to tease apart the two types of reciprocity.

Given these advantages of the reciprocal OWM design in analyzing dyadic variables, we investigated Hypotheses 1–3 and the Research Question using reciprocal OWM analyses. Specifically, to test Hypothesis 1, we focused on LMX metaperceptions as the outcome and used the dyad member's own LMX and the other member's LMX to predict LMX metaperceptions. As for Hypotheses 2 and 3, we examined the moderating effects of power dependence. Further, we investigated the Research Question by estimating the null model where LMX perceptions were the outcome, which allowed us to conduct variance decomposition and estimate the reciprocity of dyadic LMX scores. In reciprocal OWM analyses, when testing the effect of a predictor, researchers can set its effects to be the same for both dyad members. This approach is appropriate only when there is a good reason to expect the predictor has the same effect for the leader and the follower. Alternatively, researchers can estimate the effects separately, which will result in separate findings for the leader and the follower. This is the approach we took in testing study hypotheses, as arbitrarily assuming the same effects for the leader and the follower may mask theoretically meaningful differences between the two roles.

Results

Table 3 reports the descriptive statistics for and intercorrelations among the study variables. Importantly, the bivariate correlations across dyads were an amalgamation of between-leader and within-leader (i.e., dyadic) effects. Therefore, it is inadvisable to interpret its magnitude or significance due to data nonindependence.

Hypothesis Testing

Results regarding self-projection bias and direct meta-accuracy are reported in Table 4. Hypothesis 1, which stated that self-projection bias would be stronger than direct meta-accuracy, was tested first. When the leader was making metaperceptions about the follower, the effect of the leader's own LMX (i.e., self-projection bias) was positive, $b = .50$, $t(173.79) = 10.97$, $p < .001$, whereas the follower's LMX (i.e., direct meta-accuracy) did not have any significant impact, $b = .04$, $t(124.62) = 1.36$, $p = .18$. Further, self-projection bias was significantly stronger than direct meta-accuracy ($b_{dif} = .46$, $p < .001$). Similarly, for the follower's LMX metaperceptions, they were heavily biased by the follower's own LMX (i.e., self-projection bias), $b = .81$, $t(176.10) = 17.64$, $p < .001$. The effect of the leader's LMX (i.e., direct meta-accuracy) was nonsignificant, $b = -.03$, $t(82.54) = .70$, $p = .48$. Again, self-projection bias was stronger than direct meta-accuracy ($b_{dif} = .84$, $p < .001$). Therefore, Hypothesis 1 received full support. In other words, for both leaders and followers, their LMX metaperceptions about the other party were heavily biased by their own LMX perceptions (i.e., substantial self-projection bias). But these LMX metaperceptions had near-zero, nonsignificant relationships with the other party's actual LMX perceptions (i.e., lack of direct meta-accuracy).

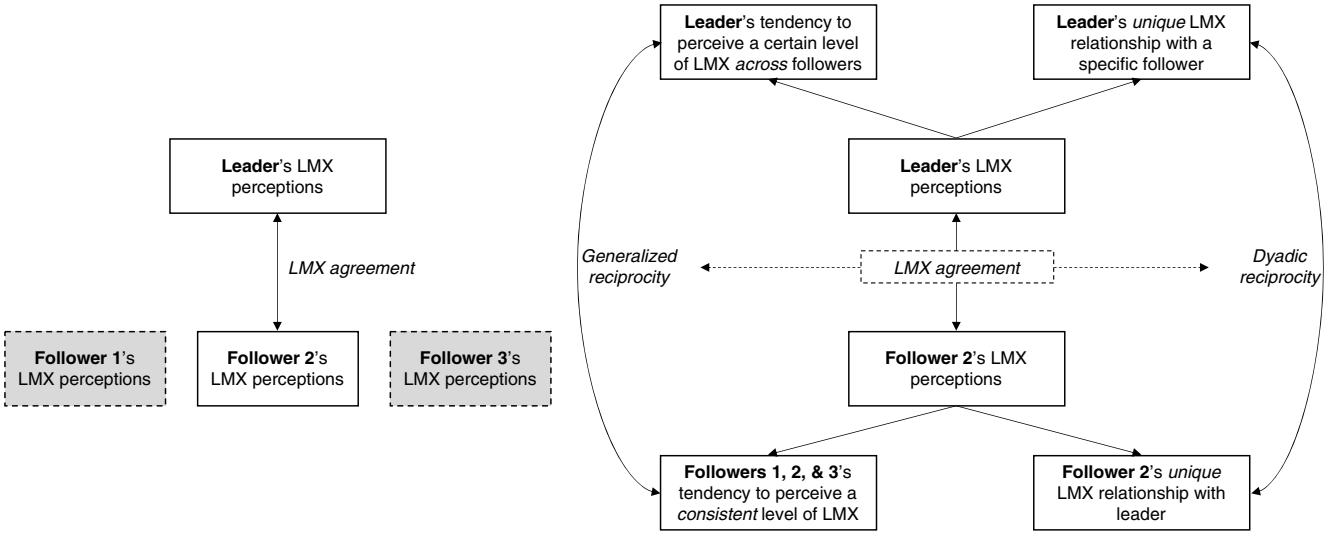
Hypotheses 2 and 3 were concerned with the moderating role of power dependence in influencing self-projection bias and direct meta-accuracy, respectively. Prior to testing moderation hypotheses, we group-mean centered power dependence variables to aid with the interpretation of the interaction (Cohen et al., 2003; Hofmann & Gavin, 1998; Marcus et al., 2009). Table 5 reports the findings

[5] Unlike the typical social relations modeling based on round-robin data, in a reciprocal OWM design each follower works with only one leader. Therefore, the residual score in the leader's rating consumes the follower partner effect and measurement error. Similarly, as each follower rates only one leader, the follower's relationship effect contains the follower perceiver effect and measurement error.

[6] In OWM analysis, reciprocity is a statistical term reflecting the correlation between variance components of the two dyad members (Kenny et al., 2006). It should be differentiated from the meaning of reciprocity in social exchange theory (Sahlins, 1972).

Figure 3

Comparison between Typical LMX Agreement Research Approach and LMX Agreement Research Using a Reciprocal One-With-Many Design



(a) LMX agreement as typically captured in past research (b) LMX agreement using a reciprocal one-with-many design

Note. Shaded boxes in (a) illustrate followers that were not surveyed and thus not included in the independent leader–follower dyad. The dotted-line arrows in (b) illustrate how LMX agreement as estimated in (a) conflates generalized and dyadic reciprocity. LMX = Leader–Member Exchange.

regarding the follower's dependence on the leader. To check for possible suppressor effects among predictors and to evaluate the robustness of study findings, we first tested the moderating effects individually, examining whether the follower's dependence on the leader would moderate the self-projection bias of the leader, the direct meta-accuracy of the leader, the self-projection bias of the follower, and the direct meta-accuracy of the follower. Next, we included all interaction terms in one model. As we observed convergent findings with the two approaches, this indicated that the significant moderating effect in the complete model was robust to suppressor effects. Therefore, for the sake of completeness, we report results from the full model in Table 5. Doing so is also

Table 2

Elements of the Reciprocal OWM Analysis of LMX

Variance Components

Variance	Source	Interpretation	Proportion of variance	Total variance
Leader partner	Follower	Do followers of a specific leader report unique LMX with this leader (compared with followers of another leader)?	16.7%	.888
Follower relationship	Follower	Within a dyad, does a specific follower report unique LMX with the leader (compared with another follower)?	83.3%	
Leader perceiver	Leader	Does a specific leader report unique LMX with their followers (compared with another leader)?	82.2%	.681
Leader relationship	Leader	Within a dyad, does the leader report unique LMX with a specific follower (compared with another follower)?	17.8%	

Reciprocity Correlations

Reciprocity type	Estimation	Interpretation	Result
Generalized reciprocity	Leader partner correlated with leader perceiver	For a leader who reports a high level of LMX with their followers (compared with a leader who reports a low level of LMX with their followers), do their followers also report a high level of LMX with this leader?	$r = .54$, $p = .01$
Dyadic reciprocity	Leader relationship correlated with follower relationship	Within a dyad, if a specific follower reports a high level of LMX (compared with another follower who reports a low level of LMX with the same leader), does the leader also report a high level of LMX toward this follower?	$r = -.09$, $p = .31$

Note. Results for the Research Question are reported. All four variance components were significantly greater than zero ($p < .05$). LMX = Leader–Member Exchange.

Table 3
Descriptive Statistics and Correlations Among Study Variables

Variable	Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Leader																
1. LMX-affect	5.88	0.95	—													
2. LMX-loyalty	4.71	1.51	.13	—												
3. LMX-contribution	4.96	1.60	.28**	.42**	—											
4. LMX-professional respect	5.30	1.32	.53**	.16*	.40**	—										
5. LMX	5.21	0.95	.60**	.66**	.80**	.71**	*.64*									
6. LMX-affect metaperceptions	5.68	0.98	.46**	.16*	.27**	.44**	.45**	—								
7. LMX-loyalty metaperceptions	4.76	1.38	.21**	.68**	.42**	.25**	.59**	.32**	—							
8. LMX-contribution metaperceptions	5.20	1.51	.31**	.45**	.61**	.49**	.69**	.40**	.50**	—						
9. LMX-professional respect metaperceptions	5.78	0.87	.34**	.24**	.45**	.47**	.53**	.53**	.30**	.52**	—					
10. LMX metaperceptions	5.35	0.90	.42**	.55**	.60**	.54**	.76**	.69**	.75**	.84**	.72**	*.73*				
11. Leader's dependence on follower	3.70	1.52	.20**	.39**	.40**	.34**	.50**	.16*	.45**	.45**	.25**	.47**	*.89*			
12. Leader age	34.30	6.71	−.17*	−.13	−.18*	−.21**	−.24**	−.19*	−.10	−.32**	−.08	−.24**	−.28**			
13. Leader gender	0.74	.44	.00	−.08	−.09	−.24**	−.15*	−.09	−.03	−.19*	−.22**	−.17*	−.24**	.48**		
14. Leader tenure	1.70	.61	.02	.26**	.10	−.08	.12	−.21**	.21**	.10	−.18*	.02	.16*	.08	.47**	
Follower																
15. LMX-affect	5.77	1.05	.20**	.07	.08	.19*	.18*	.13	.16*	.12	.03	.15*	.16*	−.12	−.16*	.00
16. LMX-loyalty	4.95	1.11	.12	−.03	.16*	.00	.09	.09	.11	.13	.03	.12	−.06	.01	.09	−.04
17. LMX-contribution	4.65	1.27	.11	.05	.12	.05	.12	.16*	.09	.10	.05	.13	.18*	−.09	.07	.06
18. LMX-professional respect	5.83	0.97	.22**	−.03	.02	.15*	.11	.13	.09	.05	.08	.11	.10	−.12	−.09	−.06
19. LMX	5.30	0.82	.21**	.03	.13	.13	.16*	.17*	.15*	.13	.06	.18*	.13	−.11	−.02	−.01
20. LMX-affect metaperceptions	5.31	1.01	.12	−.02	.08	.03	.07	.10	.08	.03	.04	.08	.10	−.07	−.02	.03
21. LMX-loyalty metaperceptions	4.69	1.18	.09	.09	.17*	.04	.15*	.11	.15*	.18*	.11	.19*	.13	−.01	.05	−.04
22. LMX-contribution metaperceptions	4.84	1.16	.05	.11	.14	.10	.15*	.14	.21**	.15*	.08	.20**	.24**	−.15*	−.14	−.04
23. LMX-professional respect metaperceptions	4.90	1.03	.08	−.10	.03	.08	.02	.09	.06	−.04	.02	.03	.13	.04	−.08	−.11
24. LMX metaperceptions	4.94	0.84	.11	.03	.14	.08	.13	.14	.16*	.11	.09	.17*	.20**	−.06	−.06	−.05
25. Follower's dependence on leader	4.29	1.09	.00	−.19*	−.01	.03	−.07	.01	−.02	−.02	−.05	−.03	−.06	−.03	−.09	−.18*
26. Follower interaction with leader	5.22	0.87	.13	−.05	.03	.09	.06	.13	.07	.01	−.05	.05	.10	−.16*	−.15*	−.10
27. Follower age	37.63	7.03	−.08	−.04	−.07	.00	−.07	−.11	−.05	−.09	−.06	−.10	−.04	.18*	−.04	−.08
28. Follower gender	0.96	.19	.09	.14	.01	.18*	.14	−.06	.07	.03	.02	.03	.02	.09	−.12	−.05
29. Follower tenure	1.27	.64	.03	.01	.00	.18*	.07	.02	.08	.13	−.03	.08	.05	.16*	.14	.10

Variable	Mean	*SD*	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Follower																
15. LMX-affect	5.77	1.05	*.92*													
16. LMX-loyalty	4.95	1.11	.35**	*.74*												
17. LMX-contribution	4.65	1.27	.40**	.49**	*.70*											
18. LMX-professional respect	5.83	0.97	.69**	.27**	.31**	*.95*										
19. LMX	5.30	0.82	.79**	.71**	.77**	.73**	*.87*									
20. LMX-affect metaperceptions	5.31	1.01	.66**	.35**	.51**	.58**	.69**	*.88*								
21. LMX-loyalty metaperceptions	4.69	1.18	.42**	.62**	.50**	.27**	.61**	.45**	*.79*							
22. LMX-contribution metaperceptions	4.84	1.16	.55**	.41**	.70**	.45**	.72**	.54**	.46**	*.78*						
23. LMX-professional respect metaperceptions	4.90	1.03	.44**	.13	.32**	.43**	.43**	.64**	.27**	.40**	*.89*					
24. LMX metaperceptions	4.94	0.84	.67**	.50**	.67**	.55**	.80**	.84**	.73**	.79**	.73**	*.88*				
25. Follower dependence on leader	4.29	1.09	.21**	.25**	.33**	.17*	.33**	.30**	.36**	.28**	.18*	.37**	*.73*			
26. Follower interaction with leader	5.22	0.87	.40**	.20**	.36**	.40**	.45**	.49**	.33**	.36**	.45**	.52**	.41**	*.71*		
27. Follower age	37.63	7.03	.01	−.10	−.06	−.07	−.08	−.02	−.12	−.11	.10	−.06	.06	.01	—	
28. Follower gender	0.96	.19	−.04	−.09	−.15*	.02	−.09	−.01	−.06	−.04	−.06	−.06	.01	.03	.29**	—
29. Follower tenure	1.27	.64	−.09	−.03	−.02	−.11	−.08	−.07	−.09	−.08	.07	−.06	.04	−.08	.16*	.10

Note. $n = 64$ leaders, 181 subordinates, 362 directed dyadic ratings. Internal consistency estimates reported along the diagonal where applicable. Gender: 0 = man, 1 = woman. LMX = Leader–Member Exchange.
* $p < .05$. ** $p < .01$.

Table 4
Accuracy and Bias of LMX Metaperceptions

Variable	*b*	*SE*	*df*	*t*
Leader's LMX metaperceptions				
Intercept	2.55**	.29	176.59	8.70
Leader's LMX (self-projection bias)	.50**	.05	173.79	10.97
Follower's LMX (direct meta-accuracy)	.04	.03	124.62	1.36
Follower's LMX metaperceptions				
Intercept	.77*	.30	119.84	2.53
Follower's LMX (self-projection bias)	.81**	.05	176.10	17.64
Leader's LMX (direct meta-accuracy)	−.03	.04	82.54	.70
−2 Restricted Log-Likelihood			454.98	
AIC			466.98	

Note. Unstandardized coefficients reported. *SE* = standard error. *df* = degree of freedom. LMX = Leader–Member Exchange; AIC = Akaike Information Criterion.
* $p < .05$. ** $p < .01$.

consistent with West and Kenny's (2011) recommendation to consider moderating influences on self-projection bias and direct meta-accuracy simultaneously.

Specifically, the follower's dependence on the leader moderated the self-projection bias for the leader, $b = .05$, $t(106.91) = 2.48$, $p = .02$, but not direct meta-accuracy, $b = .02$, $t(112.25) = .97$, $p = .34$. For the follower's LMX metaperceptions, power dependence did not moderate the follower's self-projection bias, $b = .00$, $t(174.82) = .09$, $p = .93$, or direct meta-accuracy, $b = -.07$, $t(126.44) = 1.66$, $p = .10$. We conducted simple slope analyses to probe the pattern of the significant interaction (Figure 4).[7] With higher levels of follower's dependence on the leader (+1 *SD*), the leader's self-projection bias was strongly positive, $b = .52$, $t(162.91) = 11.13$, $p < .001$. When the follower was less dependent on the leader (−1 *SD*), it became weaker, $b = .43$, $t(161.89) = 8.80$, $p < .001$. The significant moderating effect of the follower's dependence on the leader explained an additional 4.7% of the variance of leader LMX metaperceptions at the dyadic level.

Table 6 presents the results of the leader's dependence on the follower as the moderator. Again, we first tested interaction effects individually, then simultaneously in one model, and observed similar results. Therefore, we report the results from the full model. The leader's dependence on the follower moderated the leader's self-projection bias, $b = -.14$, $t(109.54) = 2.14$, $p = .03$, but not direct meta-accuracy, $b = -.03$, $t(116.07) = .37$, $p = .71$. It did not moderate the follower's self-projection bias, $b = .00$, $t(174.72) = .01$, $p = .99$, or direct meta-accuracy, $b = .21$, $t(149.42) = 1.64$, $p = .10$. As for the significant interaction effect (Figure 5), simple slope analyses showed that the leader's self-projection bias was weaker, $b = .42$, $t(167.82) = 7.55$, $p < .001$, with more dependence on the follower (+1 *SD*). It became stronger, $b = .53$, $t(165.39) = 10.24$, $p < .001$, when the leader was less dependent on the follower (−1 *SD*).[8] The significant interaction term explained an additional 4.4% of the variance in the leader's dyadic LMX metaperceptions. Taken together, Hypotheses 2a and 2b received support, but only for the leader's self-projection bias, whereas Hypotheses 3a and 3b were not supported. That is, when the follower reported higher levels of dependence on the leader and the leader reported lower levels of dependence on the follower, the leader's self-projection bias was even more pronounced.[9]

Research Question

To investigate the Research Question, we used LMX as the outcome of the reciprocal OWM design and conducted variance decomposition.[10] As reported in Table 2, leader perceiver accounted for 82.2% of the leader-reported LMX variance, with the remaining 17.8% attributed to leaders' differentiated relationships with followers and residual. For follower-reported LMX, the leader partner effect was responsible for 16.7% of the variance. The lion's share of its variance (83.3%) was due to followers' relationship effects and residual. Importantly, all variance components were significantly greater than zero. Further, generalized reciprocity was positive ($r = .54$, $p = .01$), but dyadic reciprocity was near-zero and nonsignificant ($r = -.09$, $p = .31$). This provided strong support for reciprocity at the between-leader level. However, once this between-leader effect is parsed out, an average leader's relationship with their followers lacks reciprocity. In other words, the modest level of LMX convergence observed in past research ($\rho = .37$ in Gerstner & Day, 1997; Sin et al., 2009) may have been largely driven by the between-leader level effect, but not the dyadic level effect.

[7] Following a reviewer's suggestion, we calculated the region of significance (Johnson & Neyman, 1936). The leader's self-projection bias was significantly greater than zero when the follower's dependence on the leader was greater than −5.28. Within this region, the greater the dependence, the stronger the leader's self-projection bias. The actual range of the group-mean-centered follower's dependence on the leader [−2.00, 3.07] was within the region of significance.

[8] The leader's self-projection bias was significantly greater than zero when the leader's dependence on the follower was smaller than 1.71. Within this region, the smaller the dependence, the stronger the leader's self-projection bias. The actual range of the group-mean-centered leader's dependence on the follower [−2.13, 1.67] fell within the region of significance.

[9] Following a reviewer's suggestion, we also used the four-item measures of LMX and LMX metaperceptions reported by subordinates to test study hypotheses and observed convergent results, which are available upon request.

[10] Due to space constraints, variance decomposition results for LMX metaperceptions are not reported here, though we note they showed a similar pattern that supported the necessity of dyadic analyses. Detailed findings are available upon request.

Table 5
Moderating Effect of Follower's Dependence on Leader

Variable	*b*	*SE*	*df*	*t*
Leader's LMX metaperceptions				
Intercept	2.47**	.29	170.81	8.58
Leader's LMX	.47**	.04	167.51	10.67
Follower's LMX	.08**	.03	119.72	2.66
Follower's dependence on leader	−.45*	.18	110.25	2.42
Leader's LMX × Follower's dependence on leader	.05*	.02	106.91	2.48
Follower's LMX × Follower's dependence on leader	.02	.03	112.25	.97
Follower's LMX metaperceptions				
Intercept	.82**	.31	117.36	2.65
Follower's LMX	.80**	.05	170.59	16.39
Leader's LMX	−.02	.04	80.22	.48
Follower's dependence on leader	.43	.37	160.21	1.16
Follower's LMX × Follower's dependence on leader	.00	.05	174.82	.09
Leader's LMX × Follower's dependence on leader	−.07	.04	126.44	1.66
−2 Restricted Log-Likelihood			469.93	
AIC			481.93	

Note. Unstandardized coefficients reported. *SE* = standard error. *df* = degree of freedom. LMX = Leader–Member Exchange; AIC = Akaike Information Criterion.
* $p < .05$. ** $p < .01$.

Supplemental Analyses

Other Dyadic Contingencies

While our research model focused on power dependence as an important relationship contingency, past research has shown that dyadic interaction is another key factor (Sin et al., 2009). Further, dyadic demographic composition in terms of age and gender may also influence the accuracy and bias of LMX metaperceptions. Therefore, we assessed their potential moderating effects as part of our Supplemental Analyses[11] Although there was no support for the moderating role of dyadic interaction or dyadic age difference[12], dyadic gender composition (0 = *different-gender dyad*; 1 = *same-gender dyad*) significantly influenced the leader's self-projection bias, $b = .26$, $t(137.96) = 3.28$, $p < .001$; Table 7, and the follower's direct meta-accuracy, $b = -.32$, $t(115.63) = 3.08$, $p = .003$; Table 7. Simple slope tests indicated that when the dyad members were of different genders, the leader's self-projection bias was weaker, $b = .36$, $t(147.24) = 4.70$, $p < .001$, than when they were of the same gender, $b = .61$, $t(163.78) = 12.65$, $p < .001$; Figure 6. Moreover, the follower's direct meta-accuracy was significant, $b = .25$, $t(109.58) = 2.65$, $p = .01$, for different-gender leader–follower dyads, but became nonsignificant, $b = -.07$, $t(71.72) = 1.56$, $p = .12$, for same-gender leader–follower dyads (Figure 7). Overall, same-gender dyads were prone to less accuracy and more bias than different-gender dyads.

Performance Implications

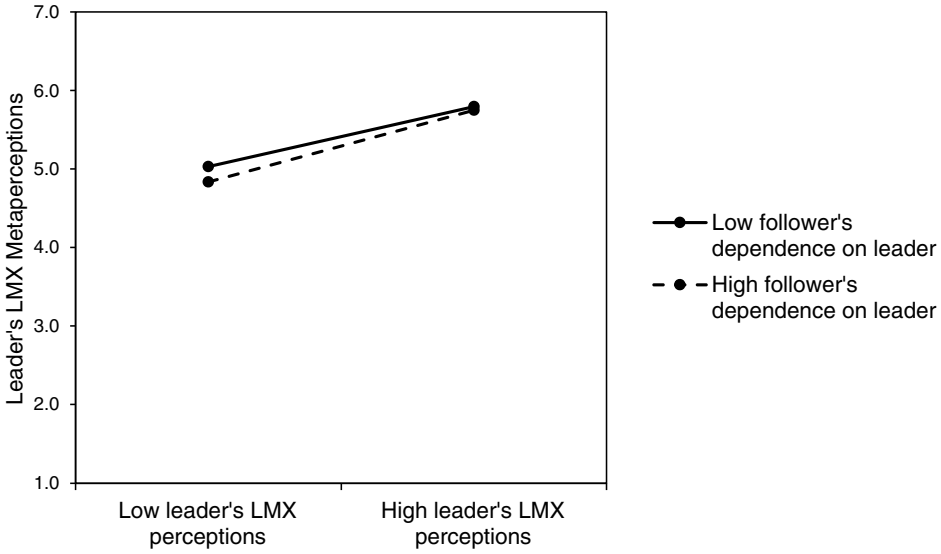
In addition to the theoretical reasons to investigate the accuracy and bias of LMX metaperceptions, it is critical to address the performance implications of incorporating LMX metaperceptions into leadership inquiries. In line with the role-based account of LMX (Dienesch & Liden, 1986; Graen, 1976; Graen & Scandura, 1987), we expect that when the leader's relationship inference (i.e., leader's LMX metaperceptions about what the follower is willing to contribute to the relationship) is consistent with the follower's actual tendency toward their relationship (i.e., follower's LMX perceptions), it creates relationship synergies that will lead to higher levels of follower's task performance. In other words, the positive relationship between the leader's LMX metaperceptions and the follower's task performance will be stronger with higher (vs. lower) levels of follower's LMX.

To test this possibility, 1 month after the initial data collection we asked store managers to rate each subordinate's task performance using a four-item scale (Van Dyne & LePine, 1998; "Since the last survey, [name of subordinate] performed the tasks that were expected as part of the job"; $\alpha = .94$). We obtained complete performance ratings for 150 subordinates from 57 managers. Given the nested nature of study data, we tested the expected moderation effect through multilevel modeling, using the "nlme" package for linear and nonlinear mixed-effects models in R (Pinheiro et al., 2021). To ensure results were not conflated by between-leader effects, we group-mean centered the predictors (Hofmann & Gavin, 1998). Given the small sample size to test moderation through multilevel modeling, we did not include any control variables to preserve statistical power.

Results are reported in Table 8. The interaction between the leader's LMX metaperceptions and the follower's LMX perceptions was significant ($b = .58$, $p = .02$) and explained an additional 4.9% of the variance in task performance at the within-leader level. Simple slope tests indicated when the follower's LMX was higher (+1 *SD*), the effect of the leader's LMX metaperceptions on the follower's task performance was positive ($b = .73$, $p = .001$). When the follower's LMX was lower (−1 *SD*), this relationship became near-zero ($b = .03$, $p = .89$). The interaction is plotted in Figure 8 and is consistent with the expected pattern.[13]

[11] We thank an anonymous reviewer for suggesting these analyses.
[12] Complete results regarding dyadic interaction and dyadic age difference are available upon request.
[13] Notably, the interaction between the leader's and the follower's LMX was not significant ($b = .21$, $SE = .16$, *ns*). Notwithstanding the caution one has to exercise in interpreting nonsignificant results, this may lend further support to the importance of investigating LMX metaperceptions.

Figure 4
Follower's Dependence on Leader Moderating Leader's Self-Projection Bias



Common Method Variance

Given that dyad members reported their own LMX perceptions and LMX metaperceptions, the strong self-projection bias we observed may have been inflated due to common method variance (CMV). To evaluate its potential impact, we followed Chan's suggestion (in Brannick et al., 2010) to manipulate the factors that are potential sources of method bias across three supplemental studies (see Appendix B for details). If convergent results are observed after manipulation of these factors, this may provide evidence that CMV does not pose a serious threat to study findings (Brannick et al., 2010). Given the self-referential nature of LMX and LMX metaperceptions (i.e., they cannot be measured via other reports), we employed proximal separation (i.e., the distance between study variables in their placement in the survey) in Study 1 and temporal separations in Study 2 (i.e., a 1-week time lag) and Study 3 (i.e., a 1-month time lag). Across the three studies, self-projection was strong ($n = 200$, $r = .87$, $p < .01$ in Study 1; $n = 254$, $r = .76$, $p < .01$ in Study 2; $n = 238$, $r = .78$, $p < .01$ in Study 3). This pattern of results suggests that although CMV was likely to be present to some degree due to the self-referential nature of LMX and LMX metaperceptions, the substantive mechanism—self-projection bias—was the main driver of the strong relationship between LMX and LMX metaperceptions.

Discussion

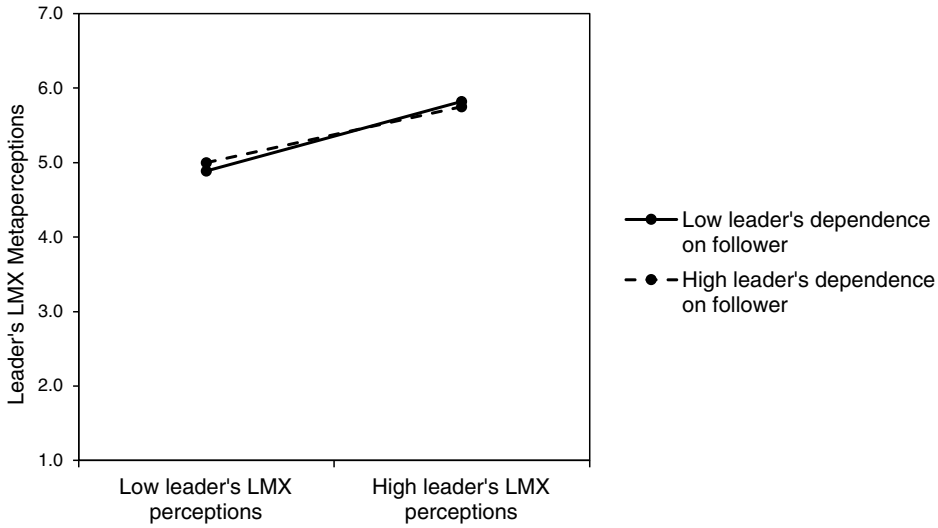
In this research, we investigated the question of whether leader–follower dyad members are accurately aware of the lack of convergence of their LMX perceptions by incorporating the critical notion of LMX metaperceptions. Utilizing the social psychological model of

Table 6
Moderating Effect of Leader's Dependence on Follower

Variable	*b*	*SE*	*df*	*t*
Leader's LMX metaperceptions				
Intercept	2.72**	.31	174.30	8.83
Leader's LMX	.47**	.05	172.70	9.87
Follower's LMX	.03	.03	119.52	1.01
Leader's dependence on follower	.91	.55	113.16	1.67
Leader's LMX × leader's dependence on follower	−.14*	.06	109.54	2.14
Follower's LMX × leader's dependence on follower	−.03	.09	116.07	.37
Follower's LMX metaperceptions				
Intercept	.71*	.31	114.54	2.31
Follower's LMX	.82**	.05	172.52	17.69
Leader's LMX	−.03	.04	78.61	.67
Leader's dependence on follower	−1.03	1.02	166.35	1.02
Follower's LMX × leader's dependence on follower	.00	.15	174.72	.01
Leader's LMX × leader's dependence on follower	.21	.13	149.42	1.64
−2 Restricted Log-Likelihood		465.86		
AIC		477.86		

Note. Unstandardized coefficients reported. *SE* = standard error. *df* = degree of freedom. LMX = Leader–Member Exchange; AIC = Akaike Information Criterion.
* $p < .05$. ** $p < .01$.

Figure 5
Leader's Dependence on Follower Moderating Leader's Self-Projection Bias



interpersonal perceptions, we found that dyad members' LMX metaperceptions were not only inaccurate (i.e., LMX metaperceptions were not related to the other party's LMX perceptions) but also biased (i.e., LMX metaperceptions were heavily colored by dyad members' own LMX perceptions). Moreover, power dependence was a meaningful moderator such that the leader who had more power (i.e., lower leader's dependence on the follower and higher follower's dependence on the leader) demonstrated stronger self-projection bias. Further, we revisited LMX convergence through the reciprocal OWM design and found strong support for generalized reciprocity but near-zero, nonsignificant dyadic reciprocity.

Theoretical Implications

Although congruent dyadic LMX perceptions are beneficial for leader–follower relationships (Matta et al., 2015), leaders and followers often do not see eye to eye (Gerstner & Day, 1997; Sin et al., 2009). As such, a more comprehensive examination of the nature of dyadic LMX misunderstanding is a promising way to help leaders and followers realize the full potential of effective leader–follower relationships. In answering research calls to further investigate the lack of LMX convergence (Erdogan & Bauer, 2014; Sin et al., 2009), this study highlights that leaders and followers most likely lack accurate awareness of their discrepant relationship perceptions. If dyad members have accurate insights of the other party's relationship perceptions, their LMX metaperceptions should be strongly related to the other dyad member's LMX perceptions, and not necessarily colored by their own LMX perceptions. Yet, results contradicted this pattern such that direct meta-accuracy was near-zero and nonsignificant and there was substantial self-projection bias.

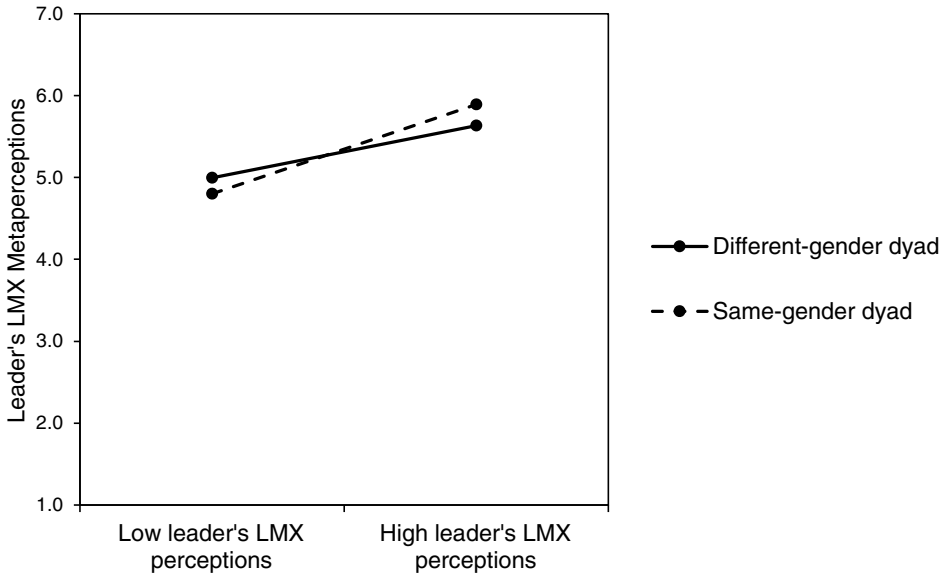
In this regard, the current research provides an answer to the critical question raised by Matta et al. (2015) regarding the extent to

Table 7
Moderating Effect of Dyadic Gender Composition (Supplemental Analyses)

Variable	*b*	*SE*	*df*	*t*
Leader's LMX metaperceptions				
Intercept	3.34**	.51	148.01	6.48
Leader's LMX	.36**	.08	147.24	4.70
Follower's LMX	.02	.05	114.39	.42
Gender composition	−1.28*	.53	131.89	2.39
Leader's LMX × Gender composition	.26**	.08	137.96	3.28
Follower's LMX × Gender composition	−.01	.06	117.09	.13
Follower's LMX metaperceptions				
Intercept	−.47	.66	118.46	.71
Follower's LMX	.77**	.09	162.37	8.67
Leader's LMX	.25**	.09	109.58	2.65
Gender composition	1.39	.74	120.59	1.88
Follower's LMX × Gender composition	.06	.10	166.95	.58
Leader's LMX × Gender composition	−.32**	.10	115.63	3.08
−2 Restricted Log-Likelihood		419.04		
AIC		431.04		

Note. Unstandardized coefficients reported. *SE* = standard error. *df* = degree of freedom. Gender composition: 0 = *different-gender dyad*; 1 = *same-gender dyad*. LMX = Leader–Member Exchange; AIC = Akaike Information Criterion.
* $p < .05$. ** $p < .01$.

Figure 6
Dyadic Gender Composition Moderating Leader's Self-Projection Bias (Supplemental Analyses)



which leaders and followers are accurately aware of the lack of convergence in their relationship perceptions. Importantly, our findings indicate that in addition to the only modest level of LMX convergence, leaders and followers also lack accurate insights regarding each other. In other words, focusing on the modest level of LMX convergence paints a somewhat incomplete picture of leader–follower relationship cognitions, in that they are also blind to the lack of LMX convergence. As leadership scholars have long been puzzled by the issue of LMX convergence, these findings—though adding to the inaccuracy and bias of relationship cognitions—should be considered as a positive sign of research progress such that we are gaining a more accurate understanding of the nature of LMX metaperceptions. More importantly, a comprehensive understanding of the blind spots in leader–follower relationship cognitions is the first step toward identifying potential mitigating factors.

Toward that end, this research focused on one such factor—power dependence—and found support for its role in further strengthening leaders' self-projection bias. Consistent with research on power that suggests powerful individuals are less motivated to be free of bias (Galinsky et al., 2006; Kaplan et al., 2009), leaders who were more powerful were more likely to project their own LMX perceptions onto their metaperceptions about their followers (i.e., stronger self-projection bias). Given the important role of leaders' power in initiating exchange with followers (Graen & Scandura, 1987), our moderation results advance LMX scholars' understanding by shedding light on the caveat of power in potentially enabling leaders to demonstrate greater relationship bias. Moreover, we observed consistent patterns based on the leader-reported dependence on the follower and the follower-reported dependence on the leader, which adds to the robustness of dyadic power dependence as a critical contingency. Interestingly, power dependence only moderated leader self-projection bias. This may indicate that the leader, who usually has authority and control over a host of valuable resources in the organization, is more sensitive to the loss of such power over the follower than vice versa.

Table 8
Multilevel Modeling Predicting Follower's Task Performance (Supplemental Analyses)

Variable	*b*	*SE*	*t*
Between-leader level			
Intercept	5.76**	.13	44.27
Within-leader level			
Leader's LMX metaperceptions (L)	.38**	.14	2.68
Follower's LMX (F)	−.04	.05	.87
L × F	.58*	.25	2.31
−2 Restricted Log-Likelihood		−138.97	
AIC		289.93	

Note. $n = 150$ subordinates from 57 stores. Unstandardized coefficients reported. *SE* = standard error. Leader's LMX metaperceptions and follower's LMX were group-mean centered prior to creating the interaction term. LMX = Leader–Member Exchange. AIC = Akaike Information Criterion.
* $p < .05$. ** $p < .01$.

In addition to investigating LMX metaperceptions, we also revisited LMX convergence through a dyadic lens. Results from the reciprocal OWM analyses provide new insight into research on LMX convergence by revealing that there was strong evidence of generalized reciprocity, but dyadic reciprocity was near-zero and nonsignificant. That is, when leaders provide more resources to their followers, their followers will tend to reciprocate by providing more resources to their leader. In contrast, when leaders do not provide resources to their followers, their followers will tend not to provide resources to their leader. However, for an average, given leader, the leader's provision of more resources to one follower (compared with another follower) is not necessarily associated with reciprocated resource provision from that follower.

The strong generalized reciprocity indicates that the modest levels of LMX convergence observed in past research (Gerstner & Day, 1997; Sin et al., 2009) may be largely driven by between-leader level effects. That is, some leaders are better than other leaders in

fostering effective relationships and followers are generally more responsive and willing to contribute when they are interacting with some leaders but not others. The near-zero dyadic reciprocity may suggest that—perhaps due to the innate preference for equality among both leaders and their followers—treating followers differentially will not lead to reciprocated contributions from followers with the same level of differentiation (and vice versa). For example, a leader who treats their followers differentially (i.e., providing more resources to A, than to B, than to C) may create tension among followers, who may fail to reciprocate with comparable amounts of resources (i.e., A, B, C may all reciprocate few resources to the leader due to tension and hostility between them), thus resulting in a lack of dyadic reciprocity. Notably, this scenario is consistent with the positive meta-analytic relationship between LMX differentiation and negative group outcomes such as increased conflict and deteriorated commitment (Yu et al., 2018). In this regard, our findings help clarify the multilevel dynamism underlying the modest levels of LMX convergence documented in the literature through dyadic and generalized reciprocity. In so doing, we extend current LMX theorizing by shedding light on social exchange processes at both the between-leader and the within-leader levels. Relatedly, these new insights further underscore the importance of studying LMX via a multilevel framework (Figure 3).

In investigating the nuances underlying dyadic LMX, we drew from the social psychological literature on close relationships (Thomas et al., 2013) and incorporated metaperceptions into LMX research. Further, to appropriately represent the dyadic nature of our research model, we employed the reciprocal OWM design. Results from these dyadic analyses contributed critical insights that would be absent from studies that either fail to survey both parties or do not take into account the dyadic nature of study data. Taken together, the present study points to several important directions for future research that can further advance relationship-based approaches to leadership.

Suggestions for Advancing Relationship-Based Approaches to Leadership

First, scholars can further increase theoretical clarity in LMX research by incorporating a dyadic account of LMX metaperceptions. Specifically, we encourage future research to clearly differentiate LMX from LMX metaperceptions and focus on the construct that most accurately aligns with their theoretical question. Relatedly, we strongly urge researchers to use survey instruments that do not conflate LMX and LMX metaperceptions (Table 1). Further, the distinction between LMX and LMX metaperceptions offers a useful perspective to reconceptualize the convergence of LMX-related constructs toward greater levels of theoretical precision. Building on previous research that has addressed this issue (Joseph et al., 2011; Liden et al., 2015), we provide a comprehensive dyadic framework (Figure 9) by clarifying the source of reporting (i.e., leader vs. follower reported) and the nature of the LMX-related constructs (i.e., LMX vs. LMX metaperceptions). We think it is time for researchers to stop using the general notion of LMX agreement and instead clearly define the correlated components and specify the theoretical mechanism being studied.

Second, additional research is needed to shed light on the relationship contingencies that may influence the accuracy and bias of LMX metaperceptions. Specifically, there exist at least two types of contingencies that reflect what could be termed "*can-do*" and "*will-do*" factors. *Can-do* factors represent the barriers that might limit dyad members from gaining accurate relationship insights. Whilst our incorporation of power dependence may be considered one such factor, other pertinent variables warrant attention. For example, researchers studying metaperceptions have noted that relational feedback from dyad partners is either rare in quantity or noisy in terms of quality (Elfenbein et al., 2009; Kenny & DePaulo, 1993; Swann et al., 1992). As such, investigating interpersonal communications that can reduce ambiguities may prove fruitful (Weingart et al., 2015). The key to studying *can-do* factors is to focus on constructs that prevent motivated dyad members from gaining an accurate sense of the relationship.

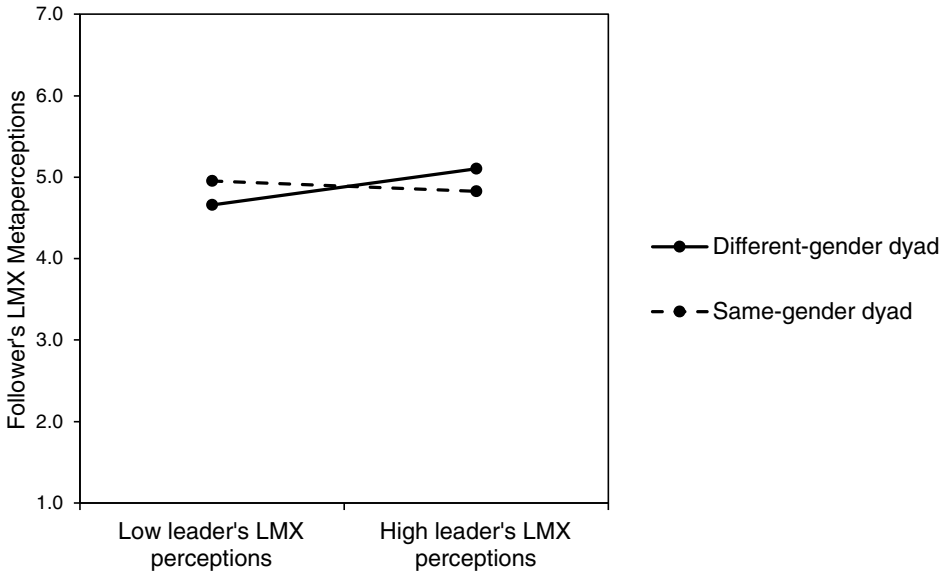
In contrast, *will-do* factors represent the willingness of dyad partners to understand and reconcile divergent relationship perceptions. For example, when dyad members are not committed to their work relationship, they may be fully aware of the divergence yet may lack the motivation to solve it (Rusbult et al., 1991). Conversely, to the extent that the leader and the follower both value validation through their relationship (Sluss & Ashforth, 2007), they may find divergent relationship perceptions distressing and thus be eager to reduce relationship discrepancies. The key to studying *will-do* factors is to focus on constructs that reflect whether dyad members are motivated to explore and address any divergence that is discovered.

When studying *can-do* and *will-do* factors, scholars will likely need to go beyond surface-level indicators and explore deeper-level relationship factors. For example, in our supplemental analyses, surface-level dyadic factors either had negligible effects (dyadic interaction frequency, age similarity) or accentuated self-projection bias and undermined direct meta-accuracy (gender similarity). Although these results were exploratory in nature, they may suggest surface-level factors do not reflect relational elements that will lead to a greater understanding of the relationship. In addition, despite the moderating effect of power dependence, region of significance tests revealed that the leader's self-projection bias was significantly greater than zero within the actual range of power dependence. This finding, along with the substantial self-projection bias and the near-zero direct meta-accuracy, underscores the importance of identifying deep-level relationship factors that can eliminate barriers to achieving an accurate understanding of the relationship (i.e., *can-do* factors) or enhance dyad members' motivation to address relationship discrepancies (i.e., *will-do* factors).

In addition to relationship contingencies, we encourage researchers to attend to other contextual features. In the present research, dyad members working at the convenience stores had clearly specified work roles and interacted with each other in person frequently. However, for leader–follower dyads whose work roles are less clearly defined and whose work contact may be less frequent or via a different medium (e.g., computer-mediated communications), their LMX metaperceptions may be even more prone to inaccuracy and bias. In addition to the influence of work characteristics, it is also worth noting that we collected data within a culture characterized by high power distance. To the extent subordinates with higher levels of power distance orientations are more tolerant of power differences (Hofstede, 1980), the nonsignificant effect of power dependence for the follower's LMX metaperceptions may become more salient in low power distance cultures. In a similar vein, the significant role of power dependence in influencing the

Figure 7

Dyadic Gender Composition Moderating Follower's Direct Meta-Accuracy (Supplemental Analyses)



leader's self-projection bias may become weaker in low power distance cultures. Given the gender composition of our sample, this may be another pertinent contextual feature that warrants attention in future inquiries.[14] A program of research that investigates these sources of contextual influence will contribute to a comprehensive understanding of dyadic LMX metaperceptions.

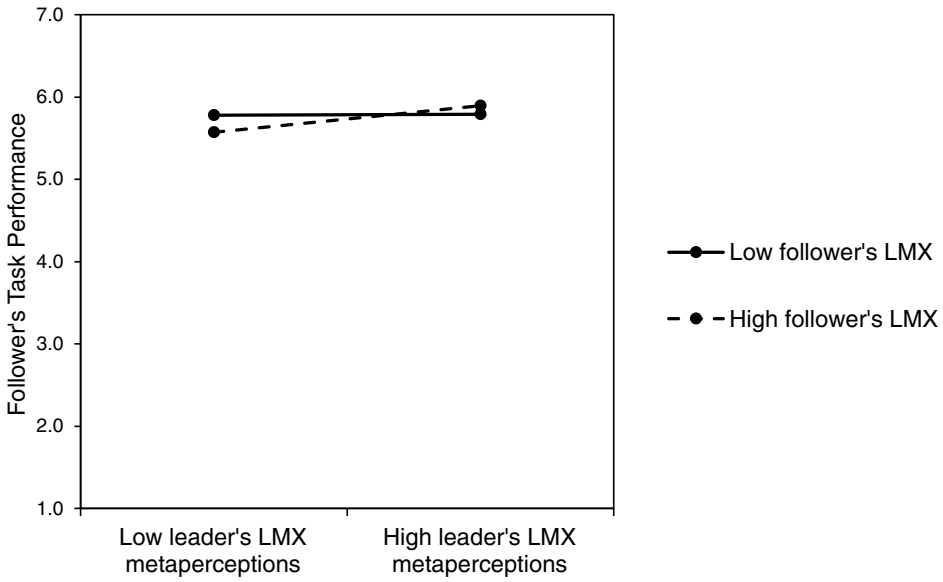
The synergistic moderating effect between the leader's LMX metaperceptions and the follower's LMX on follower task performance suggests LMX metaperceptions can help scholars further understand how leader–follower relationships contribute to workplace effectiveness. Consistent with this, we encourage scholars to consider investigating a wide range of outcomes beyond task performance (e.g., job attitudes, well-being, extra-role work behaviors). In addition, it is important to examine the implications of leader–follower relationships for leaders' outcomes (Wilson et al., 2010). Researchers can employ polynomial regression (Edwards & Parry, 1993) to consider the effects associated with congruence (vs. incongruence) between a dyad member's LMX metaperceptions and the other member's LMX, the linear/curvilinear effects of congruence, and the differences between over- and underestimation (e.g., Matta et al., 2015). Specifically, the social–psychological relationship literature may offer important guidance when theorizing these effects. For example, similar to the benefit of positive illusion in intimate relationships (Murray & Holmes, 1997), overestimation (i.e., one dyad member's LMX metaperceptions are greater than the other dyad member's LMX) may be associated with greater levels of dyad satisfaction compared to underestimation. With that said, we do not intend to downplay the value of investigating LMX and LMX metaperceptions in and of themselves, as they may have distinct nomological networks.

Further, some of our findings may prove helpful for scholars who wish to take a new look into some old issues in LMX research. For example, a recent meta-analytic review found a near-zero relationship between LMX differentiation and group performance, with substantial heterogeneity across situations (Yu et al., 2018). As noted earlier, finding little dyadic reciprocity in the present research may provide some clues to the mixed effects of LMX differentiation. In line with the near-zero dyadic reciprocity effects, LMX differentiation reported by different followers may not necessarily correspond with the intended leader LMX differentiation, due to followers' innate preferences for equality. In turn, LMX differentiation may only have pronounced benefits under conditions that can minimize fairness concerns (e.g., justice climate, Erdogan & Bauer, 2010; or LMX differentiation being based on legitimate performance-related reasons, Chen et al., 2018).

Finally, focusing on LMX metaperceptions can complement other approaches that have been put forward to better understand the issue of dyadic LMX perceptions. In differentiating LMX metaperceptions from LMX, the present study joins previous research in highlighting the importance of clarifying the content domain of leader–follower relationship constructs (Joseph et al., 2011; Liden et al., 2015; Schriesheim et al., 2011). Furthermore, some (Gooty & Yammarino, 2016) have drawn from the shared reality theory (Hardin & Higgins, 1996) to theorize discrepant dyadic perceptions. Arguably, the concept of LMX metaperceptions provides a plausible way to capture perceived relational reality (e.g., *I think my leader would come to my defense*). In addition, the self-projection bias we identified in this research is consistent with Zhou and Schriesheim's (2009) call to incorporate perceptual biases into dyadic LMX research.

[14] Following a reviewer's suggestion, we tested the main effects of manager and subordinate gender, which were nonsignificant. Although these findings may suggest gender composition (i.e., same- vs. different-gender) was driving the moderation that we found in the Supplemental Analyses section, we encourage future research to replicate our findings in light of the unique gender composition of our sample.

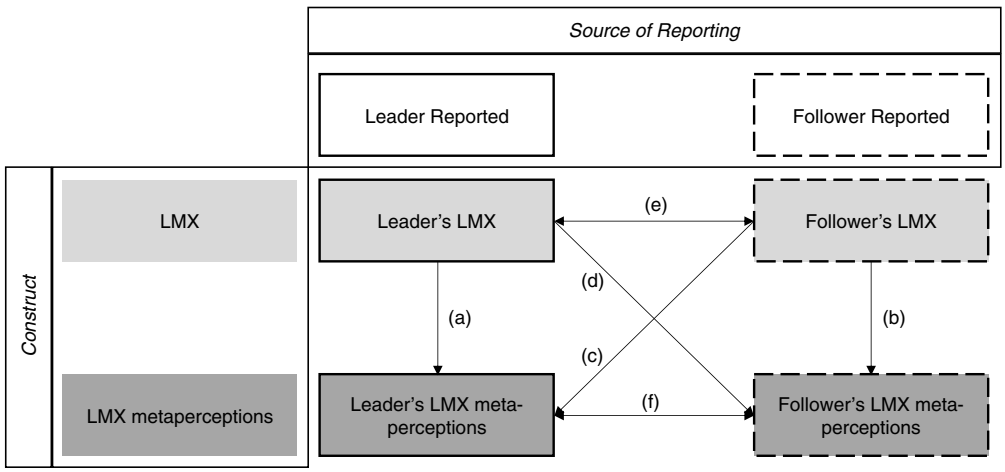
Figure 8
Leader's LMX Metaperceptions and Follower's LMX Interacting to Predict Follower's Task Performance (Supplemental Analyses)



Practical Implications

Our findings also hold several implications for managerial practice. Perhaps the most urgent reminder for managers is that there exists considerable relationship misunderstanding between leaders and followers. The lack of dyadic reciprocity suggests that managers should devote time and energy to developing their relationship skills, as this may be the area that will lead to the greatest return on investment. Specifically, managers are encouraged to attend to the blind spots in their relationship perceptions, as what they may think their followers feel may not be how their

Figure 9
Dyadic Framework of LMX Constructs and Theoretical Mechanisms



Theoretical mechanisms:
(a) Leader's self-projection bias
(b) Follower's self-projection bias
(c) Leader's direct meta-accuracy
(d) Follower's direct meta-accuracy
(e) Convergence between leader's and follower's LMX
(f) Convergence between leader's and follower's LMX metaperceptions

Note. Variables in solid-line boxes are reported by the leader; variables in dotted-line boxes are reported by the follower; variables in light-gray shade are LMX; variables in darker-gray shade are LMX metaperceptions. LMX = Leader–Member Exchange.

followers actually feel about their relationships. In other words, biased "mutual understanding" will result if managers are simply relying on their own point of view without truly attending to their followers' feelings.

One way to increase such awareness is through rebalancing the power dynamics between leaders and followers. As power dependence reflects a structural element of the leader–follower relationship that usually favors leaders, formal organizational practices that recognize and enhance the influence of followers may prove effective. For example, asking followers to provide 360-degree feedback for managers may increase managers' dependence on them. Further, followers' proactive attempts to increase leaders' dependence on them may prove effective (Wee et al., 2017). Importantly, the fact that power dependence, but not dyadic interaction, was a pertinent moderator underscores that simply increasing the interaction frequency between leaders and followers without fundamentally reshaping the power dynamics will be insufficient. Additionally, interventions that can reduce leaders' psychological experience of power over followers may also be helpful. For example, if leaders can frequently engage in perspective-taking when interacting with followers, this may also help reduce their self-projection bias (Galinsky et al., 2006). Additionally, it is possible that leaders and followers are fully aware of divergent relationship perceptions yet lack the motivation to bridge the gap. Consistent with our discussion of *can-do* and *will-do* factors, this may reflect dyad members' low levels of commitment to their relationship (Rusbult et al., 1991). Given the importance of accurate LMX metaperceptions, we encourage organizations to explore ways to help dyad members reengage with each other to prevent the relationship from further deteriorating.

Study Limitations

Notwithstanding the strengths of this research, there are several limitations worth noting. First, although the current sample provided a relevant setting to study leader–follower relationships, we encourage replications using leader–follower dyads in other occupational contexts. It is not our claim that findings from one study will provide a definitive answer regarding LMX relational dynamics. Just as it has taken a program of research to arrive at the conclusion that leaders and followers do not see eye to eye (Sin et al., 2009), we hope this research can inspire future LMX studies that employs dyadic designs to deepen scholarly understanding of this important workplace relationship.

Second, the coefficient α for leader-reported LMX was lower than typically reported in the literature (Greco et al., 2018). However, it is important to take into consideration the various factors that can affect measurement rather than relying on arbitrary cutoff criteria to reach a definitive conclusion as to whether the measure was reliable in the present study (Lance et al., 2006). On that front, a shortened four−item scale was used among leaders to minimize fatigue. Therefore, the low α could be a byproduct of the relatively small number of items (Cortina, 1993). Further, as the four items tap into the four LMX dimensions, respectively, essential tau-equivalence is likely untenable, which would suggest the internal consistency of leader-reported LMX was likely higher than the coefficient α estimates (Cortina, 1993). Importantly, in the scale validation study (see Appendix A), we found suggestive evidence that the low internal consistency of the shortened scales was likely a byproduct of the bandwidth-fidelity dilemma (Cronbach & Gleser, 1965; Judge et al., 2013). Finally, despite the somewhat low α, we found consistent moderation patterns between the leader's LMX and power dependence (rated by the leader and the follower). Therefore, we do not think this issue created great concerns for the robustness of our study findings.

Third, as noted earlier, despite the reciprocal nature of our study design with data collected from both dyad members, the dyad member's LMX and LMX metaperceptions were both self-reported, thus raising concerns about CMV (Podsakoff et al., 2012). To help minimize this problem, we presented LMX and LMX metaperception items in separate blocks, thus creating physical distance between measure presentation which can help reduce CMV. Further, in the instructions of LMX metaperceptions we alerted participants to the different nature of these items from the LMX items. Additionally, the moderating results regarding dyadic power dependence indicated that leaders were indeed sensitive to power differentials and differentiated across different followers when reporting LMX and LMX metaperceptions. Furthermore, the consistent, strong self-projection bias across the three supplemental studies (see Appendix B, for details) may suggest CMV was unlikely to account for study findings.

With that said, given that LMX and LMX metaperceptions were both reported by the focal dyad member, we cannot unequivocally rule out the potential influence of CMV. Therefore, we encourage future research to employ procedural remedies to proactively minimize its potential impact. Although using cross-source ratings is an effective strategy to reduce CMV in other domains of research, the self-referential nature of LMX perceptions and LMX metaperceptions necessitates the use of self-reports (Brannick et al., 2010; Podsakoff et al., 2012). As such, we recommend incorporating temporal separation between the measurement of LMX perceptions and LMX metaperceptions as a way to reduce CMV concerns. This should minimize or eliminate many of the processes (e.g., priming, consistency) that underlie CMV. Yet, it is also important to recognize that temporal separation introduces additional substantive complications. For example, it is possible that events might occur between the measurement of LMX perceptions and LMX metaperceptions that may impact LMX metaperceptions. In other words, significant events might alter the relationship or one's knowledge of the relationship and thus mask the accurate estimation of self-projection bias and direct meta-accuracy. As such, we encourage researchers to pay attention to the possibility of substantive relationship changes during the time lag between measurement occasions, make informed decisions regarding the appropriate time lag, and incorporate control measures to capture any potential substantive events that might have occurred.

Finally, we encourage researchers to take a systematic approach to make well-informed inferences regarding whether CMV or the substantive mechanism of self-projection bias is driving the strong relationship between the dyad member's own LMX and LMX metaperceptions (Brannick et al., 2010). This is crucial because self-projection bias tends to be substantially larger than the effect sizes typically observed in the applied psychology literature (Eisenkraft et al., 2017; Elfenbein et al., 2009; Kenny & DePaulo, 1993). Toward that end, we encourage future research to employ different practices (e.g., different lengths of temporal separation) to consolidate their findings and mitigate CMV (Brannick et al., 2010). Importantly, if convergent results are observed across studies that utilized a range of different CMV-reducing study design practices,

this can lend further support to the robustness of the accumulated body of research findings (Brannick et al., 2010). Of course, the self-referential nature of one's own LMX and LMX metaperceptions makes it difficult to completely rule out the potential influence of CMV. Nevertheless, a systematic program of research that effectively mitigates its potential impact can help researchers confidently conclude that although CMV may be present to some extent, it is not the main driver of observed relationships.

Conclusion

The current research sought to investigate the extent to which leaders and followers are accurately aware of the lack of LMX convergence by investigating LMX metaperceptions. Results indicate that dyad members' LMX metaperceptions were both inaccurate and biased. Further, leaders' power made them more prone to biases. In revisiting the LMX agreement, we also found strong evidence of generalized reciprocity but negligible dyadic reciprocity. Overall, the current research indicates that not only do leaders and followers have low levels of convergence at the dyadic level, they also lack accurate insights into the lack of convergence of their relationship perceptions. The current research contributes to a comprehensive understanding of the misaligned nature of dyadic LMX relationships and offers a viable perspective for future research to investigate the dyadic nuances of leader–follower relationships.

References

*References marked with an asterisk are only cited in the appendices.

Bosco, F. A., Aguinis, H., Singh, K., Field, J. G., & Pierce, C. A. (2015). Correlational effect size benchmarks. *Journal of Applied Psychology*, *100*(2), 431–449. https://doi.org/10.1037/a0038047

Brannick, M. T., Chan, D., Conway, J. M., Lance, C. E., & Spector, P. E. (2010). What is method variance and how can we cope with it? A panel discussion. *Organizational Research Methods*, *13*(3), 407–420. https://doi.org/10.1177/1094428109360993

Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, *1*(3), 185–216. https://doi.org/10.1177/135910457000100301

Campagna, R. L., Dirks, K. T., Knight, A. P., Crossley, C., & Robinson, S. L. (2020). On the relation between felt trust and actual trust: Examining pathways to and implications of leader trust meta-accuracy. *Journal of Applied Psychology*, *105*(9), 994–1012. https://doi.org/10.1037/apl0000474

Campbell, L., Overall, N. C., Rubin, H., & Lackenbauer, S. D. (2013). Inferring a partner's ideal discrepancies: Accuracy, projection, and the communicative role of interpersonal behavior. *Journal of Personality and Social Psychology*, *105*(2), 217–233. https://doi.org/10.1037/a0033009

Carlson, E. N., Furr, R. M., & Vazire, S. (2010). Do we know the first impressions we make? Evidence for idiographic meta-accuracy and calibration of first impressions. *Social Psychological & Personality Science*, *1*(1), 94–98. https://doi.org/10.1177/1948550609356028

Carlson, E. N., & Kenny, D. A. (2012). Do we know how others see us? In S. Vazire & T. D. Wilson (Eds.), *Handbook of self-knowledge* (pp. 242–257). Guilford Press.

Carlson, E. N., Vazire, S., & Furr, R. M. (2011). Meta-insight: Do people really know how others see them? *Journal of Personality and Social Psychology*, *101*(4), 831–846. https://doi.org/10.1037/a0024297

Chen, X. P., He, W., & Weng, L. C. (2018). What is wrong with treating followers differently? The basis of leader–member exchange differentiation matters. *Journal of Management*, *44*(3), 946–971. https://doi.org/10.1177/0149206315598372

*Cheung, J. H., Burns, D. K., Sinclair, R. R., & Sliter, M. (2017). Amazon Mechanical Turk in organizational psychology: An evaluation and practical recommendations. *Journal of Business and Psychology*, *32*(4), 347–361. https://doi.org/10.1007/s10869-016-9458-5

Chou, L. F., Cheng, B. S., & Jen, C. K. (2005, August 5–10). *The contingent model of paternalistic leadership: Subordinate dependence and leader competence* [Paper presentation]. 65th Annual Meeting of the Academy of Management, Honolulu, Hawaii, United States.

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum.

*Colquitt, J. A., Sabey, T. B., Rodell, J. B., & Hill, E. T. (2019). Content validation guidelines: Evaluation criteria for definitional correspondence and definitional distinctiveness. *Journal of Applied Psychology*, *104*(10), 1243–1265. https://doi.org/10.1037/apl0000406

Cortina, J. M. (1993). What is coefficient α? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. https://doi.org/10.1037/0021-9010.78.1.98

Cronbach, L. J., & Gleser, G. C. (1965). *Psychological tests and personnel decisions* (2nd ed.). University of Illinois Press.

Dienesch, R. M., & Liden, R. C. (1986). Leader–member exchange model of leadership: A critique and further development. *Academy of Management Review*, *11*(3), 618–634. https://doi.org/10.5465/amr.1986.4306242

*Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, *18*(2), 192–203. https://doi.org/10.1037/1040-3590.18.2.192

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader–member exchange: Integrating the past with an eye toward the future. *Journal of Management*, *38*(6), 1715–1759. https://doi.org/10.1177/0149206311415280

Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: Linking the person and environment to the subjective experience of person-environment fit. *Journal of Applied Psychology*, *91*(4), 802–827. https://doi.org/10.1037/0021-9010.91.4.802

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Academy of Management Journal*, *36*(6), 1577–1613. https://doi.org/10.5465/256822

Eisenkraft, N., Elfenbein, H. A., & Kopelman, S. (2017). We know who likes us, but not who competes against us: Dyadic meta-accuracy among work colleagues. *Psychological Science*, *28*(2), 233–241. https://doi.org/10.1177/0956797616679440

Elfenbein, H. A., Eisenkraft, N., & Ding, W. W. (2009). Do we know who values us? Dyadic meta-accuracy in the perception of professional relationships. *Psychological Science*, *20*(9), 1081–1083. https://doi.org/10.1111/j.1467-9280.2009.02396.x

Emerson, R. M. (1962). Power-dependence relations. *American Sociological Review*, *27*(1), 31–41. https://doi.org/10.2307/2089716

Erdogan, B., & Bauer, T. N. (2010). Differentiated leader-member exchanges: The buffering role of justice climate. *Journal of Applied Psychology*, *95*(6), 1104–1120. https://doi.org/10.1037/a0020578

Erdogan, B., & Bauer, T. N. (2014). Leader–member exchange (LMX) theory: The relational approach to leadership. In D. Day (Ed.), *The Oxford handbook of leadership and organizations* (pp. 407–433). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199755615.013.020

Ferris, G. R., Liden, R. C., Munyon, T. P., Summers, J. K., Basik, K. J., & Buckley, M. R. (2009). Relationships at work: Toward a multidimensional conceptualization of dyadic work relationships. *Journal of Management*, *35*(6), 1379–1403. https://doi.org/10.1177/0149206309344741

Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist*, *48*(6), 621–628. https://doi.org/10.1037/0003-066X.48.6.621

Fletcher, G. J., & Kerr, P. S. (2010). Through the eyes of love: Reality and illusion in intimate relationships. *Psychological Bulletin*, *136*(4), 627–658. https://doi.org/10.1037/a0019792

Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspectives not taken. *Psychological Science*, *17*(12), 1068–1074. https://doi.org/10.1111/j.1467-9280.2006.01824.x

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

Gooty, J., Serban, A., Thomas, J. S., Gavin, M. B., & Yammarino, F. J. (2012). Use and misuse of levels of analysis in leadership research: An illustrative review of leader–member exchange. *Leadership Quarterly*, *23*(6), 1080–1103. https://doi.org/10.1016/j.leaqua.2012.10.002

Gooty, J., & Yammarino, F. J. (2016). The leader–member exchange relationship: A multisource, cross-level investigation. *Journal of Management*, *42*(4), 915–935. https://doi.org/10.1177/0149206313503009

Graen, G. B. (1976). Role making processes within complex organizations. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1201–1245). Rand-McNally.

Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 175–208). JAI Press.

Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader–member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *Leadership Quarterly*, *6*(2), 219–247. https://doi.org/10.1016/1048-9843(95)90036-5

Greco, L. M., O'Boyle, E. H., Cockburn, B. S., & Yuan, Z. (2018). Meta-analysis of coefficient α: A reliability generalization study. *Journal of Management Studies*, *55*(4), 583–618. https://doi.org/10.1111/joms.12328

Hardin, C. D., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition* (pp. 28–84). Guilford Press.

Heggestad, E. D., Scheaf, D. J., Banks, G. C., Hausfeld, M. M., Tonidandel, S., & Williams, E. B. (2019). Scale adaptation in organizational science research: A review and best-practice recommendations. *Journal of Management*, *45*(6), 2596–2627. https://doi.org/10.1177/0149206319850280

Hiller, N. J., DeChurch, L. A., Murase, T., & Doty, D. (2011). Searching for outcomes of leadership: A 25-year review. *Journal of Management*, *37*(4), 1137–1177. https://doi.org/10.1177/0149206310393520

*Hinkin, T. R., & Tracey, J. B. (1999). An analysis of variance approach to content validation. *Organizational Research Methods*, *2*(2), 175–186. https://doi.org/10.1177/109442819922004

Hofmann, D. A., & Gavin, M. B. (1998). Centering decisions in hierarchical linear models: Implications for research in organizations. *Journal of Management*, *24*(5), 623–641. https://doi.org/10.1177/014920639802400504

Hofstede, G. H. (1980). *Culture's consequences: International differences in work-related values*. Sage Publications.

Hu, X., Kaplan, S., Wei, F., & Vega, R. P. (2014). Do employees know how their supervisors view them? A study examining metaperceptions of job performance. *Human Performance*, *27*(5), 435–457. https://doi.org/10.1080/08959285.2014.956177

*Huang, J. L., Curran, P. G., Keeney, J., Poposki, E. M., & DeShon, R. P. (2012). Detecting and deterring insufficient effort responding to surveys. *Journal of Business and Psychology*, *27*(1), 99–114. https://doi.org/10.1007/s10869-011-9231-8

Johnson, P. O., & Neyman, J. (1936). Tests of certain linear hypotheses and their application to some educational problems. *Statistical Research Memoirs*, *1*, 57–93.

*Johnson, R. E., Rosen, C. C., & Djurdjevic, E. (2011). Assessing the impact of common method variance on higher order multidimensional constructs. *Journal of Applied Psychology*, *96*(4), 744–761. https://doi.org/10.1037/a0021504

Joseph, D. L., Newman, D. A., & Sin, H. P. (2011). Leader–member exchange (LMX) measurement: Evidence for consensus, construct breadth and discriminant validity. In D. D. Bergh & D. J. Ketchen (Eds.), *Building methodological bridges: Research methodology in strategy and management* (pp. 89–135). Emerald. https://doi.org/10.1108/S1479-8387(2011)0000006012

Judge, T. A., Rodell, J. B., Klinger, R. L., Simon, L. S., & Crawford, E. R. (2013). Hierarchical representations of the five-factor model of personality in predicting job performance: Integrating three organizing frameworks with two theoretical perspectives. *Journal of Applied Psychology*, *98*(6), 875–925. https://doi.org/10.1037/a0033901

Kaplan, S. A., Santuzzi, A. M., & Ruscher, J. B. (2009). Elaborative metaperceptions in outcome-dependent situations: The diluted relationship between default self-perceptions and metaperceptions. *Social Cognition*, *27*(4), 601–614. https://doi.org/10.1521/soco.2009.27.4.601

Kashy, D. A., & Kenny, D. A. (n.d.) *Estimating the variances and covariances for the reciprocal one-with-many design*. davidakenny.net/doc/onewithmanyrecip.pdf

Kenny, D. A., & DePaulo, B. M. (1993). Do people know how others view them? An empirical and theoretical account. *Psychological Bulletin*, *114*(1), 145–161. https://doi.org/10.1037/0033-2909.114.1.145

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. Guilford Press.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). Guilford Press.

Kluger, A. N., & Malloy, T. E. (2019). Question asking as a dyadic behavior. *Journal of Personality and Social Psychology*, *117*(6), 1127–1138. https://doi.org/10.1037/pspi0000156

Krasikova, D. V., & LeBreton, J. M. (2012). Just the two of us: Misalignment of theory and methods in examining dyadic phenomena. *Journal of Applied Psychology*, *97*(4), 739–757. https://doi.org/10.1037/a0027962

Laing, R. D., Phillipson, H., & Lee, A. R. (1966). *Interpersonal perception: A theory and a method of research*. Springer Publishing.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say? *Organizational Research Methods*, *9*(2), 202–220. https://doi.org/10.1177/1094428105284919

Liden, R. C., Anand, S., & Vidyarthi, P. (2016). Dyadic relationships. *Annual Review of Organizational Psychology and Organizational Behavior*, *3*, 139–166. https://doi.org/10.1146/annurev-orgpsych-041015-062452

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader–member exchange: An empirical assessment through scale development. *Journal of Management*, *24*(1), 43–72. https://doi.org/10.1016/S0149-2063(99)80053-1

Liden, R. C., Wu, J., Cao, A. X., & Wayne, S. J. (2015). Leader–member exchange measurement. In T. N. Bauer & B. Erdogan (Eds.), *The oxford handbook of leader–member exchange* (pp. 29–54). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199326174.013.0006

Marcus, D. K., Kashy, D. A., & Baldwin, S. A. (2009). Studying psychotherapy using the one-with-many design: The therapeutic alliance as an exemplar. *Journal of Counseling Psychology*, *56*(4), 537–548. https://doi.org/10.1037/a0017291

Martin, R., Guillaume, Y., Thomas, G., Lee, A., & Epitropaki, O. (2016). Leader–member exchange (LMX) and performance: A meta-analytic review. *Personnel Psychology*, *69*(1), 67–121. https://doi.org/10.1111/peps.12100

Matta, F. K., Scott, B. A., Koopman, J., & Conlon, D. E. (2015). Does seeing "eye to eye" affect work engagement and organizational citizenship behavior? A role theory perspective on LMX agreement. *Academy of Management Journal*, *58*(6), 1686–1708. https://doi.org/10.5465/amj.2014.0106

*Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437–455. https://doi.org/10.1037/a0028085

Molm, L. D. (1991). Affect and social exchange: Satisfaction in power-dependence relations. *American Sociological Review*, *56*(4), 475–493. https://doi.org/10.2307/2096269

Murray, S. L., & Holmes, J. G. (1997). A leap of faith? Positive illusions in romantic relationships. *Personality and Social Psychology Bulletin*, *23*(6), 586–604. https://doi.org/10.1177/0146167297236003

*Ostroff, C., Kinicki, A. J., & Clark, M. A. (2002). Substantive and operational issues of response bias across levels of analysis: An example of climate-satisfaction relationships. *Journal of Applied Psychology*, *87*(2), 355–368. https://doi.org/10.1037/0021-9010.87.2.355

Pearce, J. L., & Gregersen, H. B. (1991). Task interdependence and extrarole behavior: A test of the mediating effects of felt responsibility. *Journal of Applied Psychology*, *76*(6), 838–844. https://doi.org/10.1037/0021-9010.76.6.838

Pfeffer, J. (1981). *Power in organizations*. Pitman.

Pinheiro, J., Bates, D., DebRoy, S., Sarkar, D., & R. Core Team. (2021). *nlme: Linear and nonlinear mixed effects models* [Computer software]. https://CRAN.R-project.org/package=nlme

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, *63*, 539–569. https://doi.org/10.1146/annurev-psych-120710-100452

Raudenbush, S. W., Brennan, R. T., & Barnett, R. C. (1995). A multivariate hierarchical model for studying psychological change within married couples. *Journal of Family Psychology*, *9*(2), 161–174. https://doi.org/10.1037/0893-3200.9.2.161

Rusbult, C. E., & Van Lange, P. A. (2003). Interdependence, interaction, and relationships. *Annual Review of Psychology*, *54*, 351–375. https://doi.org/10.1146/annurev.psych.54.101601.145059

Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology*, *60*(1), 53–78. https://doi.org/10.1037/0022-3514.60.1.53

Sahlins, M. (1972). *Stone age economics*. Aldine De Gruyter.

Scandura, T. A., & Schriesheim, C. A. (1994). Leader–member exchange and supervisor career mentoring as complementary constructs in leadership research. *Academy of Management Journal*, *37*(6), 1588–1602. https://doi.org/10.5465/256800

Schriesheim, C. A., Castro, S. L., & Cogliser, C. C. (1999). Leader-member exchange (LMX) research: A comprehensive review of theory, measurement, and data-analytic practices. *Leadership Quarterly*, *10*(1), 63–113. https://doi.org/10.1016/S1048-9843(99)80009-5

Schriesheim, C. A., Wu, J. B., & Cooper, C. D. (2011). A two-study investigation of item wording effects on leader–follower convergence in descriptions of the leader–member exchange (LMX) relationship. *Leadership Quarterly*, *22*(5), 881–892. https://doi.org/10.1016/j.leaqua.2011.07.009

Sin, H. P., Nahrgang, J. D., & Morgeson, F. P. (2009). Understanding why they don't see eye to eye: An examination of leader-member exchange (LMX) agreement. *Journal of Applied Psychology*, *94*(4), 1048–1057. https://doi.org/10.1037/a0014827

Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: Defining ourselves through work relationships. *Academy of Management Review*, *32*(1), 9–32. https://doi.org/10.5465/amr.2007.23463672

Sparr, J. L., & Sonnentag, S. (2008). Fairness perceptions of supervisor feedback, LMX, and employee well-being at work. *European Journal of Work and Organizational Psychology*, *17*(2), 198–225. https://doi.org/10.1080/13594320701743590

Sparrowe, R. T., & Liden, R. C. (1997). Process and structure in leader–member exchange. *Academy of Management Review*, *22*(2), 522–552. https://doi.org/10.5465/amr.1997.9707154068

Swann, W. B., Jr. (1984). Quest for accuracy in person perception: A matter of pragmatics. *Psychological Review*, *91*(4), 457–477. https://doi.org/10.1037/0033-295X.91.4.457

Swann, W. B., Jr., Stein-Seroussi, A., & McNulty, S. E. (1992). Outcasts in a white-lie society: The enigmatic worlds of people with negative self-conceptions. *Journal of Personality and Social Psychology*, *62*(4), 618–624. https://doi.org/10.1037/0022-3514.62.4.618

Thomas, G., Martin, R., Epitropaki, O., Guillaume, Y., & Lee, A. (2013). Social cognition in leader-follower relationships: Applying insights from relationship science to understanding relationship-based approaches to leadership. *Journal of Organizational Behavior*, *34*(S1), S63–S81. https://doi.org/10.1002/job.1889

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, *41*(1), 108–119. https://doi.org/10.5465/256902

Wee, E. X., Liao, H., Liu, D., & Liu, J. (2017). Moving from abuse to reconciliation: A power-dependence perspective on when and how a follower can break the spiral of abuse. *Academy of Management Journal*, *60*(6), 2352–2380. https://doi.org/10.5465/amj.2015.0866

Weingart, L. R., Behfar, K. J., Bendersky, C., Todorova, G., & Jehn, K. A. (2015). The directness and oppositional intensity of conflict expression. *Academy of Management Review*, *40*(2), 235–262. https://doi.org/10.5465/amr.2013.0124

West, T. V., & Kenny, D. A. (2011). The truth and bias model of judgment. *Psychological Review*, *118*(2), 357–378. https://doi.org/10.1037/a0022936

Wilson, K. S., Sin, H. P., & Conlon, D. E. (2010). What about the leader in leader–member exchange? The impact of resource exchanges and substitutability on the leader. *Academy of Management Review*, *35*(3), 358–372. https://doi.org/10.5465/amr.35.3.zok358

Yammarino, F. J., Dionne, S. D., Chun, J. U., & Dansereau, F. (2005). Leadership and levels of analysis: A state-of-the-science review. *Leadership Quarterly*, *16*(6), 879–919. https://doi.org/10.1016/j.leaqua.2005.09.002

Yu, A., Matta, F. K., & Cornfield, B. (2018). Is leader–member exchange differentiation beneficial or detrimental for group effectiveness? A meta-analytic investigation and theoretical integration. *Academy of Management Journal*, *61*(3), 1158–1188. https://doi.org/10.5465/amj.2016.1212

Zhou, X. T., & Schriesheim, C. A. (2009). Supervisor–subordinate convergence in descriptions of leader–member exchange (LMX) quality: Review and testable propositions. *Leadership Quarterly*, *20*(6), 920–932. https://doi.org/10.1016/j.leaqua.2009.09.007

Appendix A

Scale Validation Study

We sought to validate the shortened scales we used to assess supervisors' LMX and LMX metaperceptions by following recommendations for scale adaptation (Heggestad et al., 2019).

Item Selection

When selecting items for shortened scales, one must balance concerns of reliability, convergent validity, and content validity simultaneously (Heggestad et al., 2019). Although it would be ideal

(*Appendices continue*)

to maximize all three properties, it has long been noted that with the scale length fixed, there is an inherent tradeoff between attending to the breadth of a construct and ensuring the thoroughness of the scale items (Cronbach & Gleser, 1965; Judge et al., 2013). Given that LMX is a multidimensional construct (Liden & Maslyn, 1998), we elected to use the item with the highest factor loading from each dimension to capture the breadth of LMX while striving for adequate reliability.

Scale Validation

We conducted a scale validation study to evaluate the psychometric properties of the shortened scales.[15] We recruited participants who were working full time in managerial positions in the U.S. using Amazon's Mechanical Turk. Following recommendations for survey quality control (Cheung et al., 2017; Huang et al., 2012; Meade & Craig, 2012), participants who failed attention check items (e.g., *please choose agree*) and took less time than deemed sufficient based on pilot testing (i.e., 4 min) were removed from the study sample ($n = 70$). The final sample consisted of 181 participants. Most of them were male (72.9%) and White (63.5%). Their average age was 35.68 years old ($SD = 8.93$). They worked 41.07 hr a week on average ($SD = 9.10$) and had been working in their current organizations for 6.39 years ($SD = 4.30$).

LMX and LMX metaperceptions were measured with the full scales presented in Table 1. Specifically, participants were asked to think about one specific subordinate that they were currently working with and indicate their agreement with the survey items on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Similar to the main study, LMX metaperception items were presented in a separate survey block after the LMX items to allow physical separation and minimize common method variance (Podsakoff et al., 2012). Participants were also alerted to the different nature of LMX metaperception items in the survey instructions.

Reliability

In terms of reliability, constructs assessed with the full scales (LMX: $\alpha = .85$; LMX metaperceptions: $\alpha = .86$) had higher levels of internal consistency estimates than with shortened scales (LMX: $\alpha = .64$; LMX metaperceptions: $\alpha = .67$).

Convergent Validity

We assessed convergent validity of the shortened scales by inspecting the descriptive statistics and correlating them with the scores based on the full set of items. For LMX, scores based on the four-item scale ($M = 4.00$, $SD = .66$) were strongly related to those based on the full scale ($M = 3.98$, $SD = .57$; $r = .88$, $p < .01$). Similarly, LMX metaperception scores constructed from the four-item scale ($M = 3.96$, $SD = .66$) were strongly related to those based on the full scale ($M = 4.00$, $SD = .59$; $r = .89$, $p < .01$).

Content Validity

The content validity of the shortened scales was evaluated in two ways. First, the way we selected the items—as stated in item selection—helped ensure the content validity of these shortened scales. Further, as we were differentiating LMX metaperceptions from LMX, we drew from recently developed content validation guidelines (Colquitt et al., 2019) to assess how well the items in the shortened scales matched the definition of LMX versus LMX metaperceptions. Specifically, we followed Hinkin and Tracey's (1999) approach by using LMX metaperceptions as the orbiting construct to evaluate the definitional distinctiveness of LMX (and vice versa).

After participants completed LMX and LMX metaperceptions scales, they were presented with the content validation tasks. Following Colquitt et al. (2019), they first completed a practice task and received feedback, which helped make sure participants understood the purpose of the following validation tasks correctly. Next, participants completed two tasks by rating how well each of the eight items (i.e., 4 LMX items; 4 LMX metaperception items) matched the definitions provided. We provided the definition of LMX in the first task and that of LMX metaperceptions in the second task. In each task, we randomized the ordering of the eight items. Following Colquitt et al. (2019), we used a 7-point scale (1 = *item does an extremely bad job* to 7 = *item does an extremely good job*).

The evaluation procedure of content validity is highly dependent on the choice of the orbiting construct (Colquitt et al., 2019). In general, orbiting constructs should be sufficiently different from the focal construct, such as those that researchers would consider including in discriminant validation analyses. However, given the intertwined relationship between LMX perceptions and metaperceptions (Kenny & DePaulo, 1993), their definitional distinctiveness may be much more nuanced. As such, we evaluated definitional distinctiveness by conducting paired sample *t*-tests (cf. Colquitt et al., 2019). With a given definition (e.g., LMX) in a task, we first calculated the average definitional correspondence for the LMX items by taking the mean of a participant's evaluations across the four items and repeated this procedure for the LMX metaperception items. In other words, for a given definition, we calculated the definitional correspondence of the LMX items and the LMX metaperception items as evaluated by participants. We then conducted paired sample *t*-tests using the two definitional correspondence scores.

For a given definition (e.g., LMX), the average definitional correspondence of its original items (e.g., LMX items) should be significantly greater than that from the orbiting construct (e.g., LMX metaperception items). In other words, participants should find the items from the construct a better match to the construct definition than the items from the orbiting construct. Given that we expected directional differences, we used single-tailed tests. For the construct definition of LMX, the average definitional correspondence of LMX items ($M = 5.26$, $SD = .97$) was significantly higher than that of LMX metaperception items ($M = 5.12$, $SD = 1.06$; Cohen's $d = .14$, $t(180) = 1.88$, $p < .05$). Similarly, when given the definition of LMX metaperceptions, participants found LMX metaperceptions items ($M = 5.33$, $SD = .91$) a significantly better match than LMX items ($M = 4.95$, $SD = 1.24$; Cohen's $d = .29$, $t(180) = 3.94$, $p < .01$).

[15] This study was approved by the University of Illinois Chicago Institutional Review Board (study title: *Interpersonal Relationships in the Workplace*; Protocol 2020-0512).

(*Appendices continue*)

Discussion

Results from the scale validation study provided strong evidence for the convergent validity of the shortened scales, as scores from shortened scales were strongly related to those based on the full set of items. Further, despite the theoretical interrelatedness between LMX and LMX metaperceptions, participants were able to differentiate between the two constructs to some degree. Admittedly, the internal consistency estimates of the shortened LMX and LMX metaperception scales were somewhat low, although we note the full scales had satisfactory levels of internal consistency. All things considered, this suggests a case similar to the classical bandwidth-fidelity dilemma (Cronbach & Gleser, 1965), such that with a limited scale length, capturing the representative domain of a construct (e.g., LMX)—as we did in item selection—will inevitably lower the reliability of the test. In other words, the somewhat low internal consistency estimates should not be taken as evidence of faulty LMX and LMX metaperception measures, but more of a byproduct of the bandwidth-fidelity dilemma. Similar examples can be found in personality assessments, where constructs (e.g., conscientiousness) assessed with a similar number of items may have reliability estimates in the range of .60–.70 (see Donnellan et al., 2006). Overall, the shortened scales should be considered adequate tests of supervisors' LMX and LMX metaperceptions.

Appendix B

Three Studies to Evaluate the Impact of CMV

Given that concerns about CMV were the greatest for our findings regarding self-projection bias, which was based on cross-sectional self-report, we conducted three studies to systematically evaluate the potential influence of CMV on the relationship between LMX and LMX metaperceptions. Importantly, self-projection bias refers to the relationship between an individual's own relationship perceptions and their relationship metaperceptions about the dyad partner (West & Kenny, 2011). As such, the most appropriate measurement strategy involves collecting relationship perceptions and relationship metaperceptions from the focal individual, because the nature of these perceptions is inherently self-referential (e.g., my perception of the relationship and my relationship metaperceptions). In other words, these same judgments cannot be obtained via other (i.e., non-self-report) ratings and thus self-ratings are the most appropriate way to operationalize self-projection bias. Although in many other domains it might make sense to compare self-ratings with cross-source ratings, with the particular constructs in the current research, cross-source ratings will not allow one to effectively represent the key study constructs to estimate self-projection bias. For example, when recommending cross-source ratings, Podsakoff et al. (2012, p. 549) noted that using a different rating source "is not appropriate when both the predictor and criterion variables are capturing an individual's perceptions, beliefs, judgments, or feelings." Similarly, David Chan discussed this specific issue in a panel discussion about method variance in Brannick et al. (2010, p. 416). Specifically, Chan noted that "There are situations in which it is worse to use non-self-report measures than self-report measures to measure the same intended constructs. For example, the use of self-report measure is not only justifiable but also probably necessary when assessing constructs that are self-referential perceptions . . . To find out about the perception of an individual, it is often best to ask the individual about his or her perception rather than infer it indirectly from what others observe about the individual's behaviors . . . In short, when assessing self-referential perception constructs, non-self-report measures are often inferior in validity when compared to self-report measures."

Because the use of self-ratings is the best way to capture self-projection bias, we cannot use cross-source ratings to address concerns about CMV. Accordingly, in designing these studies, we followed Podsakoff et al.'s (2012) suggestions to employ proximal (i.e., using filler items to increase the physical distance between study variables in the survey; Study 1) and temporal separations (i.e., a temporal lag of 1 week in Study 2 and 1 month in Study 3). Below we summarize the three studies, after which we discuss the implications of these findings.

Study 1

We recruited participants who were employed and reporting to a supervisor on their job in the U.S. from Amazon's Mechanical Turk.[16] Participants were randomly assigned into one of two conditions. In the experimental condition, they first reported LMX, after which they answered a set of filler questions. These questions assessed their work-family interface and their personality, which not only introduced proximal separation but also reduced the conspicuous linkage between study variables as they were not related to leader–follower relationships (i.e., psychological separation; Podsakoff et al., 2012). Next, they reported their LMX metaperceptions, followed by demographic questions. LMX and LMX metaperceptions were measured with the full scales that we used in the main study. In the control condition, participants answered the same set of questions, but in the order of LMX, LMX metaperceptions, filler items, and demographic questions. In other words, the experimental condition contained proximal separation whereas the control condition represented a survey layout similar to that in our main study. To minimize respondent fatigue, we kept the survey at a reasonable length (i.e., 59 items in total). The use of random assignment allowed us to draw strong inferences regarding the effect of proximal separation. If the correlation between LMX and LMX metaperceptions (i.e., self-projection bias) in the experimental condition where the concern of CMV is expected to be mitigated due to proximal separation is similar to that from the control condition, this can serve as suggestive evidence for the limited impact of CMV.

A total of 399 participants provided valid data after we excluded five who failed attention check items (e.g., *please choose disagree*). Their average age was 37.26 years (SD = 10.80). Most of them

[16] This study was approved by the University of Illinois Chicago Institutional Review Board (study title: "Interpersonal Relationships in the Workplace"; Protocol 2020-1009).

(*Appendices continue*)

were male (53.9%) and White (74.1%). On average, they worked 39.97 hr per week ($SD = 8.02$) and had been working with their current supervisor for 4.05 years ($SD = 3.59$). Notably, the correlation between LMX and LMX metaperceptions (i.e., self-projection bias) in the experimental group ($n = 200$; $r = .87$, $p < .01$), where the impact of CMV is likely limited, was comparable to that in the control group ($n = 199$; $r = .90$, $p < .01$). Furthermore, these estimates were similar to what we found in the main study (the standardized self-projection bias was .80 for followers).

Study 2

Similar to Study 1, we recruited employed adults who were reporting to a supervisor on their job in the U.S. from Amazon's Mechanical Turk.[17] To ensure the independence of study data, those who participated in Study 1 were not eligible for Study 2. LMX was measured first and LMX metaperceptions were assessed a week later in the second survey. Both variables were measured with the full scales that we used in the main study. Before we closed the second survey, we sent out three reminders to increase the survey retention rate. A total of 302 participants completed the first survey. Among them, 260 completed the second survey (retention rate = 86.09%). After excluding 6 participants who failed attention check items (e.g., *please choose disagree*), the final sample consisted of 254 participants. On average, participants were 37.49 years of age ($SD = 10.96$). Most of the participants were male (56.3%) and White (75.2%). They worked 39.74 hr per week ($SD = 6.64$) and had been working with their current supervisor for 3.68 years ($SD = 2.88$). The correlation between LMX and LMX metaperceptions (i.e., self-projection bias) was $r = .76$ ($p < .01$). The slight decrease in self-projection bias in comparison to that in Study 1 suggests some effect of CMV. But this effect is not substantial as the extent of self-projection bias was comparable to our findings in the main study (standardized self-projection bias was .80 for followers).

Study 3

Similar to the previous two studies, participants for Study 3 were also recruited from Amazon's Mechanical Turk.[18] Those who participated in the previous two studies were not eligible for Study 3 to help ensure the independence of study data. LMX was measured first and LMX metaperceptions were assessed a month later in the second survey. Both variables were assessed with the full scales that we used in the main study. Before we closed the second survey, we sent out three reminders to increase the retention rate. A total of 300 participates completed the first survey whereas 242 of them completed the second survey (retention rate = 80.67%). After excluding 4 respondents who failed attention check items (e.g., *please choose disagree*), there were 238 participants in the final study sample. On average, they were 38.32 years old ($SD = 10.54$). Most of them were male (57.6%) and White (68.9%). They worked 39.51 hr per week ($SD = 9.09$) and had been working with their current supervisor for 3.73 years ($SD = 3.73$). The correlation between LMX and LMX metaperceptions (i.e., self-projection bias) was $r = .78$ ($p < .01$). Again, with a temporal lag, the magnitude of self-projection bias dropped slightly when compared with that from Study 1. However, the decrease was small in magnitude. More importantly, it was comparable to what we found in the main study (standardized self-projection bias was .80 for followers).

Discussion

Results from these studies, along with our main study, are summarized in the table below (Table B1). Although proximal and temporal separations decreased the observed self-projection bias to some extent, the drop in effect size—ranging from .03 to .14—was not substantial enough to suggest CMV could fully account for self-projection bias. For example, with a 1-month temporal separation (Study 3), the correlation between LMX and LMX metaperceptions was still .78. Moreover, as reviewed in Podsakoff et al. (2012), correlations that are susceptible to CMV tend to decrease by a decent amount with a 1-month lag (32% in Ostroff et al., 2002; 43% in Johnson et al., 2011). In comparison, the biggest change we observed was from .90 (a control group in Study 1) to .78 (1-month lag in Study 3), a 13.3% drop. This further suggests that the strong effect of self-projection bias we observed was not primarily due to inflation by CMV. Additionally, it is important to note the slight decrease in effect size in Study 2 and Study 3 may be partly attributable to substantive events that meaningfully altered the relationship between leaders and followers during the temporal lag (Podsakoff et al., 2012). In other words, the actual impact of CMV may be smaller than what the drop in effect size in Study 2 and Study 3 indicated.

Notably, the three studies reported herein should not be subject to the same levels of CMV as our original study (because their design makes CMV less likely; Podsakoff et al., 2012). Further, estimates from conditions where the impact of CMV was limited (i.e., Study 1 experimental group, Study 2, Study 3) were comparable to what we found in the main study whereby the standardized self-projection bias among followers was .80. As such, we are inclined to interpret the strong correlation between LMX and LMX metaperceptions across our main study and the three supplemental studies as evidence supporting strong self-projection bias. Although there may be some CMV effect operating, it is highly unlikely that CMV is solely responsible for the strong correlations between LMX and LMX metaperceptions.

That said, the self-projection bias findings are large by conventional standards. One possibility is that these large relationships are due to CMV. Another possibility is that these large relationships reflect strong self-projection bias. Because our supplemental studies help mitigate the effect of CMV, we suggest that the large correlations should be primarily attributed to strong self-projection bias. Further, we felt it might be helpful to put our findings into the context of similar research. This is important, as metaperceptions remain an understudied topic in applied psychology. Therefore, past findings regarding correlation effect size benchmarks from the applied psychology literature may not be applicable to self-projection bias. In that regard, past research has found similar levels of self-projection bias for respect (.70, Elfenbein et al., 2009) and liking (.70 in Study 1; .78 in Study 2, Eisenkraft et al., 2017). Commenting on this issue (though in the domain of personality metaperceptions), Kenny and DePaulo (1993) went so far as to conclude, "Instead, we think that people's beliefs about how others

[17] This study was approved by the University of Illinois Chicago Institutional Review Board (study title: *Interpersonal Relationships in the Workplace*; Protocol 2020-1027).

[18] This study was approved by the University of Illinois Chicago Institutional Review Board (study title: *Interpersonal Relationships in the Workplace*; Protocol 2020-1031).

(*Appendices continue*)

Table B1
Evaluation of the Impact of CMV Across Three Studies (Appendix B)

Statistics	Study 1 control group	Study 1 experimental group	Study 2 1-week time lag	Study 3 1-month time lag
Procedural remedies for CMV	—	Proximal separation	Temporal separation	Temporal separation
Sample size	199	200	254	238
LMX *M*	3.82	3.73	3.73	3.79
LMX *SD*	.81	.88	.84	.80
LMX α	.95	.95	.95	.94
LMX metaperceptions *M*	3.76	3.66	3.68	3.68
LMX metaperceptions *SD*	.81	.88	.84	.76
LMX metaperceptions α	.95	.96	.96	.94
r (self-projection bias)	.90**	.87**	.76**	.78**

Note. LMX and LMX metaperceptions were both measured on a 5-point scale. CMV = Common Method Variance; LMX = Leader–Member Exchange.
* $p < .05$. ** $p < .01$.

view them are based primarily on their perceptions of themselves" (p. 154).

Taken together, although CMV remains a potential study limitation, there are multiple reasons to believe its overall impact on our findings is limited. The consistent, strong correlation between LMX and LMX metaperceptions across studies with different research designs should be interpreted as evidence suggestive of strong self-projection bias. Nonetheless, as is true with any empirical study, researchers can only conclude unambiguous support for their model after a systematic program of research addressing different types of threats to validity. Therefore, we encourage future research to take a systematic approach to proactively mitigate the potential impact of CMV through different study design practices (Brannick et al., 2010; Podsakoff et al., 2012).

Received May 14, 2020
Revision received May 6, 2021
Accepted May 10, 2021 ■