Asia Pac J Manag (2021) 38:317–370
https://doi.org/10.1007/s10490-018-9594-8

A resource-based perspective on leader-member exchange: An updated meta-analysis

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Published online: 14 June 2019

Abstract Leader-member exchange (LMX) pertains to the exchange relationship between supervisors and subordinates. While prior results validated LMX's critical role in the workplace, less is known about "what has been input and exchanged" to cultivate this dyadic relationship. In this study, a resource framework based on conservation of resources theory (COR) was developed as an alternative theoretical perspective in investigating relationships between LMX and its correlates. Three groups of resources which has incorporated newly studied and existing correlates of LMX and existing constructs that could not be easily fitted into other theoretical frameworks were argued as antecedents to LMX. COR theory highlights the important role of LMX in transforming instrumental resources into favorable outcomes. The model also incorporates two types of LMX consequences: employee competitiveness and organizational enhancements. The findings contribute to the LMX literature by identifying the types of resources that are valuable in cultivating a high-quality LMX relationship, which in turn relates to the competitiveness of employees and their contribution that can enhance organizational effectiveness. Overall, the study findings indicate that LMX is significantly related to various antecedents and outcomes. Implications for theory development and directions for future research are also discussed.

Keywords leader-member exchange · LMX · Meta-analysis

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Leader-member exchange (LMX) refers to the quality of exchange relationships between supervisors and subordinates (Graen & Uhl-Bien, 1995). In extant studies, LMX has been found to have strong predictive power in organizational settings (Harris, Wheeler, & Kacmar, 2009; Henderson, Wayne, Shore, Bommer, & Tetrick, 2008; Schaubroeck & Lam, 2002; Schriesheim, Castro, & Yammarino, 2000). Previous research demonstrates that LMX is an effective tool for understanding organizational hierarchical relationships (e.g., Boies & Howell, 2006), employee task and citizenship performances (e.g., Harris, Li, & Kirkman, 2014; Kim, Liu, & Diefendorff, 2015), group effectiveness (e.g., Dionne, Yammarino, Atwater, & James, 2002; Erdogan, Kraimer, & Liden, 2004), and leadership effectiveness (e.g., Graen & Uhl-Bien, 1995; Scandura & Graen, 1984).

To date, there are five meta-analytic studies of LMX and they have provided important insights into the literature (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007; Martin, Guillaume, Thomas, Lee, & Epitropaki, 2016; Rockstuhl, Dulebohn, Ang, & Shore, 2012). Two of these are comprehensive meta-analyses in which the relationships between LMX and multiple antecedents and consequences are reviewed (Dulebohn et al., 2012; Gerstner & Day, 1997). In both cases, the authors adopted the reciprocity norm from social exchange theory (SET) to argue that employees are more likely to return the favor they have received from high-quality LMX through enhancing workplace performance and exhibiting favorable attitudes. More specifically, Gerstner and Day reviewed the effects of LMX on employee workplace attitudes and behaviors as correlates (e.g., satisfaction and performance). Including additional correlates of LMX, Dulebohn and colleagues argued that the characteristics of subordinates, supervisor traits, and their relationships are three groups of critical antecedents to LMX, which in turn influences subordinates' attitudes (e.g., commitment), perceptions (e.g., role perceptions), and behaviors (e.g., turnover). The other three meta-analyses focused predominantly on specific topics in LMX research. Ilies et al. (2007) explored the effects of LMX on subordinate's general and specific citizenship behaviors (i.e., citizenship behaviors targeting at other individuals or at organizations). Taking a step further, Martin et al. (2016) adopted the reciprocity norm to review the relationships between LMX and different types of subordinate performance (i.e., task and citizenship performance, and counterproductive behaviors). Rockstuhl et al. (2012) adopted a cultural framework in analyzing the role of cultural dimensions (horizontal individualism and vertical collectivism) in LMX−correlates relationships.

While contributing to the development of LMX nomological networks, findings of these five meta-analyses also leave notable research gaps. First, there is a call for an updated quantitative review as some important variables have not been captured in extant meta-analyses. New correlates of LMX have been investigated (e.g., specific leader behaviors such as coaching and conditional characteristics such as job autonomy,) and some of them have yielded inconsistent findings. For example, a strong and significant effect of certain leader behaviors (e.g., mentoring) on LMX was found in some studies (Kwan, Liu, & Yim, 2011), while weaker or non-significant relationships were reported in others (Scandura & Schriesheim, 1994). There are also outcome variables that have received increasing scholarly attention but were not included in previous meta-analyses. For example, voice and innovation are two particularly important behaviors that have direct implications to organizational effectiveness (Scott & Bruce, 1994; Spencer, 1986). Conducting an updated meta-analysis aiming to

investigate the true effect sizes would thus be helpful in incorporating broader scope of LMX correlates and exploring corrected effect sizes between LMX and its correlates.

Second, there is a recent call for meta-analytical investigations guided by alternative theoretical frameworks to facilitate new knowledge in existing areas (Shaw & Ertug, 2017) that applies to the LMX phenomenon. Previous LMX meta-analyses focused mostly on SET–the norm of reciprocity in particular–to explain the effects of LMX. A high-quality LMX is characterized by mutual trust, respect, and obligation, thus allowing supervisors to initiate beneficial behaviors or working arrangements. The reciprocity norm implies that people feel obliged to return the favor they have received by offering something the other party desires (Gouldner, 1960). Hence, it helps in elucidating why subordinates increase their effort in workplace with high-quality LMX. Existing meta-analyses based on SET, however, do not involve identification of what and how supervisors and subordinates invest in the dyadic relationship to enhance the LMX quality. Hence, relying solely on SET frameworks may be insufficient for incorporating variables that represent the medium of the dyadic exchanges (e.g., leader support). In addition, some well-studied correlates of LMX, such as contextual variables (e.g., organizational characteristics), do not fit intuitively into the SET framework, as they do not directly correlate with the subordinate−supervisor dyadic characteristics.

Furthermore, to develop a more comprehensive review on existing LMX literature, there is a need of comparing the LMX-correlate relationships across different cultural dimensions (i.e., Asian versus non-Asian cultures). For example, Schaubroeck and Lam (2002) have indicated that the supervisor-subordinate personality similarity has particularly strong relationship with employee advancement in collectivist cultural environment. Researchers have noted the great relevance of LMX in collectivistic cultures like China. For example, Hui, Lee, and Rousseau (2004) noted that China was a people-oriented culture and found that participants with traditional Chinese values would provide similar levels of extra-role behaviors regardless the levels of LMX, whereas participants with lower levels of traditional Chinese values would provide higher levels of extra-role behaviors as LMX increased. Similarly, Chen and Tjosvold (2007) suggested that LMX between supervisors and employees with different cultural background has important implication on how they work effectively toward favorable outcomes. In addition, research conducted with Asian employees has shown that LMX has nonlinear relationship with rating discrepancy (Kwak & Choi, 2015). While there is a large number of LMX studies that were conducted in Asian contexts published both in Asian and international journals, systematic knowledge of LMX functioning in Asian versus non-Asian cultures has yet to be established. Thus, to further pinpoint the differences across cultural dimensions, an updated LMX meta-analysis is needed to provide integrated findings.

To address these gaps, we propose a resource perspective, guided by conservation of resources (COR) theory, to interpret the relationships between LMX and its antecedents and consequences. For a relationship to develop and be effective, particular resources should be invested and exchanged. The resource approach to LMX holds significant promise as development of relationships depends much on what resources have been invested and exchanged. A more systematic analysis of how resources affect LMX quality and LMX−outcome relationships would yield important and meaningful insights into the

theorization and application of LMX. Hobfoll (1989) argued that even social relation (i.e., LMX in our context) itself can be viewed as a resource that may lead to attainment of other favorable outcomes. We argue for the importance of resources to the cultivation of LMX and how LMX may enhance both employees' competitiveness and employee's behaviors that contribute to organizational effectiveness. Development of a quality relationship like LMX is not only contingent on presence of norms governing the exchange, but also on willingness of parties involved to contribute something meaningful and valuable. Seemingly, there would be a limited sense of obligation if a person is offered only something trivial. We argue that it is important to conceptualize resources that are exchanged, as well as elucidate how these resources relate to the quality of relationships. We address two questions in the present meta-analysis: (1) What are the resources that significantly relate to a high-quality LMX? and (2) How LMX translates these resources into employee competitiveness and enhancement of organizations?

In addition to building a resource framework, the goal of this study is also to expand the scope of LMX's outcomes to employees' behaviors that are able to enhance organizational functioning and the competitiveness of employees themselves (e.g., career success outcomes). Voice and innovation are two specific behaviors which can improve and contribute to organization's effectiveness and functioning, while employees' personal competitiveness is characterized by their subjective and objective career success outcomes. More specifically, employee voice behaviors indicate their willingness and initiative in dedicating their effort, skills, and knowledge to workplace effectiveness (Van Dyne & LePine, 1998) because withholding information may interfere with important decision-making and delay error adjustment process (Beer & Eisenstat, 2000). Similarly, employee innovation behaviors enhance the viability and flexibility of organizations (Zhang & Bartol, 2010), allowing organizations to develop effective ways of managing limited resources and dealing with the rapidly changing environment. Of equal importance to organizational effectiveness are employee career outcomes. Positive relationship between LMX and employee job performance indicates that supervisors are able to provide career mentoring and are often regarded as role models for career development through high-quality LMX (Martin et al., 2016). However, previous empirical studies yielded inconsistent findings in this respect. For example, a significant and positive relationship between LMX and subordinate promotion rate was found in some studies (Graen, Wakabayashi, Graen, & Graen, 1990), yet they were found marginally related in others (Scandura & Schriesheim, 1994). A quantitative review is thus required to explore to what extent and how LMX is directly linked to employee career success outcomes, as its findings would help elucidate the true effect sizes.

In sum, the present meta-analysis has three specific objectives. First, we use resource perspectives, especially COR theory, to investigate the relationships between LMX and its antecedents and consequences. Second, using the resource framework allows us to incorporate and meta-analyze the relationships between LMX and new correlates that were not included in past quantitative reviews, as well as correlates that could not intuitively fit into the SET framework. Last, to further explore the impact of LMX, both employees' competitiveness and their beneficial behaviors to employers are examined as outcomes of high-quality LMX.

Literature Review and Hypotheses Development

The resource-based framework guided by COR theory provides the theoretical foundation to our research model in several ways. First, it offers reasoning for the facilitating role of different types of resources to LMX. Hobfoll (1989) pointed out that "social relations . . . can detract from individuals' resources" (517). Similarly, environmental resources (e.g., favorable conditions) promote individual and organizational outcomes (Hobfoll, 2011). COR theory provides the scope and details of what constitutes valuable resources in the LMX context and how these resources are associated with the quality of LMX. Second, from this perspective, we emphasize the importance of LMX in transforming resources into favorable outcomes. Employees are regarded as critical assets for organizations aiming to develop sustainable competitive advantage (Barney, Wright, & Ketchen, 2001), as their behaviors and performance largely influence organization's effectiveness. Having highly skilled and knowledgeable employees may not be sufficient to ensure the organization's competitiveness, since creating effective alignments between employees' individual capabilities and organization's features (e.g., structures or processes) would be more beneficial in bringing out the best from the workforce. The creation of meaningful and effective leader–member relationships could be one essential feature that transforms employee potentials into competitiveness of employees and enhancement of organizations. Third, COR theory offers guidance on classification of valuable resources in the context of supervisor–subordinate dyads. In terms of developing and maintaining individual power and strengths, COR theory has been used to investigate how acquiring or having access to valuable resources enhances one's ability to deal with challenging situations and capitalize on individual strengths (Hobfoll, 1989). We utilized the types of resource identified by COR to examine how different resources are related to LMX.

Specifically, COR theory helps to apply the resource perspective in identifying and interpreting valuable resources in LMX phenomena. Individuals tend to acquire and maintain valuable resources that can improve personal strengths in challenging situations (Hobfoll, 1989, 2001). For example, employees use and invest their professional skills to enhance task performance and achieve job promotion (Halbesleben, Harvey, & Bolino, 2009).

According to the COR theory, resources are defined as things that are valued by the individual or that serve as a means for the attainment of objects, personal characteristics, conditions, or energies (Hobfoll, 1989, 2001). Resources can be tangible (e.g., house) or intangible (e.g., personal characteristics, social relations, etc.) in nature. Specifically, COR identifies four types of valuable resources, namely objects, conditions, personal characteristics, and energy. COR can be applied to establish how acquiring or having access to valuable resources enhances one's ability to deal with challenging situations and capitalize on individual strengths (Hobfoll, 1989). It has also shown its instrumentality in understanding organizational issues, such as exerting organizational and personal resources to achieve higher performance (e.g., Wright & Hobfoll, 2004)

In the proposed model, we argue that, to develop and maintain high-quality LMX, resources need to be drawn from and utilized by various sources, such as employees themselves (e.g., professional skills, favorable attitudes) and organizations (e.g., supportive environment). Quality interaction within the supervisor–subordinate dyads

often includes supervisors assigning tasks and role duties to their subordinates, who are responsible for fulfilling the requirements (Graen & Cashman, 1975; Graen & Scandura, 1987). High-quality LMX can be cultivated throughout this process, as favorable terms and resources are exchanged.

Specifically, in this meta-analysis, we operationalized three types of resources identified by COR and examined how they relate to LMX. The three resources are conditions (job-related, people-related, and organization-related), personal characteristics, and employee psychological energy. There is one more type of resources—"objects" (e.g., house, cars, etc.) —identified by COR framework but was not included because it remains largely uninvestigated in prior research. One potential reason for the limited investigation in this category is that, even though employees work for tangible rewards, objects are universal resources (e.g., houses or cars) that are less likely to be exchanged for particular non-tangible resources, such as high level of loyalty in deep relationships (Foa & Foa, 1980).

The first type of resources is conditions, which are defined as premises and provisions that are essential to the appearance or occurrence of certain results (i.e., high-quality LMX). Conditions are valuable resources for two reasons. On one hand, favorable conditions would foster a resource-rich environment that supports and helps with effective functioning of individuals (Hobfoll, 2001). On the other hand, safe and favorable work conditions increase mental strength and decrease individual's vulnerability in dealing with challenging events. Consequently, employees are more likely to have goodwill and positive attitudes, which is critical for of high-quality relationships.

The second type of resources is personal characteristics, which are defined as special qualities and features of employees themselves that are of value to others (i.e., promotion of goodwill aimed at benefitting others). Personal characteristics are valuable resources to the extent that subordinates with positive or favorable characteristics (e.g., high self-esteem) are more comfortable with and better skilled in interpersonal interaction, which in turn facilitates the development of high-quality LMX.

The third type of resources is psychological energy—employees' dynamic mental qualities, such as attitudes, emotions, and physiological states, that promote growth and positive energy in workplace (Crampton, 1974). Psychological energies are valuable resources to the extent that they help employees to achieve enhanced level of functioning and stronger sense of meaning (Hobfoll, 2011), which enable employees to better approach work tasks.

When examining the consequences of LMX, we focus on outcomes that manifest the effectiveness and competitiveness of both organizations and individual employees. These two groups of outcomes are indicative of organization's and employee's functionality and competitive advantages. In addition, they are less discussed in prior research and were not included in previous LMX meta-analyses.

Table 1 summarizes the research model based on resource perspectives proposed and tested in this study. It illustrates the three types of resources (conditions, personal characteristics, and psychological energy) that are related to high-quality LMX, which may contribute to organizational enhancement (innovation and voice), as well as employees' personal career success outcomes (subjective and objective).

Table 1 The proposed antecedents and consequences of LMX

Antecedents	
Conditions	Job related conditions • Job autonomy • Job embeddedness People related conditions *Supervisor-related* • Perceived supervisor support • Dyadic communication • Attitudinal similarity • Delegation • Mentoring • Consultation • Ethical leadership • Interactional justice *Colleague-related* • TMX • Teamwork harmony *Family-related* • Work-family balance Organization related conditions • Perceived organizational support • Psychological contract fulfillment
Personal Characteristics	• Self-esteem • Self-efficacy • Emotional intelligence
Psychological Energy	• Job involvement • Organizational identification • Job engagement • Satisfaction with tasks • Satisfaction with evaluation
Consequences	
Organizational Enhancement	• Innovation • Voice
Employee Competitiveness	*Objective career success* • Promotion • Promotability • Speed of promotion • Salary *Subjective career success* • Job well-being • Satisfaction with career

Resources as Antecedents

COR theory argues that social relationship, which does not fall into any of its four resource types, is one specific yet crucial resource as it can facilitate the attainment of favorable outcomes and can be derived from other types of resources (Hobfoll, 1989). LMX as a critical relationship in organizational context, then, can be regarded as a central resource that can be developed from the aforementioned three types of resources. In addition, LMX is distinct from other types of resources (i.e., its antecedents)

not only because that social relationship resource needs to be built up through obtaining other resources, but also because it is contingent on interpersonal interactions. The resource value of LMX can be further supported from its relationship with favorable organizational and individual consequences. In the following section, we provide specific arguments for resources classified in these three groups. Conditions, as the first group of resources, will be further discussed in relation to job-related, people-related (including supervisor, colleagues, and family), and organization-related conditions.

Conditions (job-related) Job-related conditions are premises and provisions generated from characteristics of employee's tasks and responsibilities at work. In this study, we examine *job autonomy* and *job embeddedness* as valuable resources in facilitating LMX quality. LMX pertains to building effective work relationships; thus, cultivating high-quality LMX is contingent on promoting situations or task structures related to how employees work. Being an in-group member or enjoying a high-quality LMX often denotes receiving critical work assignments and being involved in decision making (Gomez & Rosen, 2001), as well as being promoted within the organization (Wayne, Shore, & Liden, 1997). Subordinates that have high autonomy at work are empowered with greater latitude and involvement in making decisions (such as determining task priority, ways to get jobs done, etc.) (Cohen-Meitar, Carmeli, & Waldman, 2009). This would enhance LMX, whereby the supervisor and the subordinate enter into a more organic relationship that involves trusting each other. In addition, employees would take initiatives in mastering new skills and exploring effective ways to perform tasks (Wang & Cheng, 2010). They would also gain a sense of responsibility through highly autonomous job conditions (Parker & Sprigg, 1999), whereby subordinates' efforts and initiatives are more likely to be seen and recognized by their supervisors. This helps promote a more effective work relationship.

Employees who are highly embedded in their job develop effective links with people at work, and also perceive a good fit with the work team as well as their organization (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). They are less likely be distracted by ideas of quitting their jobs and will be more likely to concentrate on achieving job goals (Lee, Mitchell, Sablynski, Burton, & Holtom, 2004). Satisfactory job performance, which is often associated with high level of job embeddedness, would strengthen supervisor's positive views of subordinates, which will in turn enhance the quality of LMX.

Hypothesis 1a. Job-related conditions (job autonomy and job embeddedness) are related to LMX.

Conditions (people-related) We identified three types of people-related conditions, namely supervisor-related, colleague-related, and family-related conditions. In the LMX literature, all three types have been investigated in association with LMX. For example, ethical leadership is a supervisor-related condition (Walumbwa, Mayer, Wang, Wang, Workman, & Christensen, 2011), team member relationships are viewed as a colleague-related condition (Sherony & Green, 2002, and work-family balance is a family-related condition (Liao, 2011). However, a systematic way to explore how and to what extent these people-related conditions exert impact on LMX quality is presently

lacking. In addition, previous scholarly focus was typically limited to how supervisor-related situations influence LMX. We suggest that the other two groups, coworkers and family, also exert significant impact because they both create critical context that has implications on LMX. We justify this view because employees' emotions and energy exhibited at work are influenced by how well they interact with both their work colleagues and family members (Herman, Dasborough, & Ashkanasy, 2008; Liao, 2011).

For supervisor-related conditions, we examine perceived supervisor support (PSS), dyadic communication, attitudinal similarity, delegation, mentoring, consultation, ethical leadership, and interactional justice. These are important people-focused conditions because employees do not work in isolation, and whether or not they perceive fair and supportive supervisory actions may have a significant influence on their perceptions and behaviors in working with supervisors.

Perceived supervisor support (PSS) is characterized by supervisor's care for subordinates' wellbeing and recognition of their contribution (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002), which fosters and enhances subordinates' attachment to the dyadic relationship (Maertz, Griffeth, Campbell, & Allen, 2007). Subordinates that perceive high level of supervisor support would feel less strained (Shanock & Eisenberger, 2006), since they can channel their time and energy directly into their work and building quality relationships (i.e., LMX) instead of worrying about mistreatment or the opposing voice from the supervisor.

Frequent and high-quality *dyadic communication* promotes the quality of LMX. Having effective communications would strengthen mutual understanding and may reinforce supervisors' affection for subordinates (Kacmar, Witt, Zivnuska, & Gully, 2003). Moreover, high-quality communication generates positive feelings on the subordinate's side, as it shows supervisor's consideration. It also brings positive perceptions on the supervisor's side, as those who are articulate may gain understanding and support of supervisors more easily. When subordinates are given greater opportunities to interact with their supervisors, they are better able to understand and meet their supervisors' expectations, thus facilitating a better attainment of LMX.

Attitudinal similarity between subordinates and supervisors plays an important role in cultivating LMX. As relationship development involves individual characteristics of both parties, as well as the compatibility of their interaction, having similar attitudes is more likely to promote mutual understanding, and generate compatible ideas and opinions toward the same topics. In addition, the similarity-attraction paradigm (Byrne, 1971) suggests that similarity (e.g., attitudinal or demographics similarity) between individuals contributes to mutual attraction. As attraction often refers to affect, which is a vital component of LMX, similarity between supervisors and subordinates theoretically predicts the quality of their dyadic relationship (Liden, Wayne, & Stilwell, 1993).

Supervisor *delegation* often is indicative of supervisor's trust in employees' competencies and can strengthen perceptions of empowerment (Schriesheim, Neider, & Scandura, 1998). Employees would be more likely to spend extra effort in performing the delegated tasks to a satisfactory level (Leana, 1986), knowing that they have supervisor's trust. In addition, supervisors may regard employees who they delegate important or challenging tasks as critical subordinates, thus would offer more assistance or guidance in task completion. The exceptional performance would then promote a more solid relationship with supervisors.

Supervisor's *mentoring* behaviors facilitate subordinates' positive feelings toward their career management under the guidance and work experiences shared by supervisors (Payne & Huffman, 2005). Subordinates that view their supervisors (mentors) as role models receive greater opportunities to show their talents, expose their contributions, and establish networks in the company (Higgins & Kram, 2001). In turn, subordinates are more likely to seek advanced relationships with supervisors (i.e., LMX), as they attribute the positive consequences to the mentoring.

Supervisor's *consultation* often allows information sharing and exchange, whereby subordinates are encouraged to express their opinions and perspectives (Lee, Scandura, & Sharif, 2014). When invited by the supervisor to share views on certain topics, subordinates would feel respected and gain a sense of control (Bies & Shapiro, 1988). Consultation not only offers favorable conditions for facilitating both parties' positive perceptions toward each other, but also cultivates the actual exchanges of information, trust, and respect. As a result, the quality of LMX would be increased.

Ethical leadership indicates supervisors' trustworthiness because of their social responsiveness, integrity, and fairness (Mayer, Aquino, Greenbaum, & Kuenzi, 2012), all of which help to facilitate the subordinates' positive views toward and trust in the supervisor. Potential for having relationship conflict would also decrease because subordinates feel less work tension and experience fewer clashes at workplace (Bateman & Porath, 2003). Consequently, ethical leadership would promote trusting relationship with employees who show integrity while also encouraging employees' ethical behaviors, thus enhancing employees' confidence in following them, further contributing to high-quality LMX.

Interactional justice perceived by subordinates would enhance their sense of identification with the organization (Carter, Mossholder, Feild, & Armenakis, 2014) and promote their willingness to join discussions and provide elaboration on work topics (Ambrose & Schminke, 2003). In addition, research has shown that interactional justice is an effective buffer for unfavorable treatment of subordinates, such as underpayment (Greenberg, 2006). To this end, supervisor's trustworthiness and subordinates' positive attitudes would be enhanced, which in turn is related to high-quality LMX.

Hypothesis 1b. Supervisor-related conditions—PSS, dyadic communication, attitudinal similarity, delegation, mentoring, consultation, ethical leadership, and interactional justice—are related to LMX.

In order to gain a better understanding of colleague-related conditions, we examine team-member exchange (TMX) and effective teamwork. Employees' experiences of interactions with colleagues would influence their relationship building with supervisors. Social information theory suggests that one's environment, including coworkers, has important impact on how he or she interprets and reacts to work experiences, including perceptions of the supervisor (Salancik & Pfeffer, 1978). Employees enjoying effective interaction and collaboration with coworkers may extend the favorable perceptions and emotions when they work with supervisors.

High quality of peer relationships at work (i.e., *TMX*) provides subordinates with two types of benefits. More specifically, having friendly and helpful colleagues increases subordinates' sense of self-value, as high TMX facilitates employees' perceptions of positive uniqueness and stronger feelings of belonging (Farmer, Dyne, & Kamdar, 2015). In

addition, when quality of TMX is high, employees tend to be more willing and confident in contributing to the tasks of their peers and supervisors, as they are more mentally empowered and encouraged (Banks, Batchelor, Seers, O'Boyle, Pollack, & Gower, 2014).

Teamwork harmony is another colleague-related condition because smooth and harmonious work relationships would enhance the efficiency of group decision making and generate more positive perceptions. Working in a harmonious team atmosphere means that employees would experience less negative encounters or less intense conflict with coworkers, which may shift employee's effort and energy from being collaborative and effective (Greer, Caruso, & Jehn, 2011). In addition, the favorable emotions and feelings employees experience at workplace would have positive impact on their dyadic interactions with supervisors.

Hypothesis 1c. Colleague-related conditions—TMX and teamwork harmony —are related to LMX.

For family-related conditions, we examine how *work–family balance* would enhance LMX quality because employees have more mental and physical energy to better deal with workplace tasks and relationships, and show more positive emotions and perceptions during interpersonal encounters when they maintain a balance in that they are not burdened with work-family conflict. COR theory (Hobfoll, 2011) argues that supportive environments such as favorable family and work conditions are critical for employees to engage in their work tasks. Employees are better able to "recharge their batteries" (Hobfoll, 2011: 138) and experience more positive emotions and perceptions under supportive and favorable environment. Along this logic, employees experiencing balanced work-life dynamics would better dedicate at and concentrate on work issues especially on building up relationships at work. On one hand, employees do not need to strive for ways to simultaneously attend to both work tasks and family responsibilities. Furthermore, experiencing well-coordinated responsibilities from both sides will leave employees more time and energy to fulfill job duties (Major, Fletcher, Davis, & Germano, 2008). On the other hand, positive perceptions and emotions generated from balanced work tasks and family duties can favorably affect relationships and performance at work. Satisfactory performance and positive emotions would then build up favorable impressions on supervisors, further facilitating relationship building (Graen & Uhl-Bien, 1995).

Hypothesis 1d. Family-related conditions, such as work–family balance, are related to LMX.

Conditions (Organization-related) Organization-related conditions are employer-granted characteristics of situations employees encounter at work. Although organization can be an abstract entity, employees do frequently relate to an organization via their supervisors (Hui et al., 2004). What organizations provide for their employees may affect how these employees relate to each other. In this study, we explore the influence of *perceived organizational support* (*POS*) and *psychological contract fulfillment*.

Organizations can provide various forms of support (e.g., financial incentives, attractive job conditions, equipment and skill support, etc.) to cultivate employees' professional capabilities and effective working relationships. Receiving support from their organizations, employees will be more energized toward work as they experience increased positive moods and emotions (Maertz et al., 2007). This would strengthen LMX, as supervisors can be the individuals through which organizational support is offered. Furthermore, organizational support signifies the value placed on the employees, which may strengthen supervisors' direct investment in the subordinate. POS would also create an inspiring and supportive environment for employees to discover effective ways of getting things done.

On the other hand, when employees perceive high levels of *psychological contract fulfillment* with their employers, they will experience more psychological motivation and contextual support. As a signal of positive employee-organization relationship, psychological contract fulfillment often induces higher levels of trust among employees, increasing their commitment to their organization, because they believe that the organization has effectively fulfilled their agreed exchange terms and conditions (Turnley, Bolino, Lester, & Bloodgood, 2003). Employees' constructive behaviors at workplace will consequently increase (e.g., they will be more motivated to exhibit citizenship behaviors and will have higher job performance), which may also facilitate the development of effective relationships with their supervisors.

Hypothesis 1e. Organization-related conditions (POS and psychological contract fulfillment) are related to LMX.

Personal characteristics In this second group of resources, we examined self-esteem, self-efficacy, and emotional intelligence. *Self-esteem* is individual's fundamental belief in his or her overall value (Judge & Bono, 2001). Employees with high self-esteem like their roles at work and regard challenges as potential opportunities to grow professionally (Locke, McClear, & Knight, 1996; Pierce & Gardner, 2004). These positive attitudes facilitate the forming of positive impressions of the subordinates by their supervisors and motivate subordinates to engage more constructively with supervisors.

Employees with high level of *self-efficacy* believe in their own abilities to deal with difficulties and achieve success (Judge & Bono, 2001). These positive beliefs are associated with higher job satisfaction and allow them to take active steps to contribute to workplace effectiveness. When interacting with their supervisors, employees with possessing self-efficacy would be more confident and willing to take initiative on challenging tasks, which in turn may enhance supervisor's trust and confidence in them.

Employees with high *emotional intelligence* are better able to regulate their own emotions and comprehend those of others (Mayer, Salovey, Caruso, & Sitarenios, 2001), allowing them to have smooth and efficient interactions with supervisors at work. In addition, high emotional intelligence denotes strong social skills, which facilitate employees' ability to deal with interaction complexity using flexible methods. Thus, emotional intelligence is positively related to LMX.

Hypothesis 2. Subordinates' personal characteristics (self-esteem, self-efficacy, and emotional intelligence) are related to LMX.

Psychological energy Employee's psychological energy is a set of beneficial resources in that even though no physical benefits may be generated, employees would be experiencing and showing more favorable attitudes during their daily interactions with supervisors. From an impression management perspective, employees who are perceived as more active, loyal, and engaged to their job tasks would build up favorable reputation at work (DuBrin, 2010). Supervisors would be "impacted by the emotional expressions of followers" when positive attitudes are shown (Cropanzano, Dasborough, & Weiss, 2017: 249), and then more likely to develop high quality relationships with those who display high level of psychological energy. In this third group of resources, we examined job involvement, organizational identification, job engagement, satisfaction with tasks, and satisfaction with evaluation.

Job involvement is posited to be critical to activating employees' motivation to perform well on their job, which also enhances their goal-oriented behaviors and is instrumental to their career growth (Brown, 1996; Kahn, 1990). Employees who are highly involved in their job are more dedicated to accomplishing assigned tasks and engage in effective activities that may enhance their personal growth. Such employees are also more likely to be valued by supervisors.

Organizational identification emphasizes employees' recognition of being valued members of their organization, whereby they associate with organization's achievements and difficulties (Mael & Ashforth, 1992). Employees exhibiting higher level of organizational identification feel the responsibility to play instrumental and supportive roles in improving workplace effectiveness (e.g., through readily engaging in a variety of extra-role activities). Thus, they are more likely to develop and maintain a high-quality relationship with supervisors.

Job engagement reflects the positivity and fulfillment that employees experience at work (Nahrgang, Morgeson, & Hofmann, 2011), representing a positive employee attribute that relates to effective functioning at work. Engagement is a beneficial resource to the extent that people with high level of engagement are more absorbed in their tasks and will be less distracted and discouraged by challenges and difficulties (Hobfoll, 2011). Employees who are highly engaged with their jobs are energetic and dedicated to the successful completion of all job tasks. Supervisors are more likely to build effective work relationships with such employees.

Employees' level of satisfaction with their job and workplace systems signifies their high level of morale and positive energy. As highly satisfied employees are more proactive and motivated toward their job tasks, they become less time- and effort-consuming for supervisors to work with. More specifically, employees are likely to attribute the satisfactory evaluation outcomes or favorable task assignment to their supervisors. Thus, when they have high level of satisfaction with their performance evaluation or tasks they are assigned, employees are able and willing to find ways to invest greater energy and effort into the relationship with their supervisors.

Hypothesis 3. Psychological energy (job involvement, organizational identification, job engagement, satisfaction with tasks, and satisfaction with evaluation) is related to LMX.

LMX and Outcomes

Organizational Enhancement Outcomes

In this study, we focus on employee innovation and voice behavior as operatinalizations of their contribution to organization's for two reasons. First, resource-based view emphasizes competitive advantage and sustained competitive advantage. To build and maintain such advantages, organizations need continuous improvement. Both innovation and employees' voice relate to continuous improvement. Employees have first-hand knowledge and comprehension of the functionality of organizational routines and systems and are in a position to provide useful feedback for improvement (e.g., perfecting the workflow or providing solutions to potential problems). Thus, employees' voice has the potential to enhance the viability and overall growth of their organization (Zhang & Bartol, 2010). Innovation from employees, on the other hand, provides inspiration and foundations for strategic innovation on a larger scale. Second, according to the resource-based view, organizations cannot develop and maintain competitive advantages unless "the members of the human capital pool individually and collectively choose to engage in behavior that benefits the firm" (Wright, Dunford, & Snell, 2001: 705). To this end, employees' willingness to discover creative and effective ways of dealing with work issues (i.e., innovation) and offer constructive feedback and suggestions as a way to improve organization's functions (i.e., voice) manifests their contribution to the effectiveness of their organization, which also enhances the organization's competitiveness.

Resource-based perspective indicates that successful development and execution of business strategies requires appropriate mechanisms, channels, and processes to induce required response and actions from employees (Wright et al., 2001). We argue that LMX is one of these mechanisms, which manifests as an effective practice of "people management system," strengthening employees' involvement and contribution, ultimately enhancing workplace effectiveness.

Specifically, supervisors provide more emotional and material support for subordinates with whom they have a high LMX. At the same time, subordinates who enjoy a high level of LMX have more resources and support to generate innovative ideas, and could access critical information and material to implement these innovative ideas. In addition, subordinates receive constructive feedback from supervisors when they partake in high-quality exchange (Sparr & Sonnentag, 2008), which further facilitates sharing new ideas with supervisors. Scott and Bruce (1994) provided empirical evidence in support of the view that high LMX offers subordinates great decision latitude, which are vital in the innovation process.

Hypothesis 4. LMX is positively related to subordinate innovation.

Subordinates who perceive high LMX would more frequently share their thoughts and suggestions about their organizations, as they often see supervisors as the embodiment of the organization (Burris, Detert, & Chiaburu, 2008). Also, when subordinates

perceive high LMX, they are likely to enjoy more open and direct communication with their supervisors (Botero & Van Dyne, 2009) and feel more comfortable speaking up. Further, close relationships with supervisors provide subordinates with greater voice opportunities (Botero & Van Dyne, 2009), as their communication and interaction with supervisors are not restricted. Finally, supervisors might be seen as trustworthy, thus motivating the subordinates to express honest opinions when the dyadic relationship has higher quality.

Hypothesis 5. LMX is positively related to subordinate voice.

Employee Competitiveness Outcomes

Employee's competitiveness is represented by subjective (i.e., job well-being and satisfaction with career) and objective career success outcomes (i.e., promotion, promotability, speed of promotion, and salary). We propose that a high quality of LMX functions as a facilitating mechanism to develop and maintain employee's individual competitive advantages at work. From a human capital perspective, supervisors transmit more knowledge and work-related skills to subordinates with whom they have a high quality LMX (Dansereau, Graen, & Haga, 1975). The knowledge and skills improve subordinates' human capital and, in turn, lead to more career success (Ng, Eby, Sorensen, & Feldman, 2005). From a social capital perspective, supervisors might increase subordinates' exposure in the organization by introducing them to higher-level managers and increase the subordinates' visibility within the organization, which helps the subordinates to receive more attention for their work achievements and facilitates their career success. Authors of extant studies provided evidence in support of the positive influence of LMX on employee career success, such as strengthening promotability (Schaubroeck & Lam, 2002) and career satisfaction (Wayne, Liden, Kraimer, & Graf, 1999).

Specifically, for objective career success, employees with higher LMX are more likely to receive helpful guidance, advice, and assistance from supervisors. In addition, supervisors tend to assign challenging and critical tasks to those who they have favorable and trusting relationship with (Liden, Erdogan, Wayne, & Sparrowe, 2006). Employees would then have greater chance of gaining exposure at organization and be more likely to receive positive appraisal outcomes.

For subjective career success, employees experiencing high quality of exchange relationships with supervisors have better chance of receiving important task arrangement and guidance on performing tasks (Schriesheim, Castro, & Cogliser, 1999), which would facilitate their satisfaction perceptions with their career. Also, with more career growth coaching and advice from supervisors, employees are more likely to develop positive attitudes toward their career and professional skill development.

Hypothesis 6a. LMX is positively related to subordinate's objective career success outcomes (promotion, promotability, speed of promotion, and salary).
Hypothesis 6b. LMX is positively related to subordinate's subjective career success outcomes (job well-being and satisfaction with career).

Theoretical and Operational Moderations

In this study, we examine one theoretical moderator (i.e., cultural dimensions) and two operational moderators (i.e., LMX operationalizations and perspectives). The relationships between LMX and its correlates may vary due to different national culture dimensions (Rockstuhl et al., 2012). The LMX dynamics in Asian countries (e.g., Lee, Chae, & Shin, 2016) would be distinct from non-Asian cultures as a function of psychological resource in the form of motives (e.g., Henderson et al., 2008). Anand, Hu, Liden, and Vidyarthi (2011) have emphasized the importance of investigating the predictors and impact of LMX across different cultural dimensions, especially for Asia versus non-Asia contexts. The horizontal individualism (HI)/vertical collectivism (VC) dimensions has been regarded as a helpful tool in discovering cultural differences especially in social encounters (Triandis, 1995). These two dimensions are different from each other in two ways. HI refers to a cultural orientation from which people regard themselves as independent individuals in a society, yet VC describes a cultural orientation where individuals regard themselves as a member of a group. Also, HI emphasizes that individuals regard that they have similar societal status with others, while VC focuses on the status differences in a group (Singelis, Triandis, Bhawuk, & Gelfand, 1995). In the supervisor-subordinate dynamics, building harmonious relationships may be a more salient task in Asian countries which are mostly represented by VC orientation. While in non-Asian contexts when HI is the overarching focus, individuals would work more toward personal needs, self-benefits or individual achievement. Thus, LMX may have rather different notions and impact on its outcomes across Asian and non-Asian countries.

In previous research, LMX has been measured through various operationalizations, including the frequently used unidimensional (e.g., LMX7, Graen & Uhl-Bien, 1995) and multidimensional measures (e.g., LMX-MDM, Liden & Maslyn, 1998). Although Graen and Uhl-Bien's seven-item scale (LMX7) remains one of the mostly used measurement scales (Schriesheim, Wu, & Cooper, 2011), there is no consensus on which operationalization explains the most variance in different correlates of LMX. For example, Liden and Maslyn (1998) found that LMX-MDM explained the incremental variance in workplace variables beyond that explained by LMX7, while Maslyn and Uhl-Bien (2001) found that the combination of four dimensions of LMX-MDM did not consistently yield the same pattern of results. In this study, different operationalizations of LMX are included as a moderator to investigate whether adoption of different scales would moderate relationships between LMX and correlates, and whether LMX7 would account for more variance in tested relationships.

Previous studies show different views on what perspective of LMX to choose in order to achieve higher predicting power. While some scholars argue that subordinates' ratings are preferred in measuring LMX (e.g., Wakabayashi & Graen, 1984), others suggest that both supervisors' and subordinates' perspectives should be adopted to capture the "reciprocal" nature of LMX and provide complete information of this dyadic relationship (e.g., Greguras & Ford, 2006). According to Gerstner and Day (1997), subordinate's perspective exhibits higher reliability than supervisor's perspective. In this study, perspective of LMX is tested as a moderator to investigate if raters of LMX influence the strengths of relationships between LMX and its correlates.

Focused Mediation Model

Employee's relationship building with supervisors are influenced by the dynamics they have with different groups of people (e.g., supervisor, family) and by situational factors (e.g., job autonomy, organizational support). To further extend our resource-based investigation, we focus on the mechanisms of four critical resources from our general model (i.e., perceived supervisor support, perceived organizational support, work-family balance, and job autonomy) representing supervisor-based, organization-based, family-based and job-based resource, respectively, relating to one critical attitudinal resource (i.e., job satisfaction). In turn, job satisfaction would relate to LMX.

Hobfoll (1989) argued that while diverse resources are crucial for individuals to develop capabilities in dealing with challenging situations, some resources can be acquired or obtained from other resources. In the LMX context, employee's favorable attitude such as feeling satisfied is crucial. For example, employees are more likely to invest in, engage in, and perceive positive relationships when they are generally contended. To attain satisfaction, having resources from multi sources would be helpful. Specifically, employees are more satisfied when they receive supervisor's support such as getting more critical information or having important tasks (e.g., Li, Liang, & Crant, 2010). Receiving organizational support would also allow employees to commit more at work and regard themselves as an important member, which increases their satisfaction at work (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). In addition, employees would work with more flexibility and effectiveness when experiencing a balanced work-family dynamic and high autonomy at work (e.g., Cohen-Meitar et al., 2009).

Method

Literature Search

A comprehensive search was conducted to identify field studies published in or before 2017 that examined the relationships between LMX and its correlates, which are three groups of antecedents (conditions, personal characteristics, and psychological energy) and two types of outcomes. Other articles were also included, but these did not directly focus on LMX; rather, their authors provided matrices that include the relationships between LMX and its correlates that are of interest to the current study. Illumina, EBSCOHost, and ProQuest databases were used in the search for relevant literature sources, using keywords, such as "leader-member exchange," "LMX", "dyadic vertical linkage," "leader-member relationship," "supervisor-subordinate relationship," "leader-follower relationship," and "supervisor relationship."

In addition, the following journals were manually scanned for relevant articles: *Academy of Management Journal, Journal of Applied Psychology, Journal of Vocational Behavior, Journal of Organizational Behavior, Journal of Management, Organizational Behavior and Human Decision Processes, Journal of Occupational and Organizational Psychology, Human Resource Management, Group and Organization Management, Leadership Quarterly, Journal of Cross Cultural Psychology, Human Performance,* and *Administrative Science Quarterly*. Inclusion criteria comprised of

whether the dyadic exchange quality between supervisors and subordinates was measured, whether the study reported sufficient information about effect sizes and measurements for analyses, and whether the relationship reported gathered at least three studies. In addition, the reference lists of five previous meta-analyses of LMX were also considered to locate additional sources. These processes yielded 237 field studies, which contained 256 independent samples. The reference section lists studies included in this meta-analysis. Two PhD research students replicated around 20% of the data coding and discussed with the first author on any discrepancies they have encountered during the coding process, and agreement was achieved on all coded cells. The kappa value which indicates the degree of agreement among different coders is around .95, showing a strong agreement. The categorization of variables into different resource groups were discussed among all authors of the study and a complete agreement was achieved. The first author was responsible for the coding.

Measures of Key Constructs

LMX A variety of operationalizations have been used in extant research to measure LMX. The two most commonly used operationalizations are LMX7 (Scandura & Graen, 1984) and LMX-MDM (Liden & Maslyn, 1998). As noted before, LMX7 is a unidimensional scale that focuses on the working relationship, rather than personal relations or friendships (Graen & Uhl-Bien, 1995). Other less commonly used scales of LMX are also included, such as those developed by Dansereau et al. (1975), Graen, Liden, and Hoel (1982), and Wakabayashi, Graen, and Uhl-Bien (1990).

Correlates of LMX Table 1 shows the correlates of LMX investigated in this meta-analysis. Operationalizations of most correlates are largely consistent with prior research. For teamwork harmony, work-family balance and psychological fulfillment, their negatively connotated counterparts are adopted as proxy—which are team conflict, work-family conflict, and psychological breach. Such arrangement is used because of lacking empirical studies measuring the original three constructs.

Meta-analytical Procedures

In this study, Hunter and Schmidt's (2004) meta-analysis technique was employed. First, an unreliability measurement was calculated for each reported correlation between LMX and its correlates, by using alpha values reported in each study. The effects of disattenuation were considered, as most of these variables were self-reported (e.g., attitudinal similarity), increasing the likelihood of measurement error. If the researchers did not report the alpha value for a particular variable, an average alpha value calculated from the remaining studies adopting the same scale was used. For multiple effect sizes provided by single studies, we used Schmidt and Hunter's (2014) approach in calculating the true effect sizes through treating the effect sizes provided as one of the three categories brought up by Schmidt and Hunter— fully replicated designs, conceptual replication, and replication via analysis of independent subgroups.

Operationalizations of antecedents and consequences were highly consistent with the scales established in previous studies. Second, the disattenuated correlations were

corrected for sampling error by calculating the corrected correlations weighted by the sample size. Two indices were reported—confidence interval (CI) and credibility interval (CrI)—to help estimate the variability of true correlation. It is important to include both indices, as each provides different information. CI provides estimation of the variability of the mean correlation, while CrI provides an estimation of variability of individual correlations across cumulated studies (Judge & Ilies, 2002; Whitener, 1990). A 95% confidence interval (95% CI) was calculated for each corrected correlation. If 90% CrI does not include zero, at least 95% of the individual correlations are nonzero (Judge & Ilies, 2002).

Effect Size Comparison for LMX Antecedents

Meta-analytical structural equation modeling (MASEM; Viswesvaran & Ones, 1995) was adopted to test a focused path model. Specifically, a mediation model with four critical LMX antecedents (i.e., PSS, POS, work-family balance, and job autonomy), one mediator (job satisfaction), and one dependent variable (LMX) was tested using MASEM. MASEM provides robust test for this model in two ways. First, it is able to test the model using accumulated findings across empirical findings, which helps to reduce the sampling error (Ng et al, 2009). Second, with its inclusion of multiple LMX antecedents, this test allows a relatively direct comparison of predicting power across different antecedents. To conduct the MASEM, a pairwise meta-analytical correlation matrix including meta-analytical results of all six constructs was established. While the correlations between LMX and other five constructs were meta-analyzed by this study, other existing meta-analyses provide the rest of the information (e.g., job satisfaction-POS; POS-PSS; job autonomy-POS; Rhoades & Eisenberger, 2002). It should be noted that due to a lack of meta-analytical findings on the relationship between job autonomy and perceived supervisor support, findings from a large-sample empirical study (i.e., Griffin, Patterson, & West, 2001) was adopted and included in the correlation matrix. Consistent with previous meta-analyses (e.g., Ng et al, 2009), harmonic mean calculated was used in the analysis.

In addition, the Hotelling–Williams test (Steiger, 1980) was used to compare the explanatory power of different LMX antecedents. The Hotelling-Williams test has been used by several meta-analyses to compare the strengths of effect sizes (e.g., Butts, Casper, & Yang, 2013; Ilies et al., 2007). Hotelling–Williams test provides effective comparison of two effect sizes at one time based on correlation matrix. According to our research model, we used a three-stage explanatory power comparison: (1) compare the explanatory power across several LMX antecedents from three groups of people-related resources, which are colleagues versus supervisor versus family; (2) compare the explanatory power across LMX antecedents from three groups of condition antecedents, which are people- versus job- versus organizational-conditions; and (3) compare the explanatory power across LMX antecedents from three groups antecedents, which are condition versus personal characteristics versus psychological energy.

Moderator Analysis

CrI is used to investigate the existence of moderators. A moderator exists when the 90% CrI is large enough or includes the value of zero (Whitener, 1990). When a

relationship between LMX and correlates indicates the existence of a moderator, studies are divided into subgroups according to the proposed moderators. For example, studies reporting the relationship between innovation and LMX were divided into subgroups using operationalizations of LMX7 and other measurements. Consequently, a meta-analysis was performed for each subgroup.

Results

Table 2 shows the results of the meta-analysis of antecedents and consequences of LMX. For each relationship, the total sample size accumulated across studies (*N*), number of studies included in the analysis of that relationship (*k*), sample size weighted uncorrected correlation (*r*), standard deviation of the *r* (*SD*), sample size weighted corrected correlation (r_c), standard deviation of the r_c (SD_c), 95% CI, and 90% CrI are reported. Regarding the interpretation of effect sizes, an absolute value of .10 to .23 is regarded as small, .24 to .36 as medium, and .37 or higher as large (Cohen, 1988).

Hypothesis 1a, which predicts that job-related conditions (job autonomy and job embeddedness) are related to LMX is fully supported. LMX is found to be positively related to job autonomy (r_c = .38), and job embeddedness (r_c = .51).

Hypothesis 1b, which proposes that supervisor-related conditions—attitudinal similarity, dyadic communication, PSS, delegation, mentoring, consultation, ethical leadership, and interactional justice—are related to LMX is fully supported. LMX is found to be positively related to attitudinal similarity (r_c = .51), dyadic communication (r_c = .57), PSS (r_c = .84), delegation (r_c = .53), mentoring (r_c = .50), consultation (r_c = .77), ethical leadership (r_c = .85), and interactional justice (r_c = .89).

Hypothesis 1c, which hypothesizes that colleague-related conditions—TMX and teamwork harmony—are related to LMX, is fully supported. LMX is found to be positively related to TMX (r_c = .24) and teamwork harmony (r_c = .18).

Hypothesis 1d, which predicts that family-related conditions (i.e., work-family balance) are related to LMX is fully supported. LMX is found to be positively related to work-family balance (r_c = .20).

Hypothesis 1e, which predicts that organization-related conditions (POS and psychological contract fulfillment) are related to LMX is fully supported. LMX is found to be positively related to POS (r_c = .59) and psychological contract fulfillment (r_c = .46).

Hypothesis 2, which predicts that subordinates' personal characteristics (self-esteem, self-efficacy, and emotional intelligence) are related to LMX is fully supported. LMX is found to be positively related to self-esteem (r_c = .62), self-efficacy (r_c = .27), and emotional intelligence (r_c = .25).

Hypothesis 3, which predicts that psychological energy (job involvement, organizational identification, job engagement, satisfaction with tasks, and satisfaction with evaluation) is related to LMX is fully supported. LMX is found to be positively related to job involvement (r_c = .29), organizational identification (r_c = .49), job engagement (r_c = .41), satisfaction with tasks (r_c = .33), and satisfaction with evaluation (r_c = .52).

Hypothesis 4, which predicts that LMX is positively related to subordinate's innovation is fully supported. LMX is found to be positively related to innovation (r_c = .30).

Hypothesis 5, which predicts that LMX is positively related to subordinate's voice is fully supported. LMX is found to be positively related to voice (r_c = .43).

Table 2 Meta-analytic results of antecedents-LMX and LMX-consequences relationships

	N	k	r	SD	r_c	SD_c	95% CI	90% CrI
Job autonomy	6516	15	.30	.18	.38	.22	(.29,.47)	(.02,.74)
Job embeddedness	706	4	.44	.13	.51	.15	(.39,.63)	(.26,.76)
Attitudinal similarity	441	3	.43	.25	.51	.28	(.11,.77)	(.05,.97)
Dyadic communication	3572	12	.48	.21	.57	.26	(.55,.59)	(.16,.98)
Perceived supervisor support	2170	8	.76	.08	.84	.06	(.83,.86)	(.74,.94)
Delegation	1641	8	.44	.14	.53	.15	(.47,.59)	(.28,.78)
Mentoring	3467	10	.40	.24	.50	.28	(.12,.75)	(.04,.96
Consultation	1745	7	.64	.10	.77	.12	(.71,.83)	(.57,.97)
Ethical leadership	1496	5	.73	.07	.85	.07	(.78,.92)	(.73,.97)
Interactional justice	5109	20	.72	.18	.89	.20	(.86,.92)	(.56,1.22)
TMX	5736	20	.20	.23	.24	.26	(.21,.26)	(-.19,.67)
Teamwork harmony	1132	6	.18	.26	.18	.33	(-.10,.43)	(-.36, .72)
Work-family balance	4041	13	.18	.14	.20	.16	(.13, .28)	(-.06, .46)
Perceived organizational support	16859	47	.52	.14	.59	.16	(.58,60)	(.31,.87)
Psychological contract fulfillment	2556	10	.40	.14	.46	.16	(.36,.55)	(.20, .72)
Self-esteem	1530	7	.53	.29	.62	.31	(.56,.68)	(.11,1.13)
Self-efficacy	3850	12	.23	.18	.27	.21	(.12,.41)	(-.08, .62)
Emotional intelligence	1527	8	.21	.15	.25	.20	(.10,.39)	(-.08,.58)
Job involvement	2150	9	.25	.16	.29	.18	(.16,.42)	(.00,.58)
Organizational identification	4336	15	.41	.13	.49	.16	(.41,.57)	(.23,.75)
Job engagement	2962	6	.36	.10	.41	.12	(.38,.44)	(.21,.61)
Satisfaction with tasks	1658	5	.29	.10	.33	.12	(.29,.37)	(.13,.53)
Satisfaction with evaluation	765	4	.47	.19	.52	.22	(.47,.57)	(.16,.88)
Innovation	7443	24	.26	.18	.30	.22	(.22,.38)	(-.06, .66)
Voice	2183	9	.37	.10	.43	.12	(.38,.48)	(.23,.63)
Promotion	986	5	.28	.16	.32	.19	(.26,.38)	(.01,.63)
Promotability	887	8	.37	.11	.43	.13	(.34,.51)	(.22,.64)
Speed of promotion	604	5	.20	.16	.22	.17	(.10,.33)	(-.06,.50)
Salary	2317	12	.14	.10	.15	.11	(.11,.20)	(-.03, .33)
Job well-being	1182	4	.43	.04	.49	.08	(.43,.54)	(.36, .62)
Career satisfaction	747	3	.28	.14	.31	.16	(.25,.38)	(.05,.57)

N, total sample size accumulated across studies; k, number of studies that included in the analysis of that relationship; r, sample size weighted uncorrected correlation; SD, standard deviation of r; r_c, sample size weighted corrected correlation; SDc, standard deviation of the rc; 95% CI, 95% confidence interval; 90% CrI, 90% credibility interval

Hypothesis 6a, which predicts that LMX is positively related to subordinate's objective career success outcomes (promotion, promotability, speed of promotion, and salary) is fully supported. LMX is found to be positively related to promotion (r_c = .32), promotability (r_c = .43), speed of promotion (r_c = .22), and salary (r_c = .15).

Hypothesis 6b, which predicts that LMX is positively related to subordinate's subjective career success outcomes (job well-being and satisfaction with career) is

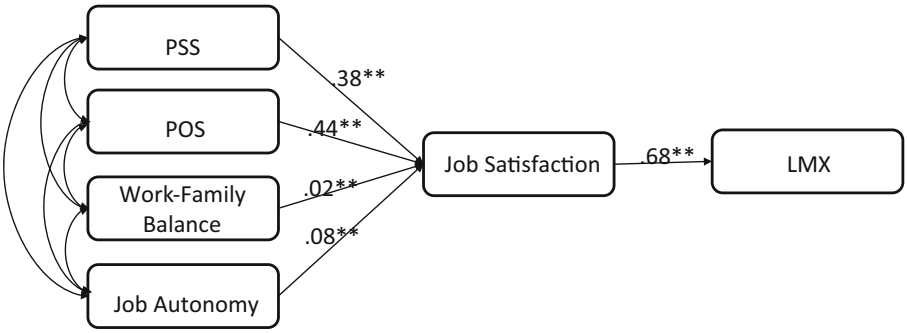

Fig. 1 Path analysis results from MASEM

fully supported. LMX is found to be positively related to job well-being (r_c = .49) and satisfaction with career (r_c = .31).

Effect Size Comparison

Figure 1 shows the MASEM results of path coefficients for the six-construct structural equation model. The path coefficients between job satisfaction and four antecedents—PSS (.38, $p < .01$), POS (.44, $p < .01$), WFB (.02, $p < .01$), and job autonomy (.08, $p < .01$) are all significant and in the same direction as proposed. The path coefficient between job satisfaction and LMX is .68 ($p < .01$). All paths are significant at .01 level and these findings are consistent with our original arguments that all four resources are important antecedents to LMX but with different path coefficients. The overall model fit is NFI = .73, IFI = .73, and CFI = .73.

In addition, a three-stage effect size comparison based on Hotelling-Williams test was also conducted. In stage I, the explanatory power across two critical people-related antecedents, which are supervisor-related (i.e., perceived supervisor support) and family-related (i.e., work-family balance) were included in the comparison. Coworker-related resources were not included because (1) there are only two constructs, teamwork harmony and TMX, in this group, (2) the effect sizes in both constructs are rather small and marginal (i.e., .14, .19) comparing to other people-related resources; and (3) there is no existing meta-analyses providing necessary information in the correlation matrix, we only compare family-related resources and supervisor-related resources. The results showed that perceived supervisor support has significantly stronger relationship with LMX than work-family balance (Z_1^* = 50.19).

In stage II, the explanatory power across three condition antecedents, which are perceived supervisor support (i.e., people conditions), job autonomy (i.e., job conditions), and perceived organizational support (e.g., organizational conditions) were included. Results showed that perceived supervisor support has significantly stronger relationship with LMX than job autonomy has (Z_1^* = 42.51); perceived supervisor support has significantly stronger relationship with LMX than perceived organizational support has (Z_1^* = 27.88); and perceived organizational support has significantly stronger relationship than job autonomy has (Z_1^* = –24.78).

For stage III comparison, perceived supervisor support (i.e., condition resource), self-esteem (i.e., personal characteristics resource), and satisfaction (i.e., psychological energy resource) were incorporated. General satisfaction with job was used in replacement for satisfaction with evaluation due to lack of existing meta-analytical results between satisfaction with evaluation and the other three correlates. Results showed that perceived supervisor support has significantly stronger relationship with LMX than self-esteem has ($Z_1^* = 16.72$); perceived supervisor support has significantly stronger relationship with LMX than satisfaction with job has ($Z_1^* = 92.80$); and self-esteem has significantly stronger relationship with LMX than satisfaction with job has ($Z_1^* = 26.75$).

Moderators

Table 3 shows results of moderation analyses. Three moderators are analyzed: cultural dimensions (HI and VC), operationalizations of LMX (LMX7 and other operationalizations) and perspective of LMX (supervisor-rated and subordinate-rated LMX). Moderation effects are calculated for those variables which grant sufficient studies (at least two studies for each subgroup).

For cultural dimensions moderation, the 95% CI has no overlap between the HI cultures and VC cultures only in LMX-innovation relationship ($r_c = .20$, 95% CI is [.13, .26] for HI; $r_c = .44$, 95% CI is [.29, .57] for VC). For two technical moderators, we found that operationalizations of LMX are moderators of relationships between LMX and three correlates (emotional intelligence, speed of promotion, and TMX). LMX7 shows weaker relationships between LMX and the other three correlates. Although more empirical studies exploring and comparing different LMX measurements are needed to further compare the validity of different scales, our findings suggest that LMX7 does not necessarily explain the most variance in LMX-correlates relationships. For perspectives of LMX, our results did not indicate significant moderating effects.

Discussion

Across the voluminous LMX literature, it is somewhat surprising that resources that would be associated with LMX have not been examined more comprehensively and systematically. Consistent with SET, effective work relationships involve long-term exchanges that cultivate mutual trust, respect and obligation between the exchange partners. Besides characteristics of the exchange relationship, however, the medium of exchange should also have important effects on LMX. The resource-based framework proposed in this study has provided an alternative perspective in investigating elements that are valuable in the process of building LMX. Furthermore, this framework is able to incorporate most, newly-developed LMX correlates and existing correlates which could not easily fit in other theoretical frameworks. Overall, consistent with our categorization of resources based on COR, we found that all three types of resources—conditions, personal characteristics, and psychological energy had significant impact on LMX. Both conceptual argument from COR and our meta-analytical findings support LMX itself is a valued relationship resource in organizational settings. Although relationship resources are distinct from all other types, they have important

Table 3 Moderation Analyses

Moderator	LMX correlate		N	k	r	SD	r_c	SD_c	95% CI	90% CrI
Cultural dimension	Work-family balance	- HI	3363	10	.18	.12	.20	.13	(.13, .27)	(-.01, .41)
		-VC	678	3	.22	.21	.24	.22	(-.07, .51)	(-.12, .60)
	Emotional intelligence	- HI	227	3	.26	.23	.26	.26	(.13, .38)	(-.17, .69)
		- VC	1086	4	.14	.13	.17	.16	(-.02, .34)	(-.09, .43)
	Speed of promotion	- HI	374	2	.09	.01	.10	.00	(-.01, .20)	(.10, .10)
		- VC	230	3	.16	.06	.18	.07	(.10, .26)	(.06, .30)
	TMX	- HI	2501	11	.18	.20	.20	.23	(.05, .34)	(-.18, .58)
		- VC	2251	6	.32	.21	.37	.24	(.10, .58)	(-.02, .76)
	Self-efficacy	- HI	1056	4	.14	.22	.18	.26	(-.18, .50)	(-.25, .61)
		- VC	2241	6	.28	.16	.35	.18	(.13, .53)	(.05, .65)
	Innovation	- HI	3243	13	.18	.13	.20	.15	(.13, .26)	(-.05, .45)
		- VC	3616	9	.36	.18	.44	.22	(.29, .57)	(.08, .80)
Operationalization of LMX	Work-family balance	- LMX7	2835	9	.16	.16	.17	.18	(.07, .27)	(-.13, .47)
		- Other	1206	4	.23	.07	.28	.08	(.19, .36)	(.15, .41)
	Emotional Intelligence	- LMX7	1155	6	.16	.18	.19	.21	(.03,.34)	(-.16,.54)
		- Other	372	2	.36	.16	.42	.19	(.34,.51)	(.11,.73)
	Speed of promotion	- LMX7	374	2	.09	.01	.10	.00	(-.01,.20)	(.10,.10)
		- Other	230	3	.37	.06	.39	.07	(.28,.50)	(.27,.51)
	TMX	- LMX7	3797	13	.20	.22	.22	.25	(.19,.25)	(-.19,.63)
		- Other	1939	7	.35	.18	.42	.21	(.38,.45)	(.07,.77)
	Self-efficacy	- LMX7	1886	5	.31	.23	.29	.26	(.04, .50)	(-.14, .72)
		- Other	1645	6	.12	.10	.22	.11	(.09, .34)	(-.07, .29)
	Innovation	- LMX7	4344	13	.28	.17	.34	.21	(.22, .45)	(-.01, .69)
		- Other	3099	11	.22	.19	.26	.22	(.14, .37)	(-.10, .62)
Perspectives of LMX	TMX	- Sup.	706	3	.22	.23	.24	.27	(.17,.31)	(-.20,.68)
		- Sub.	5030	17	.23	.15	.30	.17	(.27,.32)	(.02,.58)

N, total sample size accumulated across studies; k, number of studies that included in the analysis of that relationship; r, sample size weighted uncorrected correlation; SD, standard deviation of r; r_c, sample size weighted corrected correlation; SDc, standard deviation of the rc; 95% CI, 95% confidence interval; 90% CrI, 90% credibility interval; WFC, work-family conflict; EI, emotional intelligence; SP, speed of promotion; Sup., Supervisor rated LMX; Sub., Subordinate rated LMX

mediating and transforming roles in the process of individual resources (i.e., condition, personal characteristics, and psychological energy) translating to individual and organizational consequences. Specific resources included in our meta-analyses all show important influence on LMX as hypothesized. The corrected effect sizes between LMX and indicators of employee's competitiveness and their contribution to the organization's effectiveness and functioning.

The theoretical contribution of this meta-analysis comparing existing meta-analyses is threefold.

Conceptually, a new framework, resource-based perspectives, adopted in this study has provided new knowledge to the LMX literature. Except for Rockstuhl et al.'s (2012) meta-analysis which focused on the moderation effects of cultural dimensions, four other existing meta-analyses have incorporated social exchange theory in

explaining LMX-correlates relationship. One critical difference between the proposed resource-based framework and the traditional SET perspective of LMX is that employees who engage in high-quality LMX not only feel obligated to return the favor given by supervisors (i.e., reciprocity norm), but they also experience favorable conditions such as availability of valuable resources in the form of, for example, supervisory support and favorable opportunities. This, in turn, can strengthen work performance and contribute to efficiency and effectiveness at workplace. The application of resource-based perspectives in studying micro and macro management phenomena is certainly not new (e.g., Becker & Huselid, 2010). Interestingly, many studies that applied resource-based perspective present arguments that focus on the nature of resource in terms of being valuable, rare, imperfectly imitable and non-substitutable (e.g., Lepak & Snell, 2002). Relatively few studies, however, conceptualized organizational resources systematically. We argue that COR offers a helpful way to categorize resource variables that can relate to LMX. The focus on the types and roles of resources that relate to LMX and ultimately to individual and organizational outcomes is not intended to be a replacement of social exchange approaches to LMX. Rather, resource-based perspectives offer insights into the contents of exchange. From our resource perspective, findings of this study highlighted the importance of leveraging and investing different resources to cultivate high-quality LMX. For example, favorable job-related conditions such as high-level of autonomy granted to employees are helpful in creating supportive environment to encourage employee's proactive behaviors such as engaging in beneficial exchange relationships with supervisors. Future theorization may examine the combinations of resources across different situations. Through identifying valuable resources in supervisor-subordinate dyads, the resource perspectives have broadened the scope and potential of LMX research.

Empirically, newly developed correlates were incorporated in our research model and have yielded important research findings. To date, all of the thirty-one LMX correlates examined in five present meta-analysis have not been included in previous LMX meta-analytical reviews, representing an updated and important contribution to LMX literature. To investigate the contextual factors which may relate to LMX, the job-related, people-related (i.e., supervisor, colleague, and family), and organization-related antecedents are helpful in broadening our understanding on how employees may have distinct perceptions of and reactions to these multifocal conditions. Lavelle, Rupp, and Brockner (2007) argued that employees are able to distinguish different treatment they receive from others (e.g., support from organization, support from leader/coworker). In comparison, four of the existing meta-analyses have specific focus such as exploring LMX's relationship with certain correlates such as citizenship behaviors (Ilies et al., 2007) or employee performance (Martin et al., 2016). Only Dulebohn et al.'s (2012) meta-analysis has classified LMX antecedents into three groups - follower characteristics, leader characteristics, and interpersonal relationship. In addition, this study investigated newly studied situational factors from different sources (e.g., leaders and organizations), which have addressed two gaps raised by Dulebohn et al.'s study, that is to include more and broader leader characteristics/behaviors and explore the influence of work context characteristics.

Furthermore, comparing with the three existing LMX meta-analyses which have incorporated outcomes of LMX, our study has examined new LMX consequences from an organizational enhancement and employee competitiveness perspective. Although

we were not able to include organization's actual performance data in the analyses, we found that LMX related positively to both voice and innovation. From the three existing meta-analyses, either citizenship behaviors (i.e., Ilies et al., 2007) or employee performance (i.e., Martin et al., 2016) was the sole focus, or all consequences were organized into one general consequence group that includes, for example employee performance and turnover behaviors (i.e., Dulebohn et al., 2012). The two-group LMX outcomes from this study distinguish benefits for organizations versus that for employees and provided a springboard for future research in examining LMX's effects along these directions.

Statistically, findings of this meta-analysis have provided new insights to the literature. We have explored several less discussed types of resources that have instrumental roles in cultivating LMX. We enlarged our investigation to include broader types of leader behaviors and styles. We found that supervisor supportive behaviors such as delegation, mentoring, and consultation have significant relations with LMX, suggesting that supervisors are able to provide instrumental resources to encourage and motivate subordinates in achieving task requirements and developing meaningful exchange relationships.

From the three groups of LMX antecedents, the "psychology energy" group provides an alternative angle in studying the relationship between LMX and some of its correlates. Most of the existing LMX literature has regarded constructs from this group (e.g., satisfaction) as consequences of LMX. In our model, we argued that the establishment of high-quality LMX depends partly on employee's psychological energy level. For example, employees who identify themselves as a critical member in the organization (i.e., high organizational identification) would seek more opportunities to engage in effective work relationships to boost their relationship with and contribution to the company. Thus, they are more likely to develop high-quality LMX with supervisors. In a similar vein, Cropanzano and colleagues argued that although constructs like commitment and satisfaction are mostly regarded as LMX outcomes in existing literature, there could be "reverse causality" (Cropanzano et al., 2017). Our proposal of psychological energy as one important antecedent echoes this argument in the way that employees with prominent energy (e.g., high commitment to organization, or strong engagement to his/her job) help draw supervisors' attention and build a favorable foundation for developing relationship with supervisors. Future empirical studies with longitudinal design would provide more evidence in unveiling the causal relationships among constructs.

Another interesting finding is that employee's dynamics with coworkers (e.g., TMX and teamwork harmony) is also related to their relationship building with supervisors. It implies that while leadership styles and dyadic interaction characteristics still provide significant impact, building high-quality LMX should not be seen as an isolated issue where only supervisors and subordinates are considered. On one hand, employees having instrumental relationship with coworkers have more access to work-related information and skills (Ozer, 2011) which can enhance their functioning at work and assist relationship building with supervisors. On the other hand, employee's feelings and attitudes are under influence of various contextual factors including their relationships with coworkers. Enjoying high-quality TMX may allow employees to perform more energetically and positively in working with supervisors. Thus, the quality of LMX is also related to the overall quality of work group relationships.

In terms of the LMX dynamics in Asian cultures, our findings show that VC dimension which is the primary cultural orientation in most Asian countries shows stronger relationship between LMX and innovation. This finding would suggest that innovation within organization, especially those bottom-up innovation initiated by employees, can be more facilitated by effective leader-member dynamics in collectivism culture. While fast-growing organizational performance exists especially in high-technology industry across Asian countries (Zhang & Dodgson, 2007), employees are more likely to be influenced and motivated by company's emphasis on creativity and innovative climate. Having effective LMX would then allow employees to acquire vital resources and support to implement their innovative ideas and benefit workplace output accordingly.

Our meta-analytical comparison of explanatory power across different LMX antecedents (MASEM and Hotelling–Williams test) have suggested some further findings. First, comparing with resources included in our tests, perceived supervisor support has the most power in affecting the LMX development. This finding is consistent with LMX literature in the way that employee's perception of the dyadic relationship is closely related to how supportive the supervisor is and appears to have ecological validity. Employee's attachment and commitment to the dyadic relationship will be enhanced when they perceive more support from supervisors (Maertz et al., 2007). For example, through daily interactions at work, supervisors not only provide professional comments to employees, they may also offer critical guidance and career advice. Second, people-conditions (e.g., perceived support, having harmonious/effective relationships at work), job-conditions (e.g., high level of job autonomy at work), and organizational-conditions (e.g., organizational support) are all associated with LMX quality. While existing LMX literature focused mostly on how LMX can be increased from different types of leadership styles or leader-member dynamics, our findings suggest that these situational factors would also provide a beneficial environment for employees to develop higher-quality of LMX. Future research may provide more empirical findings on what specific conditions are the most favorable for LMX development. It also suggests that the development of quality LMX does not have a standard routine or winning formula. Instead, supervisors and organizations will need to provide and customize proper work environment and organizational atmosphere in fostering effective LMX relationships. Although employee's own personal characteristics are important (e.g., having favorable attitudes or emotions at work), their perception of the environment and conditions such as how much support they receive at work may have stronger impact on relationship building.

Consistent with COR theory (Hobfoll, 1989), the mediation model tested describes that, while diverse resources may contribute to LMX, there are some resources that can be derived from other resources. Specifically, job satisfaction is one important favorable attitudinal resource which can be increased by having access to more organizational/supervisory support and job autonomy, and being able to keep the balance between work and family issues. Feeling satisfied at work has not been investigated extensively as a favorable resource, yet it remains a critical psychological resource that would motivate employees at work to deliver higher levels of work outcomes (Saari & Judge, 2004). Comparing with other resources such as organizational support, job satisfaction may have a direct and close relationship with employee's perception of LMX quality because satisfied employees are more likely to enjoy the interpersonal relationships at work and engage in effective interactions. Although the fit index results do not indicate

a high model fit, the major reason to conduct MASEM in testing the model is to investigate and compare of the path coefficients among different LMX antecedents as discussed previously, which provides further information on the covariances among included variables rather than the bivariate relationships analyzed. Two reasons account for the relatively low fit of the model. First, the tested model is incomplete as it contains only part of the whole model. While our original model proposed three groups of antecedents with twenty-two constructs included, the tested model incorporates only six constructs. However, incorporating all variables in the MASEM would require rather large meta-analytical data set, which is not available at this stage considering most LMX correlates from this study are relatively new and less studied. Second, while the six-construct model was constructed from a theoretical perspective, there may be other equally critical variables as mediators (e.g., satisfaction with supervisor) which was not included. Our MASEM model serves as a starting point for future studies to test the LMX relationships with multiple resources. Further meta-analysis can be conducted with more constructs added to this model with sufficient empirical findings."

Practical Implications

Findings of this study also yielded practical implications for employees, supervisors and organizations. Employees should understand the importance of developing and maintaining quality LMX with supervisors because such relationships are instrumental for their own career development such as enhancing their promotability. Resource perspectives indicate that employees can make use of the resources they already acquire and strive for other beneficial resources. For example, employees who have favorable personal characteristic resources (e.g., high emotional intelligence) should be more aware of their potential in enjoying quality interpersonal relationships and in communicating with their supervisors more frequently and actively. In addition, employees can pay attention to the impact of different conditional resources. For example, maintaining good relationships with coworkers and balancing work-family issues can both be helpful in preparing employees with more positive attitudes and emotions when they interact with supervisors.

Supervisors are suggested to perform more supportive behaviors and provide more resources that are beneficial to subordinates. Our effect size comparison results suggested that supervisor-related conditions have relatively higher influence on LMX. Types of favorable conditions that supervisors can provide, from our findings, consist of several factors such as supportive supervision, and more delegation, larger autonomy. Various supportive and fair leadership behaviors (e.g., mentoring, consultation, and ethical leadership) are instrumental resources as they not only offer guidance and useful information, but also are helpful in creating subordinate's positive perceptions. For example, supervisors can provide more delegations in the form of critical responsibilities to subordinates and offer more coaching to develop subordinate professional knowledge and skills.

Organizations can also benefit from understanding and managing resources that can foster high-quality LMX. Organizations can be more aware of which types of resources they can provide to supervisor-subordinate dyads so that employees can fully exert their capabilities and contribute to organization's competitiveness and effectiveness. For example, favorable job conditions such as high-level of job autonomy can facilitate employee's initiatives in contributing at workplace. Organizations can then adjust job

routines and performance management systems to allow more decision-making authority to employees. In addition, organizations can offer different types of support as well as other types of resources to retain the talents.

Future Research

We also suggest several research opportunities for future studies. First, future research can further investigate the role of culture in the LMX phenomenon, especially comparing the LMX functioning across cultures (e.g., Asian versus non-Asian). In our study, preliminary findings suggesting that the relationship between LMX and employee innovation were indicated. On one hand, this finding suggests that although LMX is critical in both cultures, employees may react more strongly especially showing more creative work behaviors in VC culture. On the other hand, to develop more solid and comprehensive analysis on how different culture frameworks may influence the LMX phenomenon, future research would need to conduct large-scale direct comparison.

Second, future research can enlarge and enrich the proposed resource typology in this study. Three out of four types of resources developed in the COR theory were investigated with details in this meta-analysis. Although the lack of available information from extant empirical studies and the difficulties of collecting such data may interfere with further explorations, the fourth type of resources (i.e., objects) should not be blocked or excluded in the LMX phenomenon. As much as having sufficient resources under this section (e.g., shelter, food, etc.) enables individuals to cope with stressful events to a certain level (Hobfoll, 1989, 2011), it is reasonable to conjecture that there are also valuable object resources in the context of organization. Thus, discovering what constitutes valuable object resources that would facilitate the quality of LMX can help completing the adoption of COR typology. Another gap in the current study is that in comparing with conditions, the other two types of proposed resources (i.e., personal characteristics and psychological energy) have far less constructs included and investigated. Future studies are suggested to enrich these two sections through finding out more helpful resources under each type.

Third, future research can investigate to what extent different types of conditions (job people, or organization-related) can be viewed as favorable and the mechanisms through which these favorable conditions contribute to LMX development. Although our results tell that people-related conditions, especially supervisor conditions may have stronger influence on LMX, there is still a need of clear indication to assess these favorable conditions. For example, if supervisor delegation sends a positive signal to employees and can be regarded as a favorable resource, future research can discover how much (i.e., amount) and when (i.e., timing) to delegate is the most appropriate to foster high-quality LMX.

Last, future studies can explore more theoretical moderators influencing the relationship between resource types and LMX quality. Different resources may have different magnitudes of impact, and their impact may be decrease or increase under different situations. For example, organizational culture may be a moderator to the relationship between organizational identification (one type of psychological energy resource) and LMX quality. The relationship may be stronger in organizations with a culture of cultivating employee's loyalty or emphasizing regarding employees as a family member of the firm, because in those situations employee's identification of

themselves being a nonseparable member of the company would be valued more by the organization and the supervisor (Hekman, Bigley, Steensma, & Hereford, 2009). Investigating how and to what extent culture plays a role in resources-LMX relationships would be an interesting research question.

Limitations

The current study has some methodological limitations. First, some LMX correlates included in this meta-analysis were based on a small number of extant studies. Although meta-analysis can be conducted with at least two studies (Hunter & Schmidt, 2004), the effect size is more stable when a much more extensive base is available for analysis. The significant and consistent findings of this meta-analysis supported our conceptual framework, however, and suggested that resource-based perspectives may offer fruitful ways of theorizing LMX. Furthermore, most of the variables in the present research model were not included in previous meta-analyses. Thus, the findings presented here complement previous quantitative reviews in terms of the scope of LMX correlates. Second, some conceptually important correlates were not included in this meta-analysis due to the lack of pertinent studies for analysis, such as those focusing on satisfaction with coworker relationships (Erdogan & Bauer, 2010). Third, most of the correlates examined in this work were based on self-reported data and cross-sectional design adopted in the original studies. This limitation might introduce common method bias, which influences the relationships between LMX and correlates, and constraints causal inferences. However, the results yielded by this investigation provided support for the view that LMX has significant relationships with objective measures, such as speed of promotion and other rated effects, such as supervisor-rated innovation and voice. This minimizes the concern that the findings reported in this work may be completely biased because of common method variance. Finally, it is possible that reverse causality between LMX and some of its correlates exists from our main model and the MASEM model. For example, while job involvement is argued to be an antecedent in the present model, a reverse effect could exist in practice. The relationships proposed and tested in this model are based on theoretical considerations and conceptual arguments derived from the resource-based perspectives. Having alternative methods in future research (e.g., experiments or longitudinal design) can contribute meaningfully to LMX research.

Conclusion

This meta-analysis adopted a resource-based perspective to investigate the relationships between LMX and its correlates that are either newly developed or not included in previous quantitative reviews. We provided a framework to identify what specific resources could be invested and exchanged in a supervisor-subordinate relationship. In addition, we found that LMX was instrumental to the competitive advantages of both organizations and employees.

Acknowledgements The work described in this paper was supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. UGC/FDS14/B10/16).

Appendix 1

Table 4 Definition or operationalization of LMX correlates

Correlates	Definition or operationalization
1. Conditions	
Job autonomy	The extent to which a job provides freedom, independence, control, and discretion to the individual employee both in terms of scheduling his/her work and determining the appropriate procedures to be used in carrying out the job (Hackman & Oldman, 1976).
Job embeddedness	The extent to which employees perceived linked with others at work, a fit between their lives and jobs, and the ease with which links could be broken (Mitchell et al., 2001).
Attitudinal similarity	The extent to which supervisors and subordinates have similar predispositions towards a set of behaviors or objects (Basu & Green, 1995).
Dyadic communication	The extent to which a subordinate reports interacting smoothly with her or his supervisor (Schaubroeck & Lam, 2002).
Perceived supervisor support	The extent to which a subordinate feels that his/her supervisor values his/her contribution (DeConinck, 2010).
Delegation	The extent to which supervisor assign new responsibilities and additional authority to carry them out, and trust subordinates to solve problems and make decisions without getting prior approval (Yukl, O'Donnell, & Taber, 2009).
Mentoring	The support, guidance, and feedback regarding the protégé's (subordinate) career growth provided by the mentor (supervisor) (Payne & Huffman, 2005).
Consultation	The degree of supervisor's checking with subordinates before making decisions that affect them, encouraging participation in decision making, and using the ideas and suggestions of others (Yukl et al., 2009).
Ethical leadership	"The demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making" (Brown, Treviño, & Harrison, 2005: 120).
Interactional justice	The extent to which the subordinate is treated fairly (e.g., respect, dignity, truthfulness etc.) by the supervisor (Bies & Moag, 1986).
TMX	The extent to which an employee and his/her work team has mutual trust and respect in cooperation and collaboration (Scott & Bruce, 1994).
Teamwork harmony	The extent to which members in a work team perceive that the general teamwork in the work group is smooth, positive, and cooperative.
Work-family balance	The extent to which employees perceive there is no interference and conflicts in terms of time and task arrangement between work- and family- issues.
Perceived organizational support	The degree of the employee's experience-based attribution concerning the benevolent or malevolent intent of the organization's policies, norms, procedures, and actions as they affect employees (Eisenberger, Armeli, Rexwinkel, Lynch, & Rhoades, 2001).

Table 4 (continued)

Correlates	Definition or operationalization
Psychological contract fulfillment	The extent to which employees perceives that his/her employer has successfully and sufficiently fulfilled the obligations of the psychological contract (adapted from Robinson's (1996) definition of psychological contract breach).
2. Personal Characteristics	
Self-esteem	The degree of overall value that individual places on oneself as a person (Rosenberg, 1965).
Self-efficacy	The extent to which an employee believes that his/her abilities can successfully accomplish specific tasks (Stajkovic & Luthans, 1979).
Emotional intelligence	"The ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990: 189).
3. Psychological Energy	
Job involvement	The extent to which a person is identified psychologically with his work, or the importance of work in his total self-image (Lodahl & Kejnar, 1965).
Organizational identification	The degree of perceived oneness with an organization and the experience of organization's successes and failures as one's own (Mael & Ashforth, 1992).
Job engagement	"Investment of an individual's physical, cognitive, and emotional energy in active, full work performance" (Rich, Lepine, & Crawford, 2010).
Satisfaction with tasks	The degree of employee's satisfaction with the work itself (Liden & Maslyn, 1998).
Satisfaction with evaluation	The degree of employee's satisfaction with the performance evaluation method and outcomes.
4. Outcomes	
Voice	The extent to which employees express constructive ideas, information, and opinions about change in organizations (Van Dyne, Ang, & Botero, 2003).
Innovation	The extent to which employees produce and adopt useful ideas and idea implementation (Scott & Bruce, 1994).
Promotion	Number of promotion employee received over their careers.
Promotability	Employee's promotion potential (Wakabayashi, Graen, Graen, & Graen, 1988).
Speed of promotion	The velocity of the focal employee getting an actual promotion.
Salary	The level of employees earning or growth of earnings in their organizations.
Job well-being	The extent to which employee's job makes them feel calm, optimistic, and motivated.
Career satisfaction	The degree of overall affective orientation of the employee toward his/her career (Gattiker & Larwood, 1988).

Appendix 2

Table 5

Study	Publication year	N	Correlate (r/α)	αLMX
Abu Bakar, Mustaffa, & Mohamad, 2009	2009	201	DC (.85/.50)	.85
Agarwal, Datta, Blake-Beard, & Bhargava, 2012	2012	979	IN (.92/.20); JG (.88/.41)	.92
Ahmed, Khairuzzaman Wan Ismail, Mohamad Amin, & Musarrat Nawaz, 2013	2013	458	JI (.89/.52); POS (.89/.53)	.90
Aleksić, Mihelič, Černe, & Škerlavaj, 2017	2017	251	IN (.96/.22)	.92
Allen & Eby, 2003	2003	249	SM (.88/.28)	.85
Anand, Vidyarthi, Liden, & Rousseau, 2010	2010	246	POS (.90/.47); TMX (.85/.32)	.90
Anderson & Williams, 1996	1996	465	JA (.57/.36)	.90
Andrews & Kacmar, 2001	2001	418	POS (.93/.47)	.90
Audenaert, Decramer, George, Verschuere, & Van Waeyenberg, 2016	2016	1095	IN (.85/.26)	.94
Basu & Green, 1997	1997	225	JA (.83/.31); IN (.03/.22); PSS (.89/.73)	.89
Basu & Green, 1995	1995	281	AS (.85/.26)	.90
Bauer & Green, 1996	1996	205	SD (.84/.38)	.94
Bernas & Major, 2000	2000	206	WFB (.77/.14)	.91
Bhal, 2006	2006	306	IJ (.80/.31)	.90
Bhal, Ansari, & Aafaqi, 2007	2007	201	POS (.85/.54); PSS (.83/.69)	.87
Bhal & Gulati, 2006	2006	295	VO (.87/.35)	.90
Boies & Howell, 2006	2006	162	TH (.97/.36)	.92
Borchgrevink & Boster, 1997	1997	426	DC (.81/.67)	.93
Botero & Van Dyne, 2009	2009	108	VO (.90/.34)	.94
Botero & Van Dyne, 2009 (2)	2009	135	VO (.86/.34)	.94
Brandes, Dharwadkar, & Wheatley, 2004	2004	129	TH (.93/.24); POS (.92/.51)	.93
Brown, Ferris, Heller, & Keeping, 2007	2007	991	JA (.71/.38); POS (.94/.64)	.92
Burris et al., 2008	2008	234	VO (.79/.25)	.91
Carmeli, Atwater, & Levi, 2011	2011	230	OI (.88/.30)	.95
Chambel, Castanheira, Oliveira-Cruz, & Lopes, 2015	2015	1045	POS (.81/.38); JO (.91/.35)	.92
Chen, Mao, Hsieh, Liu, & Yen, 2013	2013	309	IJ (.91/.70)	.88
Chen, Lam, & Zhong, 2012	2012	285	EI (.93/.11)	.86
Chen, Kirkman, Kanfer, Allen, & Rosen, 2007	2007	445	POS (.85/.49)	.93
Chen & Tjosvold, 2007	2007	68	PR (.82/.52)	.83
Chen & Tjosvold, 2007 (2)	2007	95	PO (.86/.37)	.84
Chen & Tjosvold, 2008	2008	199	IN (.7/.62)	.83
Chen, Tsui, & Zhong, 2008b	2008	273	DM (.86/.27)	.75

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
Chen, Wang, Chang, & Hu, 2008a	2008	200	PSS (.86/.64)	.91
Cheng, Huang, Lee, & Ren, 2012	2012	157	EI (.94/.14)	.80
Chullen, Dunford, Angermeier, Boss, & Boss, 2010	2010	1924	POS (.89/.62)	.82
Cogliser & Schriesheim, 2000	2000	285	JA (.73/.40); TH (.66/.33)	.91
Collins, Burrus, & Meyer, 2014	2014	146	JE (.92/.50); JE (.93/.28)	.90
Collins, 2010	2010	328	PCF (.78/.22)	.91
Cropanzano, Prehar, & Chen, 2002	2002	107	IN (.74/.44); SWE (.95/.17)	.92
Culbertson, Huffman, & Alden-Anderson, 2010	2010	179	WFB (.84/.18)	.94
de Villiers & Stander, 2011	2011	278	JG (.73/.35)	.91
DeConinck, 2011	2011	356	OI (.83/.51)	.93
Dobbins, Cardy, & Platz-Vieno, 1990	1990	165	SWE (.96/.62)	.85
Douglas & Zivnuska, 2008	2008	57	JA (.71/.57)	.94
Dulac, Choyle-Shapiro, Henderson, & Wayne, 2008	2008	152	POS (.90/.36)	.91
Dulebohn & Ferris, 1999	1999	128	VO (.79/.54)	.88
Elicker, Levy, & Hall, 2006	2006	193	IJ (.90/.51); SWE (.91/.52)	.89
Engle & Lord, 1997	1997	76	AS (.88/.70)	.90
Epitropaki & Martin, 2013	2013	200	POS (.88/.22)	.91
Epitropaki & Martin, 2005	2005	439	JW (.90/.46)	.91
Erdogan et al., 2004	2004	267	CS (.88/.18); POS (.87/.62)	.94
Erdogan & Liden, 2006	2006	100	IJ (.90/.76)	.92
Erdogan, Liden, & Kraimer, 2006	2006	263	IJ (.95/.77)	.94
Ertürk, 2014	2014	197	POS (.92/.36)	.91
Ertürk & Vurgun, 2015	2014	183	POS (.94/.46)	.92
Farrell & Oczkowski, 2012	2012	170	OI (.90/.74)	.92
Farr-Wharton, Brunetto, & Shacklock, 2011	2010	1480	JA (.70/.29)	.93
Fein, Tziner, Lusky, & Palachy, 2013	2013	105	IJ (.91/.57)	.69
Ferris, Brown, & Heller, 2009	2009	237	OS (.94/.61); SE (.91/.56)	.92
Ferris & Kacmar, 1992	1992	95	PR (.84/.30)	.85
Furst & Cable, 2008	2008	137	SC (.96/.42)	.94
Furunes, Mykletun, Einarsen, & Glasø, 2015	2015	409	PSS (.89/.82)	.91
Furunes et al., 2015 (2)	2015	1024	JA (.71/.35)	.92
Gajendran & Joshi, 2012	2012	167	DC (.80/.34)	.92
Garg & Dhar, 2017	2017	294	IN (.85/.33)	.78
Golden, 2006	2006	294	TMX (.80/.36); WFB (.84/.16); SA (NA/.12)	.86
Goodwin, Bowler, & Whittington, 2009	2009	91	DC (NA/.12)	.91
Gordon, Demerouti, Blanc, & Bipp, 2015	2015	70	IN (.82/-.07)	.96
Gordon et al., 2015 (2)	2015	144	IN (.85/-.03)	.96

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
Graen et al., 1990	1990	79	PT (.87/.40); SP (.90/.41)	.90
Greguras & Ford, 2006	2006	422	JI (.85/.30)	.90
Gupta & Krishnan, 2004	2004	102	SE (.47/.23)	.78
Hall et al., 2016	2016	265	OI (.72/.49)	.73
Hansen, Alge, Brown, Jackson, & Dunford, 2013	2013	201	EL (.94/.61)	.89
Harris, Harris, & Eplion, 2007	2007	136	SE (.71/.11)	.89
Harris, Harris, & Harvey, 2008	2008	231	PSS (.87/.61)	.94
Harris, Kacmar, & Carlson, 2006	2006	173	PT (.90/.38)	.83
Harris & Kacmar, 2005	2005	1255	DC (.80/.67)	.93
Hansen et al., 2013	2013	259	EL (.96/.62)	.91
Heck, Bedeian, & Day, 2005	2005	317	SE (.87/.67)	.90
Hesselgreaves & Scholarios, 2014	2014	116	POS (.97/.15)	.86
Hill, Morganson, Matthews, & Atkinson, 2016	2016	312	PCF (.93/.55); WFB (.80/.33)	.96
Hoch & Kozlowski, 2014	2014	565	TMX (.85/.43); SM (.87/.70)	.89
Hofmann & Morgeson, 1999	1999	49	POS (.96/.48)	.87
Hopper & Martin, 2008	2008	74	JW (.71/.49); TH (.92/.04)	.89
Hopper & Martin, 2008 (2)	2008	357	JW (.9/.42); TH (.87/.35)	.91
Hsiung, 2012	2012	429	VO (.92/.39)	.87
Hsu, Chen, Wang, & Lin, 2010	2010	244	WFB (.90/.06)	.81
Hu & Liden, 2013	2013	275	SE (.83/.24)	.96
Hu et al, 2012	2012	466	TMX (.85/.13)	.96
Huang, Chan, Lam, & Nan, 2010	2010	493	EI (.78/.3)	.86
Hui et al., 2004b	2004	605	POS (.87/.54)	.86
Jackson & Johnson, 2012	2012	229	OI (.81/.33)	.90
Janssen & Van Yperen, 2004	2004	170	IN (.98/.34)	.93
Jawahar & Carr, 2007	2007	158	POS (.96/.57)	.91
Johnson et al., 2006	2006	261	IN (.93/.62); POS (.95/.71); SWT (.83/.45)	.92
Kacmar et al., 2004	2004	136	JI (.71/.15); SE (.73/.02)	.89
Kacmar et al., 1999	1999	196	JI (.73/.11)	.92
Kacmar et al., 2003	2003	188	DC (.85/.47)	.87
Kacmar et al., 2003 (2)	2003	201	DC (.84/.10)	.83
Kamdar & Van Dyne, 2007	2007	230	TMX (.89/.30)	.91
Kang et al., 2012	2013	282	IJ (.9/.70)	.85
Karanika-Murray et al., 2015	2015	337	TMX (.97/.23)	.91
Karriker & Williams, 2009	2009	217	POS (.9/.47)	.90
Kath et al., 2010	2010	548	POS (.9/.57)	.86
Katrinli et al., 2008	2008	148	JI (.77/.27); OI (.8/.31)	.85
Khurram, 2009	2009	171	POS (.9/.44)	.89
Kim et al., 2009	2009	293	IJ (.935/.56)	.92

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
Kraimer et al., 2011	2011	264	POS (.93/.41)	.94
Kraimer et al., 2001	2001	213	POS (.92/.23)	.93
Kraimer & Wayne, 2004	2004	230	POS (.9/.13)	.93
Kudisch et al., 2006	2006	153	POS (.81/.09)	.81
Kumar & Singh, 2012	2012	169	OI (.78/.37)	.89
Kumar et al., 2012	2012	192	OI (.85/.46); POS (.86/.60)	.85
Kunze & Phillips, 2011	2011	278	POS (.89/.37)	.93
Kwan et al., 2011	2011	268	SM (.86/.33)	.90
Lamertz, 2002	2002	115	IJ (.89/.20)	.87
Landry & Vandenberghe, 2009	2009	240	SE (.95/.77)	.91
Lapierre, et al. 2006	2006	381	WFB (.79/.23); SA (NA/.16)	.77
Law & Wong, 1999	1999	224	JA (.73/.27)	.86
Lawrence & Kacmar, 2012	2012	134	JI (.69/.49)	.89
Lawrence & Kacmar, 2012 (2)	water mgt	418	JI (.43/.15)	.90
Lee et al., 2012	2012	151	IN (.97/.65); EI (.92/-.02)	.93
Lee et al., 2014	2014	250	SC (.74/.40)	.92
Lee et al., 2014 (2)	2014	299	SC (.87/.53)	.91
Lee, 2008	2008	201	IN (.77/.06)	.86
Leow, 2011	2011	961	SM (.85/.77)	.79
Li et al., 2012	2012	326	JG (.76/.35)	.82
Li et al, 2014	2014	275	IN (.74/.47)	.91
Liao & Hui, 2016	2016	388	IN (.92/.18)	.82
Liao et al., 2010	2010	828	IN (.85/.25); SF (.93/.53); TMX (.84/.03)	.89
Liao et al., 2016	2016	198	WFB (.98/.41)	.95
Liao et al., 2017	2017	319	SF (.92/.35)	.91
Liao, 2011	2011	236	POS (.86/.69); WFB (.80/.29)	.90
Liden &Maslyn, 1998	1998	553	JA (.72/.14); SWT (.79/.17)	.89
Liden et al., 2000	2000	337	TMX (.88/.20)	.96
Liu et al., 2011	2011	158	OI (.87/.31); TMX (.83/.43)	.87
Liu, et al., 2013	2013	190	OI (.9/.16)	.86
Ma & Qu, 2010	2010	223	IJ (.86/.44)	.83
Ma & Qu, 2011	2011	407	TMX (.93/.63)	.89
Magni & Pennarola, 2008	2008	189	TMX (.812/.68); POS (.797/.56)	.85
Mahsud et al., 2010	2009	218	EL (.95/.64)	.89
Major et al., 2008	2008	792	WFB (.86/.25)	.92
Major et al., 1995	1995	248	TMX (.85/.16)	.83
Marstand et al., 2017	2017	140	SA (.7/.18)	.91
Marstand et al., 2017 (2)	2017	316	SA (.67/.1)	.90
Masterson et al., 2000	2000	651	IJ (.94/.67); POS (.83/.35)	.89
Matthews & Toumbeva, 2015	2015	435	PSS (.93/.86); POS (.91/.70)	.95

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
McCarthy et al., 2016	2016	154	TMX (.72/.03)	.80
Morrow et al., 2005	2005	207	SA (NA/.04)	.94
Mroz & Allen, 2015	2015	347	POS (.9/.7)	.92
Murphy et al., 2003	2003	124	TMX (.78/.26); IJ (.96/.64)	.86
Nathan et al., 1991	1991	300	SWE (.89/.43)	.92
Nelson et al., 1998	1998	195	WFB (.89/.02)	.90
O'Donnell et al., 2012	2012	239	SC (.93/.62)	.95
Omilion-Hodges & Baker, 2013	2013	336	TMX (.91/.28)	.94
Ordun and Beyhan Acar, 2014	2014	214	EI (.84/.45)	.87
Owens et al., 2016	2016	123	JG (.96/.46)	.94
Ozer, 2008	2008	287	JA (.89/.06)	.85
Paglis & Green, 2002	2002	127	JA (.8/.36)	.90
Pan & Zhou, 2011	2011	423	POS (.74/.55)	.93
Pan et al., 2012	2012	367	IN (.71/.19)	.93
Parke et al., 2015	2015	129	IN (.96/-.02)	.90
Patterson et al., 2014	2014	212	SF (.8/.25)	.89
Pellegrini & Scandura, 2006	2006	185	SD (.87/.55)	.90
Phillips & Bedeian, 1994	1994	84	AS (.81/.26)	.87
Portoghese et al., 2011	2010	561	WFB (.91/.17(	.93
Raghuram et al., 2017	2017	128	SA (NA/.24)	.89
Reid et al., 2008	2008	109	SM (.95/.48); TH (.86/.40); JI (.76/.13); POS (.94/.63); WFB (.89/-.08)	.95
Restubog et al., 2011	2011	143	PCF (.84/.20)	.93
Restubog et al., 2010	2010	142	PCF (.88/.65)	.92
Restubog et al., 2010 (2)	2010	180	PCF (.72/.46)	.74
Restubog et al., 2010 (3)	2010	200	PCF (.8/.32)	.96
Rieck et al., 2015	2015	32	EI (.86/-.03)	.87
Roch & Shanock, 2006	2006	272	IJ (.84/.78); POS (.89/.40)	.88
Runhaar et al., 2013	2013	211	JA (.77/.16); JG (.78/.18)	.94
Sagas & Cunningham, 2004	2004	235	CS (.88/.40)	.90
Sanders et al., 2010	2010	272	IN (.92/.25)	.92
Scandura & Schriesheim, 1994	1994	183	SP (NA/.09); SA (NA/.08); SM (.79/.05)	.86
Scandura & Schriesheim, 1994 (2)	1994	191	SP (NA/.08); SA (NA/.11)	.72
Schaubroeck & Lam, 2002	2002	185	DC (.92/.12); PR (.84/.28)	.95
Schaubroeck & Lam, 2002 (2)	2002	386	DC (.93/.19); PR (.84/.32)	.94
Schermuly et al., 2013	2013	225	IN (.8/.28)	.90
Schriesheim, 1995	1995	106	SD (.84/.39)	.82
Schriesheim & Cogliser, 2009	2009	221	PSS (.87/.74)	.89
Schriesheim et al., 1998	1998	106	SD (.84/.38)	.82
Schriesheim et al., 1992	1992	115	SD (.89/.22)	.80

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
Schriesheim et al., 1992 (2)	1992	281	SD (.88/.19)	.81
Schyns, 2006	2006	234	SF (.84/.05)	.84
Schyns & Croon, 2006	2006	326	SWT (.88/.30)	.89
Schyns et al., 2007	2007	326	SF (.86/-.07)	.89
Schyns et al., 2007 (2)	2007	85	SF (.70/.11)	.87
Schyns & von Collani, 2002	2002	326	SWT (.87/.29)	.89
Schyns & Wolfram, 2008	2008	216	SF (.85/.05)	.82
Scott &Bruce, 1994	1994	189	TMX (.84/.26); IN (.89/.17)	.90
Scott &Bruce, 1998	1998	110	IN (.86/.25)	.87
Scott & Bruce, 1998 (2)	1998	149	IN (.84/.19)	.88
Sears & Holmvall, 2010	2010	37	EI (.9/.43)	.90
Sekiguchi et al., 2008	2008	125	JE (.78/.56)	.95
Sekiguchi et al., 2008 (2)	2008	242	JE (.79/.37); SE (.91/.34)	.92
Self et al., 2005	2005	467	POS (.97/.24)	.94
Settoon et al., 1996	1996	102	POS (.94/.59)	.84
Shen, 2007	2007	660	OI (.84/.32); POS (.87/.65)	.87
Sherony & Green, 2002	2002	110	TMX (.92/.31)	.93
Shmidt et al., 2005	2005	86	JA (.77/-.10)	.91
Sin et al., 2009	2009	98	DC (.82/.34)	.91
Sluss et al., 2008	2008	364	OI (.80/.44); POS (.93/.49)	.90
Sparrowe et al., 2006	2006	177	SC (.79/.55)	.92
Srikanth & Gurunathan, 2013	2013	186	IJ (.78/.42)	.75
Stepina et al., 1991	1991	81	SA (NA/.03)	.73
Suazo, 2011	2011	169	PCF (.87/.44)	.88
Suazo, 2011 (2)	2011	356	PCF (.84/.38)	.89
Sui et al., 2016	2015	145	TMX (.84/.22)	.83
Tangirala et al., 2007	2007	581	OI (.88/.32); POS (.90/.52)	.95
Tejeda, 2006	2006	65	PR (.79/.61)	.94
Tekleab & Chiaburu, 2011	2011	448	POS (.90/.47); PCF (.91/.30)	.84
Tekleab et al., 2005	2005	191	IJ (.89/.59); POS (.84/.38)	.87
Thomas & Lankau, 2009	2009	422	SM (.87/.18)	.91
Thompson & Vecchio, 2009	2009	357	JA (.74/.58)	.87
Tierney, 1999	1999	157	TMX (.85/.25)	.90
Tordera et al., 2008	2008	383	IN (.77/.44)	.88
Tse et al., 2012	2012	252	OI (.76/.45)	.94
Tse et al., 2008	2008	215	TMX (.84/.32); DC (NA/.05)	.87
Tumasjan et al., 2011	2010	617	EL (.88/.66)	.91
Tummers & Bronkhorst, 2014	2014	334	WFB (.79/.18)	.92
Uhl-Bien & Maslyn, 2003	2003	276	POS (.93/.40)	.90
Van Dyne et al., 2008	2008	218	VO (.9/.50)	.91
Van Dyne et al., 2008 (2)	2008	234	VO (.91/.31)	.91

Table 5 (continued)

Study	Publication year	N	Correlate (r/α)	αLMX
Vandenberghe et al., 2004	2004	301	POS (.9/.28)	.79
Vecchio, 2005	2005	222	SE (.79/.21)	.84
Vecchio et al., 1986	1986	192	SWT (.85/.35)	.82
Venkataramani et al., 2014	2014	214	IN (.86/.04)	.91
Vidyarthi et al., 2014	2014	159	DC (.91/.24)	.89
Volmer et al., 2012	2012	144	JA (.76/.28)	.86
Wakabayashi & Graen, 1984	1984	80	PT (.87/.36); SA (NA/.24); SP (NA/.30)	.90
Wakabayashi et al., 1988	1988	71	PT (.87/.38); SA (NA/.39); SP (NA/.41)	.90
Walumbwa et al., 2011	2011	201	EL (.87/.48); SF (.81/.36)	.88
Walumbwa et al., 2011 (2)	2011	429	SF (.83/.44)	.81
Walumbwa et al., 2009	2009	298	OI (.77/.45)	.72
Wang et al., 2010	2010	793	IJ (.81/.68)	.85
Wang et al., 2015	2015	135	IN (.95/.27)	.81
Wang et al., 2015 (2)	2015	623	SF (.82/.04)	.83
Wang et al., 2008	2008	87	PT (.95/.22)	.86
Wat & Shaffer, 2005	2005	183	IJ (.9/.16)	.88
Wayne et al., 1999	1999	245	CS (.81/.25); SM (.85/.13); PT (.87/.34); SA (NA/.17)	.91
Wayne et al., 1997	1997	252	POS (.90/.50); PR (.84/.09)	.90
Wayne et al., 2002	2002	211	POS (.92/.51)	.89
Wikaningrum, 2007	2007	146	TMX (.85/.29)	.89
Williams et al., 2009	2009	192	SM (.93/.46)	.86
Yagil, 2006	2006	152	IJ (.90/.75)	.90
Yukl & Fu, 1999	1999	395	SC (.90/.66); SD (.80/.46)	.85
Yukl et al., 2009	2009	248	SC (.89/.64); SD (.89/.56); PSS (.89/.69)	.87
Zacher et al., 2014	2014	158	EI (.83/.22)	.89
Zhang et al., 2014 (2)	2014	402	VO (.85/.25)	.90

α, reported reliability number; r, the reported correlation number. Scales: JA, job autonomy; JE, job embeddedness; AS, attitudinal similarity; DC, dyadic communication; PSS, perceived supervisor support; SD, delegation; SM, mentoring; SC, consultation; EL, ethical leadership; IJ, interactional justice; TH, teamwork harmony; WFB, work-family balance; POS, perceived organizational support; PCF, psychological contract fulfilment; SE, self-esteem; SF, self-efficacy; EI, emotional intelligence; = ob involvement; OI, organizational identification; JG, job engagement; SWT, satisfaction with tasks; SWE, satisfaction with evaluation; IN, innovation; VO, voice; PR, promotion; PT, promotability; SP, speed of promotion; SA, salary; JW, job well-being; CS, career satisfaction

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Studies marked with an asterisk are included in the meta-analysis.

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