

**A Team-Level Social Exchange Model:
The Antecedents and Consequences of Leader-Team Exchange**

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DISSERTATION

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LIST OF ABBREVIATIONS

CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
IFI	Incremental Fit Index
LMX	Leader-Member Exchange
LTX	Leader-Team Exchange
OCB	Organizational Citizenship Behavior
RMSEA	Root-Mean-Square Error of Approximation
SEM	Structural Equation Modeling

SUMMARY

To date, leadership and team literatures are still disconnected and the relationship between leadership and team remains a largely unexplored research area (Kozlowski & Bell, 2003; Morgeson, DeRue, & Karam, 2010; Zaccaro, Heinen, & Shuffler, 2009). Integrating theories of social exchange (Blau, 1964) with leadership and team literatures, the current study introduces the construct of leader-team exchange (LTX), the social exchange relationship between a leader and his or her work team. The current study develops a comprehensive model to delineate the antecedents and consequences of LTX at the team level and involves two field investigations to examine the theoretical model. First, results from a pilot study using 251 employees in 60 teams demonstrated the psychometric properties of the LTX measure and supported LTX as a unique multidimensional construct. Second, using three-phased survey data from 67 teams in companies from the United States and the People's Republic of China, it was found that leader provision of resources, servant leadership, and shared team goal were significant determinants of LTX, and servant leadership and team-based HR were important antecedents of LTX variance within the team. Results further indicated that after controlling for leader-member exchange (LMX) at the team level, LTX was positively related to team processes (i.e., team potency, team cohesion, and intrateam trust) and team outcomes (i.e., team performance, team OCB, and team viability).

1. INTRODUCTION

1.1 Background

Most organizations worldwide use teams as the basis to structure work (Hackman, 2002). Work teams are intact social entities that are characterized as a collection of two or more individuals working interdependently toward common goals, and are embedded in an organizational context that sets boundaries (Cohen & Bailey, 1997; Kozlowski & Bell, 2003). The magic of effective teamwork lies in teams' capability of adapting to the rapidly changing business environment (Kozlowski & Bell, 2003) and increasing the emphasis on cooperation and coordination (Hackman, 2002). In the organizational literature, a great deal of effort has been spent in understanding team effectiveness (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008; Mathieu, Maynard, Rapp, & Gilson, 2008), which includes both objective evaluations of team performance (e.g., teamwork quantity and quality) (Shea & Guzzo, 1987) and subjective evaluations of team members' experience in teams (Hackman, 1987).

Teamwork is not always functional and team members do not automatically coalesce and coordinate well (Salas, Burke, & Stagl, 2004). Of the many possible determinants of effective teamwork, leadership is a powerful one (Kozlowski & Bell, 2003; Mathieu et al., 2008). Formal team leaders, who are officially assigned and can either interact with team members on a day-to-day basis (internal team leaders) or outside the daily teamwork cycle (external team leaders) (Morgeson, DeRue, & Karam, 2010), can play a critical role in facilitating *interconnectivity*, *integration*, and *coherence* among team members (Zaccaro, Heinen, & Shuffler, 2009). Specially, effective team leadership helps team members to minimize *process loss* (Steiner, 1972), which occurs in situations when individuals' efforts are hindered by working in a team, and to generate

synergistic process gains (Hackman & Walton, 1986), which refers to the situation when collective accomplishment is greater than the simple summation of what the independent individuals would possibly achieve (Larson, 2010). In recent years, a growing number of studies have empirically confirmed the important impact of leadership on team effectiveness (see Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006 for a meta-analytic review). Despite the promising findings, the literature on leadership and teams still seems to be disjointed and the understanding of the relationship between leadership and teams appears to be narrow and incomplete. As Morgeson and colleagues (2010) noted, “empirical research has often relied on ‘traditional’ leadership models when discussing the role of team leadership” (p. 6). Conventional leadership theories such as the Ohio State leadership studies and Michigan leadership studies, path-goal theory (House, 1971), leader-member exchange (LMX) theory (Dansereau, Graen, & Haga, 1975), and transformational leadership theory (Bass, 1985) have provided exemplary explanations on how leadership affects subordinate attitudes and behaviors; however, they fail to capture the unique interplay between leadership and teams. Indeed, Zaccaro and colleagues (2009) pointed out that traditional leadership theories tend “not to make the distinction between leader-*subordinate* interactions and leader-*team* interactions” (p.84, italics in original).

1.2 Research Questions

The current study attempts to advance the area of team-based leadership by theorizing and examining the construct of leader-team exchange (LTX) and its antecedents and consequences within the contexts of work teams. Here the focus of work teams is on traditional teams. Traditional teams are those with a formally assigned common leader, interdependent tasks among team members, and a stable membership (Hackman, 2002). A common leader, either internal or external, is needed to explore the relationship between the leader and the team as a

whole. Interdependent tasks necessitate frequent interactions among team members and affect the additive and synergistic outputs. A stable membership involves long teamwork cycles, establishes stable interpersonal relationships, and provides team members with expectations for future work. Thus traditional teams — rather than short-term teams that disband after a shorter period, or virtual teams that involve less interactions between leaders and teams — are better contexts for exploring how leader-team interactions affect team synergy and team effectiveness over a long period. Specifically, the current study addresses five research questions.

First, in response to the recent calls for research on leader-team interactions (Zaccaro et al., 2009; Morgeson et al., 2010), one may first ask, what constitutes leader-team interactions? Drawing on social exchange theory (Blau, 1964) and the literature on teams and leadership, the LTX relationship may serve as an important lens to understand the mutual influence between leader and team because it bridges the leadership and team perspectives, captures the quality of the social exchange relationship between leader and team, and provides a new perspective to understand how teams' needs are satisfied. Although previous research on social exchanges has been predominantly focused on the individual level of dyadic relationships (e.g., person- to - person, or person- to- organization), it is also meaningful to explore the team-level social exchange relationship (Ferris, Liden, Munyon, Summers, Basik, & Buckley, 2009). Thus, similar to LMX relationship, the quality of team-level LTX relationship captures can be evaluated in terms of the mutual liking, respect, contribution, and loyalty between leader and team. The uniqueness of LTX is its focus on the team as a whole: leaders develop the quality of relationship with the whole team, and members collectively respond to the team by uniform behaviors. The formation of LTX relationship is based on a shared belief among team members regarding their relationship with the leader; however, it also allows variance in the LTX perceptions. Thus, to

provide a more accurate picture of the quality of the leader-team relationship, it is helpful to explore both the shared LTX relationship (i.e., within-group agreement) and the LTX variance (i.e., within-group variance) as indicators of the construct of LTX at the team level.

Second, what factors contribute to the quality of LTX relationship? Also what produces the agreement (or disagreement) of LTX perceptions among team members? Since the quality of LTX relationships is a function of characteristics of both parties, the current study answers this question by considering elements from both the leader and the team as antecedents. Social exchange theory suggests that interactions between two parties are contingent on each other's actions (Blau, 1964). One party's expectations of the other party's ability and willingness to provide valuable resources can influence the party's engagement in developing their LTX relationship (Wilson, Sin, & Conlon, 2010). Leader provision of resources, such as materials, information, financial support, and personnel (Morgeson et al., 2010) signals the leader's efforts in offering task-related resources to the team and developing high-quality LTX relationship with their teams. Servant leadership, defined as leadership behaviors that put their subordinates first and emphasize ethical and moral standards (Greenleaf, 1977), represents leaders' willingness to engage in behaviors that satisfy all team members' needs for socioemotional resources. At the same time, shared team goals, the extent to which team members have a common understanding of their team's primary objectives and directions (Carson, Tesluk, & Marrone, 2007), and team-based human resource (HR) practices, a series of team-centered staffing, training, reward, and performance appraisal practices (Kirkman & Roseman, 1999), create a conducive environment for forming a shared LTX relationship and enable team members to follow their leader's guidance toward achieving team effectiveness.

Third, a perhaps more important question regarding the consequences of LTX is as follows: To what extent does LTX have an impact on team motivational processes and effectiveness? Although team members' motivation for teamwork are seen as important reflections of leadership influence from the functional leadership perspective (Hackman, 2002; Hackman & Walton, 1986), limited effort has been spent on examining the relationship between team leadership and team motivational processes (Zaccaro, Ely, & Nelson, 2008). The current study attempts to fill this critical gap by proposing that the quality of a LTX relationship influences the coherence within the team, shapes team motivational states (e.g., team potency, team cohesion, and team trust), and leads to subsequent team effectiveness, reflected in team task performance, team contextual performance (i.e., team organizational citizenship behavior or team OCB), and team viability perceptions.

Fourth, demonstrating both compositional models (i.e., the shared LTX and LTX variance) of LTX constructs raises the following question: How might the shared LTX and LTX variance interact to relate to team process and outcomes? Consistent with theory on multilevel constructs (Kozlowski & Klein, 2000; Morgeson & Hoffmann, 1999) and research on related areas such as climate (Colquitt, 2004; Lindell & Brandt, 2000; Schneider, Salvaggio, & Subirats, 2002), when LTX variance is low, members see LTX relationships in similar ways and are likely to engage in uniform behaviors; whereas when LTX variance is high, members have diverse opinions about their team's relationship with the leader and are prone to respond to their leaders in their preferred way. Thus, it is expected that the relationship between LTX and team processes and effectiveness is stronger when LTX variance is low.

1.3 Significance of the Research

The proposed study makes at least five contributions. First, it connects the leadership and team literatures by providing a new perspective for understanding leader-team dynamics and by proposing the construct of the LTX relationship. Specifically, rooted in social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960), it is among the first to consider how a team-level social exchange relationship between the leader and the team as a whole is formed. Second, it adds value to the team and leadership research by offering a comprehensive picture of what leader-related factors (e.g., leader provision of resources and servant leadership), and what kind of team-related factors (e.g., shared team goal and team-based HR practices) facilitate the formation of LTX relationship at the team level. Third, it extends research on team processes and effectiveness by delineating the effects that LTX may have on team motivational processes and team effectiveness across time. Fourth, it contributes to multilevel literature by taking consideration of both compositional models of a team-level LTX construct (i.e., shared LTX and LTX variance) and their interactive effects on team outcomes. Lastly, it may enrich our understanding of the generalizability of theories concerning leadership and teams by exploring LTX relationships in both Western (e.g., U.S.) and Eastern (e.g., China) societies. Figure 1 outlines the overall framework of the antecedents and consequences of the LTX relationship.

Insert Figure 1 about here

2. THE CONSTRUCT OF LTX

LTX is a construct residing at the team level and captures the social exchange relationship that takes place between a team leader and his or her team as a whole. Before

exploring the mechanism of LTX relationships, two fundamental questions regarding the formation of LTX at the team level need to be answered.

2.1 The Formation of LTX at the Team Level

A central question regarding the LTX construct concerns why team leaders develop a shared relationship with all members within the team. A convincing answer may come from the role of team goals. A team leader's primary mission is to guide the team toward accomplishing the collective goals (Schriesheim, Mowday, & Stogdill, 1979; Wageman, 2001; Zaccaro et al., 2009). As indicated from the functional leadership theory (Hackman & Walton, 1986; McGrath, 1962), a leader's "main job is to do, or get done, whatever is not being adequately handled for group needs" (McGrath, 1962, p.5). The goal to satisfy the needs of the collective drives leaders to pay attention to all team members, reduce their variations concerning their team goals and practices, and facilitate the coherence and interconnectivity among team members (Zaccaro et al., 2009), thereby promoting a form of shared relationship with the team as a whole. For example, the goal of a research and development team is to develop a new product. Accomplishing this goal requires integration and coordination of each member's input rather than simply relying on any individual member's talent (Hackman, 2002). In this regard, the team leader is likely to provide the necessary equipment, key resources, and timely information to the whole team and focus on developing a good quality of LTX relationship across all team members.

It is important to note that this collective relationship that a leader develops with the whole team is distinct from the aggregated individualized LMX relationship at the team level in several important ways. The first difference between LTX and aggregated LMX lies in the basic assumptions that drive each theory. Aggregated LMX examines how leaders treat each team member differently and has its focus on the *individualized* relationships that a leader develops

with different members. Collective LTX, on the other hand, captures how leaders develop quality relationships consistently among all team members and highlights the value of a *shared* relationship of a team leader with the team as a whole. The second difference relates to the compositional models (James, 1982). According to Chan's (1998) typology, aggregated LMX relationship contains a *direct consensus model*, in which the meaning of aggregated LMX still remains an individualized LMX relationship at the individual level of analysis; whereas a collective LTX relationship includes a *referent shift model*, in which the consensus of the LTX relationship is conceptually distinct from the individual-level LMX. Third, while LMX theory does not assert the value of work teams, LTX is particularly salient in the team context. Teams are intact social units and every member must do his or her part and work interdependently with other members if the teams are to be successful (Hackman, 2002). This requires team leaders to provide a unified pattern of behaviors to guide all team members' attention toward the team output and develop quality relationships consistently among team members. Thus, LTX relationships play a unique role in the team's development and success.

Another key question concerns why team members possess a shared relationship with their leader. Although a LTX relationship is originally perceived by individual team members, this perception does not exist in a vacuum, but is influenced by the context of work teams (Hackman, 1992). Individual team members' LTX perceptions may converge and form a shared collective cognition at the team level, which is referred to the *bottom-up* process in multilevel literature (Kozlowski & Klein, 2000). Social interaction within the team serves as the foundation for the emergence of LTX as a team-level shared property (Morgeson & Hofmann, 1999) and the nature of work teams provide the context for interaction that occurs among team members. More specifically, the key characteristic of work teams is the nature of interdependence (Wageman,

1995). By definition, interdependence suggests individual members rely on one another to complete tasks and accomplish goals (Wageman, 1995). Interdependence connects individual members together and offers a platform for them to frequently interact, communicate, and coordinate with one another on a daily basis (Morgeson & Hofmann, 1999). This frequent interaction in turn serves as a key promoter for shaping a shared comprehension of their LTX relationship. This line of reasoning is consistent with social information processing theory (Salancik & Pfeffer, 1978), which proposes that individuals apply information gathered from the immediate social contexts to form their understanding about their leaders and teams. Through their daily interactions, social talks, and common team experience, individual members with the same leader tend to possess shared information and arrive at a consensus regarding how their leader treats them, whether they accept their leader's legitimacy, and how they repay their leader's treatment in a similar pattern of behaviors. This fosters the formation of a shared understanding of their exchange relationship with the team leader.

Taken together, the nature of collective goals, interdependence, and interactions within work teams drives the emergence of LTX as shared relationships between a team leader and the team as a whole.

2.2 LTX Variance

Proposing LTX as a team-level shared property does not deny the fact that team members may not always come with a complete agreement regarding their overall relationship with the leader. Stated otherwise, the formation of a shared LTX relationship indicates a certain level of agreement among team members regarding their LTX relationship, but it is also possible to have variance in LTX perceptions within the team. This variance in LTX is called a *dispersion model* (Chan, 1998), which describes the level of variance in team composition regarding the

perception of the LTX relationship. The less the variance of LTX, the stronger is the LTX relationship. It is analogous to previous work on collective climate, which demonstrated the coexistence of mean climate (i.e., within-group agreement) and climate strength (i.e., the within-group variance) (e.g., Colquitt, 2004; Lindell & Brandt, 2000; Naumann & Bennett, 2000; Schneider et al., 2002). Within a work team, high LTX variance occurs when aspects of leaders and teams lead team members to perceive their LTX relationship in different ways. In this scenario, the LTX relationship is weak and ambiguous within the team and individual members are likely to respond to their leader's behaviors in their own individualized ways (Mischel, 1976; Schneider et al., 2002). In contrast, low LTX variation appears when team members possess a consistent and similar understanding concerning how their leader treats them, generating a strong and shared LTX relationship. This strong LTX relationship, either strongly high or strongly low, will in turn produce a pattern of uniform behaviors among team members. Therefore, the quality of the LTX relationship captures one aspect of the LTX construct and LTX variance describes another aspect of the LTX construct. Exploring both LTX quality and LTX variance provides a more accurate understanding of the LTX relationship at the team level.

As discussed in detail later in this proposal, the degree to which team members agree (or disagree) with their LTX relationship is dependent on whether their leaders engage in behaviors that satisfy their instrumental needs and socioemotional needs for team work, whether they receive team-based human resource practices, and whether they are motivated by collective and shared team goals. Further, it is expected that LTX strength will moderate the relationship between the quality of the LTX relationship and team process and effectiveness such that the relationship is stronger when LTX strength is high.

2.3 Theoretical Basis and Multidimensionality of the LTX Construct

Social exchange theory (Blau, 1964) and the norm of reciprocity (Gouldner, 1960) describes the theoretical basis for the development of LTX relationships. Although social exchange theory has been predominantly focused on dyads between two people, it can also apply to explain the team-level dyadic relationship between leaders and teams (Ferris et al., 2009). The main principle is that leaders display beneficial and positive behavior toward the team as a whole, which creates an obligation for all team members to reciprocate for what their leaders provide. When team members respond to these supportive leader behaviors in equally positive ways, a shared social exchange relationship forms. As mutual reciprocation cyclically occurs between the leader and team, a LTX relationship is built and reinforced. The LTX relationship lies on a continuum ranging from high LTX embracing with social exchanges that are characterized with mutual liking, trust, and respect, to low LTX including merely economic exchanges that are limited to the provision of an employment contract. The higher the quality of the LTX relationship, the greater the number of valued resources that are exchanged between leaders and teams. That is, when LTX is high, both leaders and team members provide valuable assets to each other whereas when LTX is low, most of the team members or their leaders are reluctant to exchange helpful resources and are limited to the provisions of their regular job tasks.

To provide a more structured theoretical basis from social exchange theory, LTX can be understood by a multidimensional framework (Ferris et al., 2009). Specifically, similar to the components of a LMX relationship (Dienesch & Liden, 1986; Liden & Maslyn, 1998), LTX involves the mutuality between both parties as reflected in four aspects: team contribution, team affect, team professional respect, and team loyalty.

2.3.1 Team Contribution

Given the fact that a leader's effectiveness is contingent on the effectiveness of his or her team, contribution to effective teamwork is perhaps the most desired resource of team members to contribute the quality of LTX relationship with their leader. Similar to the contribution dimension of LMX (Dienesch & Liden, 1986; Liden & Maslyn, 1998), contribution to teamwork does not merely involve the efforts that are required for team processes, but rather concern the extra work that extends beyond what is normally requested. Team members that appreciate the leader's efforts try to reciprocate by working their hardest for the leader. What makes this form of reciprocation unique is that team contribution is a resource provided by the collective rather than any single individual and is based on the joint efforts that all team members are willing to expend for the good of the team and the leader. To contribute to teamwork, team members exert great effort for the collective and the leader, and avoid being social loafers in the team. Conversely, team members who do not reward these extra efforts fail to satisfy the leader's needs, leading to low-quality LTX relationships.

2.3.2 Team Affect

Affect, corresponding to the LMX construct of affect, refers to the collective belief among team members regarding whether leaders are liked and welcomed. The degree to which team members like their leaders is based on their leaders' interpersonal attributes rather than work-related values (Dienesch & Liden, 1986; Liden & Maslyn, 1998). A common team leader can be seen as a shared property for the team (Turner, 1991; Hackman, 1992) and leaders display their attributes to the whole team through their interactions and communications with teams on a day-to-day basis. This experience generates a shared image among team members regarding whether the leader is likable and whether they admire the leader as a person. High levels of affect

guide team members to develop friendships with their leaders (Liden, Sparrowe, & Wayne, 1997), which symbolize a high-quality LTX relationship. In contrast, team members tend to make limited efforts to develop good relationships with leaders they dislike.

2.3.3 Team Professional Respect

A team showing respect to its leader parallels the LMX construct of professional respect (Liden & Maslyn, 1998) and is contingent on the leader's professional skills and knowledge. Leaders build a reputation both inside and outside the team based on their work capabilities (Liden & Maslyn, 1998). Excellence in a leader's work capability is demonstrated during team processes and is observed and experienced by every team member. For example, team members will admire their leader's professional skills when the leader provides a clear direction for their teamwork under the ambiguous situation or helps them to solve a tough problem they get stuck. Also, the entire team is aware of the leader's achievements at most of the time, such as any awards he or she may have won. These together build team members' shared perceptions of the professional respect they have for a leader. Respect is valuable for leaders, as it helps them gain confidence in leading and interacting with the team. Conversely, when team members disrespect their leader's professional knowledge and skills, they are less likely to accept the leader's legitimacy and guidance and less likely to have high quality LTX relationships.

2.3.4 Team Loyalty

Team loyalty describes how team leaders advocate and defend their teams' actions publicly. This resource parallels the loyalty component in LMX relationships (Liden & Maslyn, 1998). Team leaders serve as representatives of their teams when interacting with those outside the team. The representative role involves leaders' activities such as supporting their teams' actions in front of others in the organization, defending their teams to superiors, and protecting

teams from external criticism. This set of public support behaviors signals to teams that their leaders are standing by them and are psychologically attached to the team (Turner, 1991), creating obligations for the teams to contribute to the leaders in equally positive ways. Contrarily, leaders who do not address criticisms of their team members and are unable or unwilling to represent their teams within the organization are likely to be psychologically unattached to their teams, yielding low-quality LTX relationships.

Taken together, high-quality LTX relationships are characterized with high team contribution, affect, professional respect, and loyalty, whereas low-quality LTX are lacking these characteristics and limited to exchanges in a formal employment contract. The four components, although distinct from each other, are highly related and comprise a higher-order construct of LTX.

Hypothesis 1: LTX consists of four distinguishable dimensions: team contribution, team affect, team professional respect, and team loyalty; and each dimension contributes to an overall higher order construct of LTX.

3. THE ANTECEDENTS OF LTX

The first primary research question is: What factors contribute to the development of the quality of the LTX relationship? Also what produces the variance in LTX among team members? Social exchange theory indicates that in a high-quality exchange, parties provide valuable resources to one another (Blau, 1964). Each party has expectations regarding what beneficial resources they can get from the other party and when the expectation is high, the party will make efforts to reciprocate by providing equally beneficial resources to the other party (Graen, 1976; Graen & Uhl-Bien, 1995). This resource exchanges foster a high-quality social exchange relationship. Functional leadership theory also suggests that a leader capable of providing

enough resources to satisfy team needs contributes to his or her relationship with the team (Fleishman et al., 1991; Morgeson et al., 2010). In leader-team interactions, team members may expect their leaders to provide valuable resources to aid their development. Their beliefs regarding their leaders' inclination and capabilities to provide these resources affect team members' willingness to reciprocate in positive ways. In line with social exchange theory and functional leadership theory, two types of leadership behaviors are likely to shape the quality of a LTX relationship and affect LTX variance: leader provision of resources and team-level servant leadership behaviors. With the first behavior, the focus is on providing instrumental or task-related resources such as informational, material, personnel, and financial resources, to the team (Morgeson et al., 2010). Team-level servant leadership behaviors, on the other hand, lean on the provision of socioemotional resources, such as attention to their growth, recognition on their strength, and building a spiritual and ethical climate (Greenleaf, 1977; Liden, Wayne, Zhao, & Henderson, 2008). In addition to leadership behaviors, the formation of LTX quality and LTX variance is also likely to be shaped by team factors, such as team-based practices, policies, and goals. As described earlier, collective goals and social interactions provide the key contexts for the formation of a shared team-level LTX relationship (Morgeson & Hofmann, 1999). Thus, shared goals, the degree to which team members have a shared comprehension regarding their team's central objectives (Carson et al., 2007), and team-based HR practices, the degree to which there are team-centered staffing policies, training programs, performance appraisals, and a reward system (Kirman & Rosen, 1999), may produce effective interactions among team members, increase motivation to follow the common team leader's guidance, and facilitate the formation of a shared, quality LTX relationship.

3.1 Leader Provision of Resources and LTX

Leader provision of resources describes how leaders seek, obtain, secure, and allocate materials, financial support, information, and personnel resources to their teams (Morgeson et al., 2010). Possessing adequate materials and financial resources are the keys to team task performance (Hackman & Walton, 1986; Fleishman et al., 1991). For instance, purchasing high-quality machinery enables manufacturing teams to enhance productivity and efficiency. Acquiring relevant and updated information is also documented to have a positive impact on team decision-making (Franz & Larson, 2002; Larson, Sargis, Elstein, & Schwartz, 2002). Also critical is to have the right personnel for the team. This requires having team members who are able to cooperate well with others and possess expertise that can contribute to the team performance (Fleishman et al., 1991). The needed materials, financial support, information, and personnel resources are not always available within teams, and team leaders are the linch pin that connects the team with upper-level management (Graen, Cashman, Ginsburgh, & Schiemann, 1977; Likert, 1961) and providing access to the top-down flow of resources through the organizational hierarchy (Druskat & Wheeler, 2003; Morgeson & DeRue, 2006). According to social exchange theory, resources gained from members in one relationship can be provided to members in another exchange relationship (Erdogan & Enders, 2007; Venkataramani, Green, & Schleicher, 2010). When leaders share the valuable resources that they obtained from outside the team, team members tend to admire and respect their leader's capabilities and skills, and trust their leader's inclination to publicly advocate and defend their team, and repay their leader by making extra efforts in teamwork, all of which are key components of LTX relationships. Furthermore, power dependency theory (Molm, 1997) implies that team members have less power than their leaders because leaders have positional advantages to acquire and offer

resources that they are unable to obtain. From an instrumental perspective, team members are likely to contribute to a high-quality LTX relationship with their leader in order to obtain more valuable resources. Thus, leaders who acquire and provide resources that extend beyond what is required by formal job descriptions contribute to the development of high-quality LTX relationships, whereas leaders who are unwilling to exert such efforts are likely to end up with low-quality LTX relationships. Furthermore, when leaders offer these materials, information, financial support, and personnel resources to the team, they are likely to provide them to the whole team rather than any particular member for the purpose of satisfying the needs of the collective. It follows that leader provision of resources helps to facilitate the formation of a strongly shared LTX relationship and reduce variance in LTX.

Hypothesis 2a: Leader provision of resources is positively related to the quality of LTX relationship.

Hypothesis 2b: Leader provision of resources is negatively related to LTX variance.

3.2 Servant Leadership and LTX

While leader provision of resources reflects leaders' capabilities to gain more resources that address teams' economic needs, such as materials, information, and money, servant leadership is a representation of leaders' behavior in providing socioemotional benefits intended to satisfy teams' esteem and social needs. Servant leadership, a construct introduced by Greenleaf (1977), has gained growing popularity in modern organizations that demand more ethical and employee-oriented management (van Dierendonck, 2011). Servant leadership is reflected in a series of behaviors: behaving ethically, emotional healing, putting subordinates first, helping subordinates grow and succeed, empowering subordinates, creating value for the community, and demonstrating conceptual skills (Liden et al., 2008). Though relatively little

attention has been paid to this subject in the organizational literature, servant leadership's emphasis on subordinate development, ethics, community service, and humility makes the concept distinct from other streams of leadership. First, servant leaders regard subordinates' best interests as their top priorities (Greenleaf, 1977), whereas other leaders, such as transformational leaders, primarily focus on organizational goals and would likely sacrifice subordinates' interests for the collective good when conflicts between the two occur (Piccolo & Colquitt, 2006). Second, the moral aspect of servant leadership drives these leaders to consistently engage in ethical behaviors in all spheres of their work, family, and community (Graham, 1991), which is not characteristic of transformational leadership and LMX. Third, servant leaders are humble, as demonstrated by their tendency to retreat to not take credit when teams succeed, and to initiate self-critiques when teams fail (van Dierendonck, 2011). These unique characteristics are not reflected in other, related leadership styles, such as ethical and authentic leadership. Research has demonstrated that servant leadership explains unique variance in employee outcomes after controlling for other leadership behaviors, such as transformational leadership and LMX (Ehrhart, 2004; Liden et al., 2008).

At the team level, servant leadership can be viewed as a type of "ambient stimulus" which is shared among team members (Hackman, 1992) and represents an overall pattern of leadership behaviors displayed to the all members of the team (Ehrhart, 2004; Hu & Liden, 2011; Walumbwa, Hartnell, & Oke, 2010). Essential to servant leadership theory is that servant leaders facilitate long-term exchange relationships with their work teams (Liden et al., 2008). First, the central belief of servant leaders lies in the acknowledgement and fulfillment of every member's capabilities (van Dierendonck, 2011). Servant leaders are good at identifying and recognizing each member's strength and uniqueness and encouraging them to maximize their potential. In

doing so, servant leaders may utilize their own expertise to help team members to satisfy their developmental needs. These beneficial behaviors in turn may generate team members' admiration and liking of their team leaders, and create their obligations to reciprocate by contributing to the development of high-quality LTX relationships. Evidence shows that, led by a servant leader, team members as a collective expend extra efforts to ensure positive team outcomes (Ehrhart, 2004; Hu & Liden, 2011; Schaubroeck, Lam, & Peng, 2011). Second, leaders with servant behaviors always put their team members as priorities (Greenleaf, 1977). This can be reflected in leadership actions such as protecting team members from criticisms from the outside and defending their behaviors from superiors, which indicates leaders' loyalty to the teams and promote high-quality relationship with the teams. Third, equipped with high ethical and moral standards, as well as an emphasis on serving team members, servant leaders keep team members from unfairness (Ehrhart, 2004) and develop quality relationship consistently across team members (Walumbwa et al., 2010). This in turn reduces disconsensus concerning their LTX relationship.

Hypothesis 3a: Team servant leadership is positively related to the quality of LTX relationship.

Hypothesis 3b: Team servant leadership is negatively related to LTX variance.

3.3 Shared Team Goal and LTX

Collective goals are seen as the fundamental drivers for facilitating the formation of a team-level construct (Morgeson & Hofmann, 1999). This is because having shared team goals unifies team members' understanding of their team's primary objectives, draws their attention toward the collective outcomes, and necessitates close interactions and communications among team members (Larson, 2010). Previous research has demonstrated that team members with clear

and common goals feel more empowered and committed to their tasks and teams (Kirkman & Rosen, 1999; Liden, Wayne, & Sparrowe, 2000). Given that team outputs are the joint efforts between team members and leaders, members who are committed to their team goals are willing to follow their leaders' guidance, effectively interact and communicate with their leaders, and develop a good quality relationship with their leaders.

Furthermore, shared goal maintains over time when team members keep themselves updated of any changes in the team direction and take steps to focus on the primary goals (Carson et al., 2007). This is important especially within the complex and changing environment of modern teams. With a clear comprehension of team directions and activities, team members are better able to respond to their leader's advice and suggestions in their team's directions and avoid any conflicts due to ambiguity regarding their goals (Gladstein, 1984; Hu & Liden, 2011), thereby fostering high-quality LTX relationships. Additionally, forming a shared team goal involves interactions to verify, clarify, and deepen team members' understanding of where their teams head to and how to arrive at the destination, which reduces potential misunderstandings among team members and disconsensus regarding their teams and leaders.

Hypothesis 4a: Shared team goal is positively related to the quality of LTX relationship.

Hypothesis 4b: Shared team goal is negatively related to LTX variance.

3.4 Team-Based HR Practice and LTX

Team-based HR involves a series of team-oriented practices regarding the staffing, rewarding, training, and performance appraisals and provides support for effective team functioning (Mathieu, Gilson, & Ruddy, 1999). Previous research suggested that team-based HR practices help to form a high-quality social exchange relationship between members and their organizations (Tsui, Pearce, Porter, & Tripoli, 1997). HR practices are seen as communications

from the organization to its individual members (Bowen & Ostroff, 2004). Within work teams, leaders are representatives of their organization (Erdogan & Liden, 2002) and thus team-based HR practices are likely to impact individual members' perceptions of their leaders and their LTX relationships. First, team-based staffing policies select members who are good "team players" and possess task-related skills and interpersonal skills that are useful in the team contexts (Barrick, Stewart, Neubert, & Mount, 1998; Hackman, 1987). Prior work has theorized and demonstrated that selecting members who are conscientious, extraverted, and have teamwork knowledge are conducive for team contextual performance such as interpersonal helping, cooperation, and teamwork dedication (Morgeson, Reider, & Campion, 2005). Members with good teamwork knowledge and personalities are more receptive and supportive of concerns and feedback raised by the leader and are more capable of utilizing resources that the leader provides to contribute to teamwork, generating high-quality LTX relationships. Second, cross-training program facilitates team members in understanding others' tasks in the team and the connection of their own task with the team's objectives (Salas, Dickinson, Converse, & Tannenbaum, 1992). This enhanced understanding of the teamwork that results from team training drives members to focus on their commonalities and produce shared knowledge structures (Marks, Sabella, Burke, & Zaccaro, 2002), which allows them to have a common understanding regarding how the team leader treats them as a whole. In addition, team-interaction training teaches team members to smoothly communicate with others in the team (Marks, Zaccaro, & Mathieu, 2000) and to better respond to their leader's suggestions as a collective. As a result, a harmonious and effective LTX relationship is cultivated. Third, team-based rewards focus team members' attention on the performance of the team (Tsui et al., 1997; Wageman, 1995), thus increasing the meaningfulness and significance of teamwork (Gibson & Kirkman, 1999; Harackiewicz & Larson, 1986), and

motivating members to follow their leader's advice for effective teamwork. Fourth, team-based performance evaluation provides members with feedback regarding how well they perform, what procedures need to be modified, and what alternative work strategies can be considered (Mesch, Farh, & Podsakoff, 1994). This feedback helps team members to understand their role expectations (Liden et al., 1997) and how to fulfill their leader's expectations (Morrison, 1993), and also helps team leaders to clarify what is needed for the team development and how to take action to improve team performance (Lam, Huang, & Snape, 2007). Overtime, the performance evaluation system generates a stable and high-quality LTX relationship with mutual obligations.

Hypothesis 5a: Team-based HR practice is positively related to the quality of LTX relationship.

Hypothesis 5b: Team-based HR practice negatively related to LTX variance.

4. CONSEQUENCES OF LTX

This section addresses the second main research question: How and why does LTX impact team processes and team effectiveness? LTX can be described within the Input-Process-Output (IPO) framework of teamwork (Hackman, 1987; McGrath, 1964) as a key input to team processes and effectiveness. Specifically, LTX is expected to play an important role in enhancing team-level motivational states, and promoting team effectiveness as manifested by team task performance, team contextual performance, and team viability.

4.1 LTX and Team Processes

LTX impacts teams by first influencing team motivational states. For a team to work effectively, the core issue matters to how to create team synergy (Hackman & Walton, 1986; Hackman, 1987). In line with a small group of theoretical work linking team leadership to team motivation (Zaccaro et al., 2001, 2009), leader-team interaction serves as a team-level stimulus

and drives team members to contribute to collective goals by promoting team members' motivational states such as team potency, team cohesion, and team trust. All the team motivational states are team-level constructs derived from individual members' experience within the team and from mutual interactions among members (Morgeson & Hoffman, 1999).

4.1.1 Team Potency

Team potency, defined as a sense of shared confidence among team members in the team's general capabilities (Gully, Incalcaterra, Joshi, & Beaubien, 2002), is one of the most frequently explored team motivational states (Chen & Kanfer, 2006). Although scholars conceived team potency as similar to another related construct--collective efficacy, potency is a more general shared belief about a team's success across various tasks and situations, whereas collective efficacy is more task-specific (Guzzo, Yost, Cambell, & Shea, 1993). The positive impact of LTX on team potency can be explained by social cognitive theory. Social cognitive theory (Bandura, 1986) suggests four primary sources for the formation of efficacy beliefs: *social persuasion*, or others' confirmation of the capabilities to accomplish tasks; *vicarious experience*, or experience gained from observing and learning from social models; *enactive attainment*, or experience of past success; and *physiological state*, or bodily and emotional arousal relevant to the work. Although the social cognitive perspective has primarily served as a basis for understanding individual-level efficacy, it is also helpful in explaining team-level potency beliefs (Bandura, 1986) because team- and individual-level motivation function similarly (Chen & Kanfer, 2006). Specifically, LTX is expected to build team potency through creating the following four critical resources.

First, the higher the quality of LTX relationships, the more likely leaders are to gain and allocate valuable resources to assist teams in accomplishing their tasks. This process may signal

leaders' trust in teams' capabilities (Blau, 1964) and act as social persuasion, enhancing teams' potency beliefs. Furthermore, high-LTX relationships represent leaders' confirmation of teams' capabilities explicitly through the reward of individual members' and whole teams' contributions and implicitly through their empowerment of teams in decision making and problem solving processes. In this way, high-LTX relationships serve as social persuasion that conveys a "can-do" attitude to the teams. Second, leaders in high LTX relationships play an active role in helping team tasks. Besides guiding teams to complete tasks on their own, when necessary, these leaders, both external and internal, also "pitch in" and "roll up their sleeves" to help teams handle their problems and difficulties (Morgeson et al., 2010). As a result, leaders become social role models for team members to observe and learn from, which contributes to the development of potency beliefs. At the same time, leaders in high-LTX relationships encourage more interactions and better communications among team members, which creates more opportunities for them to see how other members perform tasks. Teammates therefore act as social role models for one another and help raise potency beliefs that the collective possesses the capabilities to make the team successful. Third, LTX relationships develop as interactions increase. Teams then are able to accumulate more successful experiences, which elevate their confidence in the teams' capabilities to be effective in the future. Fourth, the support from leaders in high LTX relationships reduces team members' potential excessive stress (Bono, Foldes, Vinson, & Muros, 2007), thereby reducing emotional states such as anxiety, fear, sadness, and fatigue and enhancing their competence beliefs (Bandura, 1997). By contrast, low LTX relationships are characterized by low mutual trust, support, and limited interactions within the team, which reduce the resources for forming team potency beliefs.

4.1.2 Team Cohesion

Team cohesion, as a team motivational state, refers to the degree to which team members are committed to one another, and to their team tasks (Gross & Martin, 1952). Team cohesion reflects the integration and bonding among team members and is indicative of team synergy (Hackman, 1987). A LTX relationship is expected to positively link to team cohesion in at least three ways. First, team members with high-quality LTX relationships obtain more benevolent and supportive behaviors from their leader, which increases their appreciation and admiration to their leader and emotional attachment to the team led by their leader (Zaccaro et al., 2009). Second, with high-quality LTX relationships, team membership becomes more attractive to team members because of the guidance of the leader. This in turn creates a sense of pride and belonging to the team and increases interpersonal bonding within the team. Third, high-quality LTX encourages team members to fulfill leaders' expectation by effectively interacting and coordinating with others, which facilitates team members' understanding about each other's work and awareness of the connection to the team. As a result, team members tend to form a strong bond to their team tasks and goals. Providing support to the logic, Jowett and Chaundy (2004) found that in sports teams, coach-athlete relationship was positively related to team cohesion.

Conversely, teams in low-quality LTX relationships are less likely to expend extra efforts in their team tasks and to care about their teams. The lack of such efforts and concern may lower team members' commitment to their team and impair their motivation to expend effort toward team tasks, thereby decreasing their team cohesion.

4.1.3 Intrateam Trust

Intrateam trust, as a team-level motivational component, refers to shared beliefs that team members can rely on each others' intentions and behaviors (De Jong & Elfring, 2007). The quality of LTX affects intrateam trust through a contagious effect. That is, leaders with a high level of LTX tend to trust their teams. This trust is perceived and experienced by team members, which contagiously leads team members to believe that their teammates are trustworthy (Barsade, 2002; Lau & Liden, 2008). This is consistent with balance theory (Heider, 1958), which suggests that when a leader trust the team as a whole, all team members will trust one another to help maintain the interpersonal balance (Lau & Liden, 2008). Furthermore, high-quality LTX involves mutual trust. That is, when leaders trust teams' actions and words, the teams in turn trust their leaders' suggestions and choices. Research has shown that when team members trust their leader, they are more likely to trust the people trusted by the leader (i.e. their teammates) (Lau & Liden, 2008). In addition, leaders in a high-quality LTX relationship tend to provide more recognition, encouragement, and instrumental feedback about their teams' performance and behaviors. This positive feedback is shown to reduce potential dysfunctional conflicts within a team (Peterson & Behfar, 2003), causing team members to have a positive perception of one another's intentions. Conversely, low-quality LTX relationships cause leaders to demonstrate low trust in their teams and provide a narrow scope of resources to help team members. This has a spillover effect on team members, leading them to distrust their teams.

Hypothesis 6: The quality of LTX is positively related to (a) team potency, (b) team cohesion, and (c) intrateam trust.

4.2 LTX and Team Effectiveness

LTX is further hypothesized to influence an output of teamwork: team effectiveness.

Team effectiveness is a multifaceted construct that includes both team performance, team OCB, and team viability.

4.2.1 Team Performance

Team performance has been considered a key dimension of team effectiveness for the past few decades (LePine et al., 2008; Mathieu et al., 2008). Team performance is a product of the joint efforts that both leaders and teams put forth. High-quality LTX relationships embrace both leaders' and teams' efforts and translates them into superior performance. On the one hand, leaders in high-quality LTX relationships exert efforts to support teamwork by monitoring what is needed, providing feedback on deficiencies, and guiding team members to solve problems they encounter. Assistance and guidance are valuable for effective team performance. On the other hand, teams that receive beneficial resources from leaders are likely to reciprocate by paying extra attention to teamwork. Even though leaders provide guidance, task completion is mainly dependent on team members. Sufficient effort that team members bring to bear on team tasks is of paramount importance to team task effectiveness (Hackman & Walton, 1986). In addition, in high-quality LTX relationships, team members like, admire, and respect their leaders, which make them more likely to accept and follow instructions and concerns raised by the leaders and to take actions to correct any deficiency. As a result, teams are more adaptive to the changing environment (Okhuysen & Waller, 2002) and effective team performance is sustained. Thus, high-quality LTX involves mutual contribution to team performance from both parties. Leaders' beneficial behaviors enhance the levels of collective efforts that team members are willing to expend toward common goals. Teams' valuable contribution in turn motivates leaders to

reciprocate by putting forth more effort in team development. Worth noting is that these leaders' and teams' resource exchanges are not one-time efforts. LTX relationships develop when leaders and teams cyclically reinforce their contribution to achieve exemplary performance levels over time. In contrast, low-quality LTX relationships entail limited efforts that both parties put forward and low levels of obligations to work for the benefits of the collective and promote their teams' long-term performance.

4.2.2 Team OCB

Team OCB, or team contextual performance, include behaviors that are not formally defined in the job description, but in aggregate contribute to the team functioning (Organ, 1988). Examples of team OCB include helping absent teammates with their work, making newcomers feel welcome in the team, showing dedication to their teamwork, and providing suggestions to improve teamwork (Lee & Allen, 2002). LTX is expected to promote team OCB in at least three ways.

First, high-quality LTX involves leaders' support of teams by monitoring team processes (McGrath, 1964; Hackman & Walton, 1986), which allows leaders to be aware of any potential interpersonal conflicts and to reduce the negative consequences in a timely fashion. Harmonious relationship within teams facilitates helpful attitudes among team members (Stevens & Campion, 1994; Morgeson et al., 2005). Second, a notable amount of research in team literature suggests that social-loafers and free-riders reduce or even eliminate team effectiveness (Karau & Williams, 1993; Larson, 2010). These social-loafers and free-riders are prone to appear when LTX relationships are low, because this is when individual members' contribution is not recognized and endorsed by their leaders. However, such problems are likely to be mitigated, if not eliminated, by high-quality LTX relationships. This is because in high-quality LTX

relationships, leaders support and appreciate each member's efforts and input and guide team members to work toward common goals. As such, team members have no worries about their input being hindered and are willing to be dedicated to their teamwork and effectively cooperate with teammates to achieve team success. Third, with a high-quality relationship with their leaders, team members are more likely to share their ideas and information with their leader and to make suggestions to help improve teamwork without being afraid of feeling embarrassed or insecure (Edmondson, 1999; Mumford & Gustafson, 1988). In contrast, without high-quality LTX relationship, team members are likely to shrink their efforts in the teamwork and show limited concern with their team effectiveness, thereby decreasing team OCBs.

4.2.3 Team Viability

To maintain long-term team effectiveness, a team needs to maintain team members' satisfaction with teamwork experience (Hackman, 1987). Team viability, defined as members' satisfaction and willingness to continue working together in the future (Barrick et al., 1998), is a critical yet relatively neglected indicator of team effectiveness (Kozlowski & Bell, 2003). The construct team viability includes two aspects: members' satisfaction about their team membership, and their intention to remain in the team (Balkundi & Harrison, 2006). LTX relationship is important for shaping team viability perceptions for at least four reasons. First, leadership behaviors that foster the acceptance of team goals among team members and reward goal achievement are positively related to perceptions of team viability (Foo, Sin, & Yiong, 2006). Leaders with high LTX relationships are able to engage in such positive behaviors. Specifically, high LTX motivates leaders to make consistent efforts to get team members involved in teamwork, such as making important team decisions, understanding each others' work, and solving team problems together. These behaviors drive members' attention to team

outputs and increase their endorsement of team goals. Second, team viability is a key indicator of a team's long-term success, which requires that team members adapt to changes and be innovative (Behfar, Peterson, Mannix, & Trochim, 2008). High-quality LTX is indicative of mutual trust, respect, and liking, which becomes especially helpful to maintain team members' attention to the team leader's guidance and keep consistent motivation in the face of changes and risks. As a result, team members tend to be optimistic about their future and willing to keep their team membership. Third, from a social network perspective, effective interactions in high LTX relationships create dense interpersonal (friendship) and instrumental (advice) ties among leaders and team members, which ultimately foster a sense of team viability (Balkundi & Harrison, 2006). Fourth, psychological contract theory suggests that employees are satisfied with their job when their expectations are met (Rousseau, 1995). This expectation involves behaviors coming from leaders as the agents of the organization (Erdogan & Liden, 2002). Leaders' valuable support inherent in high-quality LTX may meet team members' expectations and increase their satisfaction with their teamwork, increasing the levels of their viability perceptions. Contrarily, leaders in low-quality LTX relationships are less trustworthy and respectable in the eyes of team members. The lack of these positive feelings may lower team members' satisfaction with their team experience and impair their motivation to expend effort toward teamwork.

Hypothesis 7: The quality of LTX relationship is positively related to (a) team performance, (b) team OCB, and (c) team viability.

4.3 Team Processes as Mediators

Further, the influence of LTX on team effectiveness may occur indirectly through the mediating role of team processes. That is, LTX has an impact on team processes (as discussed in

Hypothesis 6) and these emerging motivational states should in turn influence team effectiveness.

4.3.1 Team Potency

Drawing on social cognitive theory (Bandura, 1986), team potency serves as the key cognitive mechanism driving teams to be effective across situations. Potency beliefs instill team members with a “can-do” attitude and affect the implementation and the persistence of personal efforts toward team goals, especially in the face of obstacles and uncertainty (Bandura, 1986). Confidence and persistence are especially important for achieving sustained high levels of team performance in changing environments. Team potency has been shown in a meta-analytical review to be positively related to team performance (Gully et al., 2002). Potency beliefs also raise team members’ responsibility about their team’s effectiveness and create a sense of ownership with their teams, which encourages more OCBs within teams (Hu & Liden, 2011). Further, high levels of potency beliefs make team members likely to persist in team processes and in their employed relationships with the team.

4.3.2 Team Cohesion

Team cohesion resulting from LTX relationships is important for enhancing team performance, team OCBs, and team viability. Team cohesion increases the team members’ willingness to exert effort to create additive and synergic team output, which promotes effective team performance (Gully, Devine, & Whitney, 1995; Hoegl & Gemuenden, 2001; Zaccaro & Lowe, 1988). Meta-analytic evidence has shown that team cohesion was positively related to team performance (Beal, Cohen, Burke, & McLendon, 2003; Gully et al., 1995). In cohesive teams, team members care about each other’s success because they are committed to the collective goals and tasks (Zaccaro et al., 2001). This care is demonstrated when they help team

members and try to improve team success. Furthermore, team cohesion creates a strong interpersonal bond among team members and increases the desire of all to remain with the team. It has been found that team cohesion is positively related to team viability (Barrick et al., 1998).

4.3.3 Intrateam Trust

Intrateam trust plays a critical role in enhancing team performance in that when team members trust one another, they are willing to accept their teammates' ideas and actions and engage in smooth communication and effective cooperation with others. Empirical evidence supports the positive value of trust on team performance (Dirks, 1999, 2000; Larson & LaFasto, 1989). Trust is a core characteristic of effective social exchange relationships (Ferris et al., 2009). Thus, intrateam trust facilitates high-quality relationships among team members. This enables team members to show more concern for their team effectiveness, while demonstrating more OCBs because they believe that their teammates will reciprocate by doing the same (Lau & Liden, 2008). Furthermore, intrateam trust generated by LTX relationships provide team members' positive expectations about their teams' future success (Dirks, 2000) and increases their willingness to stay with the team, thereby increasing their viability perceptions.

Hypothesis 8: Team potency mediates the relationships between the quality of LTX relationship and (a) team performance, (b) team OCB, and (c) team viability.

Hypothesis 9: Team cohesion mediates the relationships between the quality of LTX relationship and (a) team performance, (b) team OCB, and (c) team viability.

Hypothesis 10: Intrateam trust mediates the relationships between the quality of LTX relationship and (a) team performance, (b) team OCB, and (c) team viability.

4.4 Interaction between LTX Quality and LTX Variance

While LTX quality indicates the quality of the relationship between a leader and his or her team as a whole, LTX variance captures whether such relationship quality is seen in the same way among team members. Within a work team, it is likely for each individual member to interact with their leader at different times and at different settings, which makes them to experience differences in terms of how their leader guides the team and helps with the teamwork. Furthermore, even encountering the same event, people may have different interpretations due to the selective perceptions (Walsh, 1988) and attribution biases (Miller & Ross, 1975). When lacking frequent information exchanges and effective interactions to clarify and verify their understanding, team members may not reach a high level of agreement regarding their LTX relationships (Morgeson & Hoffman, 1999). Thus, LTX quality and LTX variance coexist in team contexts and, taken together, they capture the team-level construct of LTX.

Thus, the next research question naturally follows: How would LTX variance influence the relationship between LTX quality and team processes and outcomes? When the LTX variance is low, the relationship between LTX quality and team processes and effectiveness is likely to be strengthened. Specifically, when LTX variance is low, team members are clear about their team's judgment and perceptions of their leader, about whether they accept their leader's legitimacy, about how much efforts they will exert to repay their leader's treatment. In this scenario, team members tend to form a uniform pattern of behaviors to respond to their leader and to conduct teamwork. Hence, the impact of the quality of LTX relationship on team shared states and collective outcomes is more salient. In contrast, when LTX variance is high, team members have diverse opinions about whether their leader is liked and respected by the team and whether their leader would stand on their side when interacting with people from the outside. In

this regard, team members are not in the same boat and are likely to respond differently to their leader, which impairs unity of action within the team and inhibits the role of LTX on team processes and outcomes.

Hypothesis 11: LTX variance moderates the relationships between the quality of LTX relationship and their (a) team potency, (b) team cohesion, and (c) intrateam trust such that the relationships are more positive when LTX variance is low than when LTX variance is high.

Hypothesis 12: LTX strength moderates the relationships between the quality of LTX relationship and their (a) team performance, (b) team OCB, and (c) team viability such that the relationships are more positive when LTX variance is low than when LTX variance is high.

5. METHOD

This study contains two sets of field investigations to test the proposed hypotheses. The first part is a pilot field study to assess the psychometric characteristics of the LTX measure in a Chinese insurance company. The second part is the main study to examine the overall proposed model. The primary study was conducted at work teams from companies in the U. S. and China from diverse industries (e.g., construction, information technology, telecommunications, law and trading).

5.1 Pilot Study

5.1.1 Sample and Procedure

A pilot study was first conducted to examine whether the LTX relationship captures a unique phenomenon in a work team and whether it is empirically distinct from other related constructs. Data was collected from 60 branches of a life insurance company in Eastern China. I

first interviewed the human resource managers in the insurance company to examine whether the branches in the insurance company function as “real” teams according to Hackman’s (2002) criteria of traditional teams. Through the conversations with the company’s HR professionals, I learned that each of the branches has common team goals (e.g., to guarantee the overall quality of customer service and the quantity of sales volume), an assigned formal leader, and a stable membership (e.g., members have a minimum of six months tenure in their current work team). Furthermore, there is a high degree of interdependence within each team: Members in each branch are rewarded partly based on the whole branch/team’s performance and members give one another material and informational support.

The data were collected on-site during work hours. Of the 325 employees representing 65 teams that were invited to participate in the paper and pencil-based survey, 300 employees in 63 teams returned the surveys. Nine employees’ surveys were discarded due to their missing responses for LTX measure and another six employees’ surveys had to be dropped because there were less than 60% members responding the surveys in their teams (Timmerman, 2005). A total of 285 effective team member surveys representing 60 teams formed the final sample, resulting in an 87.69% team member response rate and a 92.31% team response rate. The average team size was 4.75, with a range from 3 to 7. The sample consisted of 55% men and 45% women. The average age was 29 years old and 57% of the employees had received education at college level or above. The average tenure with the organization, the team, and the leader was 5.19 years, 4.21 years, and 3.45 years, respectively.

5.1.2 Measures

The survey was administrated in Chinese. All of the survey items were translated into Chinese by me and then translated back into English by another bilingual management

researcher. Inconsistencies between the original and back-translated English were resolved through discussion. In addition, five Chinese HR professionals were asked to read the translated Chinese version of LTX measures and some modifications of the translation were made based on their suggestions. Unless otherwise indicated, all items used 7-point Likert-type scales with anchors of 1 (strongly disagree) to 7 (strongly agree).

LTX was assessed with Liden and Maslyn's (1998) 12-item LMX (multi-dimensional measure or LMX-MDM) measure adapted for the team level. The items assessed team members' perceptions of the relationship between their leader and their team as a whole. Specifically, it captured the extent to which team members made extra efforts to their team for the leader (team contribution), liked their leader (team affect), respected their leader's professional skills and knowledge (team respect), and the extent to which their leader publicly supported the team (team loyalty). Sample items included "Our team members are all willing to apply extra efforts, beyond those normally required, to meet our team leader's work goals" (team contribution); "Our team members all like our team leader very much as a person" (team affect); "Our team members are all impressed with our leader's knowledge of his/her job" (team respect); and "Our team leader defends our team members' work actions to a superior, even without complete knowledge of the issue in question" (team loyalty) ($\alpha = .92$).

To examine the convergent and discriminant validity of the LTX measure against several conceptually similar but distinct measures. The 12-item LMX-MDM (Liden & Maslyn, 1998) was included to examine whether individual members differentiate their own relationship with their leader from their team's relationship with the common leader ($\alpha = .93$). Another related construct is team-based transformational leadership (Wang & Howell, 2010), which describes leadership behaviors that emphasizes the common team goals and motivates coordinated efforts

toward the goals. A 14-item scale developed by Wang and Howell (2010) was used (e.g., “Our leader fosters collaboration among team members”. $\alpha = .95$). A third included measure was leadership identification (Becker, Billings, Eveleth, & Gilbert, 1996) designed to assess the extent to which team members psychologically attach to and identify with their leaders (Lord & Brown, 2004). Becker and colleagues’ (1996) four-item scale was used (e.g., “When someone criticizes my supervisor, it feels like a personal insult”, $\alpha = .86$).

Task interdependence was included to confirm the criteria for a work team (Wageman, 1995) and was assessed with five items developed by Pearce and Gregersen (1991). A sample item is “team members work closely with others in doing their work”. ($\alpha = .78$).

Table I shows the descriptive statistics, reliabilities, and correlations among variables used in the pilot study. It was found that all teams in the pilot study had a high mean for task interdependence ($M = 5.07$, $SD = .97$). The within-group agreement test (James, Demaree, & Wolf, 1984) suggested that on average, members in each team had a shared perception of their task interdependence, indicated by a high *rwg (j)* value of .94. Thus, the high task interdependence confirmed that the work groups examined met the definition of “teams” and provided the context for forming the team-level LTX relationship.

Insert Table I about here

5.1.3 Discriminant Validities

I conducted a series of confirmatory factor analysis (CFA) models using LISREL 8.72 software (Jöreskog & Sörbom, 1993) to assess the factor structure and the discriminant validity of the LTX scale. These tests were conducted at the individual level of analysis because

theoretically team-level shared properties should be assessed at the level of the origin (Kozlowski & Klein, 2000) and statistically team-level analysis is based on smaller sample sizes and may contribute toward unreliable results (Kline, 2005). Overall model fit was assessed by the comparative fit index (CFI), incremental fit index (IFI), and the root mean square error of approximation (RMSEA) with commonly accepted cutoff values (i.e., CFI > .90, IFI > .90, and RMSEA < .08 as reasonable fit) (Browne & Cudeck, 1992; Kline, 2005; Hu & Bentler, 1999). Chi-square difference tests were used to test which model fits the data better (Anderson & Gerbing, 1988; Kline, 2005; Wayne, Shore, & Liden, 1997).

A higher-order CFA test was first conducted to assess the factor structure of the LTX measure. As shown in Figure 2, all items were specified to load on their hypothesized factors and the four first-order factors represent the four LTX dimensions. The results revealed support for the higher order factor, $\chi^2(50) = 67.03, p > .05$, CFI = .99, IFI = .99, and RMSEA = .06. All factor loadings were significant at the .01 level. The four first-order factors (i.e., four dimensions) are distinct but all fell under a second-order factor (i.e., the construct of LTX).

To further examine whether individual members differentiate their LMX and LTX relationships, a set of CFA tests were conducted. As shown in Table II, results showed that a two-factor model (i.e., Model 1, LMX and LTX as two separate factors) provided a significantly better fit than a one-factor model (i.e., Model 2, LMX and LTX as the same factor), $\Delta\chi^2(1) = 36.75, p < .001$, CFI = .98, IFI = .98, and RMSEA = .07. Therefore, the result suggested that individual members tend to differentiate their leaders' exchange relationship with themselves from with the team as a whole. A second set of CFAs was conducted to examine whether LTX differentiates from team-based transformational leadership. Results showed that a two-factor model (i.e., Model 3, LTX and team-based transformational leadership as two separated factors)

yielded a better fit than a one-factor model (i.e., Model 4, LTX and team-based transformational leadership combined as a factor) to the data, $\Delta\chi^2(1) = 132.23, p < .001, CFI = .97, IFI = .97, RMSEA = .07$. Another set of CFA tests were conducted to assess the discriminant validity of LTX from leadership identification. Results also substantiated that the two-factor model (i.e., Model 5, LTX and leadership identification as two separate models) was significantly better fitting to the data than the one-factor model (i.e., Model 6, LTX and leadership identification combined as one factor), $\Delta\chi^2(1) = 7.59, p < .01, CFI = .98, IFI = .98, RMSEA = .07$.

 Insert Table II about here

5.1.4 Aggregation for Team-Level Analysis

LTX is a team-level construct and accordingly, the LTX scale items referred to the team level. The empirical appropriateness of aggregating the responses of individual team members to the team level was assessed by three criteria: 1) inter-rater agreement was estimated by computing *rwg (j)* (James et al., 1984). The mean *rwg (j)* value of .96 was above the conventionally acceptable cutoff value of .70; 2) the intraclass correlation index (ICC1) was estimated to see whether team membership accounted for significant variance in the measures (Bartko, 1976). Following Bliese's (2000) suggestion, one-way analyses of variance were first conducted and significant between-group variance was found. The ICC1 value for LTX was .35, which was comparable to the mean ICC1 values of aggregated constructs in organizational literature (Bliese, 2000) and in prior studies of team leadership (e.g., Kearney & Gebert, 2009; Schaubroeck, Lam, & Cha, 2007); and 3) ICC2 was calculated to assess the reliability of the mean ratings of the LTX measure within a team compared to other teams (Shrout & Fleiss, 1979).

The ICC2 value of .73 indicated a reliable team-level aggregated LTX rating (James, 1982). Therefore, aggregating the responses to the team level was appropriate.

5.2. Primary Study

5.2.1 Sample and Procedure

The initial sample comprised 101 traditional work teams with full-time employees from American and Chinese companies in a variety of industries (i.e., construction, information technology, telecommunications, law and trading). Employees worked in various functional work teams, such as marketing, accounting, HR, customer services, law practices, cooperate finance, and research and development. The diverse team contexts and organizational settings of this sample help to increase the generalizability of the findings (c.f., Wu et al., 2010). As in the pilot study, I first assessed whether the work teams in the participating companies qualify as “real” work teams on the basis of Hackman’s (2002) criteria. I found that each team has a common leader to supervise and monitor processes, a common goal, stable team membership (minimum team tenure greater than 6 months), and high task interdependence ($M = 4.74$ on a 1-7 likert scale from Pearce & Gregersen, 1991; $\gamma_{wg(j)} = .94$).

Data were collected on-site at three points in time over three months. Surveys were distributed to three different sources (i.e., team members, leaders, and upper-level managers) at different times to minimize common method bias. At Time 1, team members provided information on their leaders’ provision of resources, team-level servant leadership behaviors, shared team goals, and their demographic information. At this time, leaders also completed surveys measuring team-based human resource practices and their demographic information. At Time 2, a month later, team members rated their LTX relationships, team potency, team cohesion, and intrateam trust. At Time 3, two months after Time 1, upper-level managers rated the

performance and OCBs of teams under their jurisdiction. The choice of upper-level managers, rather than team leaders, to rate team performance was made to reduce potential social desirability bias (Hu & Liden, 2011). At this time, team members also evaluated the viability of their teams.

Out of 560 members in 101 teams invited to participate in the survey, 474 members in 85 teams completed the Time 1 survey (response rate = 85.64% for individual members, and 84.16% for teams). Seventy-five leaders also provided their ratings at Time 1, yielding an effective team leader/employee matched dyads response rate of 74.26%. At Time 2, a total of 380 individual members representing 78 teams completed their surveys, resulting in a response rate of 67.86% for individual members and 77.23% for teams. At Time 3, 355 individual members in 74 teams provided completed surveys (response rate = 63.39% for individual members, and 73.27% for teams). Also at Time 3, 24 out of 35 upper-level managers rated their teams' performance outcomes (response rate = 68.57%). Four teams' surveys were discarded because their response rates were lower than the 60% within-team response rate established as the minimum requirement for meaningful aggregation of data to the team level (Timmerman, 2005). Another three teams were dropped because they lacked upper-level managers' ratings. The number of effective triads (team members paired with team leaders and supervising upper-level managers) for which we had complete data across the three time periods was 67. Thus, a total of 67 teams were available for all hypotheses testing, with 321 individual members, 67 team leaders, and 24 upper-level managers. Effective response rates based on the complete data from all 3 times periods were 57.32% for individual members, 66.34% for team leaders, and 68.57% for upper-level managers.

In the team member sample, the percentages for males and females were very close (51% males). The average age for team members was 29 years, most of them (92.8%) had obtained a college level degree or above, and the average tenure with the organization, team, and leader was 3.37, 2.77, and 2.71 years, respectively. The team size ranged from 2 to 11, with a mean of 5. For the team leader sample, most of them (75%) were men, the average age was 39 years, the mean tenure with organization was 9.34 years, and almost all of them (99%) had been educated at the college level or above. Of the upper-level managers, 79% were men.

5.2.2 Measures

Each measure had a response scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) except where otherwise noted. For surveys administrated in Chinese, all of the items underwent a back-translation procedure (Brislin, 1986) in which two-way translations were performed both by a bilingual person with English and Chinese proficiencies and me to ensure equivalency of meaning. Discrepancies were resolved through discussion. To further ensure the accuracy of the translation, the Chinese-version surveys were reviewed by seven Chinese HR professionals and minor modifications were made based on their suggestions.

5.2.2.1 Leader provision of resources. At Time 1, leader provision of resource was assessed by team members using Morgeson and colleagues' (2010) 5-item subscale of their team leadership questionnaire. A sample item is "Our team leader obtains and allocates resources (materials, equipment, people, and services) for the team." ($\alpha = .96$).

5.2.2.2 Servant leadership. At Time 1, servant leadership was evaluated by team members using Liden et al.'s (2008) 28-item scale adapted to the team level. The 28 items assess the seven components of servant leadership: conceptual skills (e.g., "Our team leader can tell if something is going wrong."), empowering (e.g., "Our team leader encourages us to handle

important work decisions on our own.”), helping subordinates grow and succeed (e.g., “Our team leader makes our career development a priority.”), emotional healing (e.g., “Our team leader cares about our personal well-being.”), putting subordinates first (e.g., “Our team leader seems to care more about team members’ success than his/her own.”), behaving ethically (e.g., “Our team leader holds high ethical standards.”), and creating value for the community (e.g., “Our team leader emphasizes the importance of giving back to the community.”). Each subscale consists of 4 items. Given the higher-order CFA reported in Hu and Liden (2011) supported aggregation to a global servant leadership measure, I combined the seven components into an overall measure of servant leadership ($\alpha = .97$).

5.2.2.3 Shared team goal. At Time 1, shared team goal was rated by team members using Carlson and colleagues’ (2007) three-item scale. A sample item is “The members of my team spent time discussing our team’s purpose, goals, and expectations for the project.” ($\alpha = .92$).

5.2.2.4 Team-based HR practice. At Time 1, team-based human resource practice was evaluated by team leaders using Chuang and Liao’s (2010) scale adapted to have a team focus. This scale includes five main categories of HR practices: staffing (5 items, e.g., “Recruitment emphasizes traits and abilities required for providing high quality teamwork.”), training (5 items, e.g., “High quality teamwork is emphasized in training.”), teamwork involvement/participation (5 items, e.g., “Team members are often asked to participate in work-related decisions.”), performance appraisal (5 items, e.g., “Performance appraisals provide team members feedback for teamwork progress.”), and compensation/rewards (7 items, e.g., “Member salaries and rewards are determined by team performance.”). Three items were excluded because they were targeted to customer-oriented work and were misfit with the team context (three items were “Employees have discretion in handling customers’ additional requests”; “Employees have

discretion in settling customer complaints without reporting to a supervisor or other specialists”; and “Performance appraisals are based on multiple sources (self, coworkers, supervisors, customers, etc.)”. Because the focus of the current study is on how the overall team-oriented HR practices relate to the emergence of LTX relationships and previous literature has validated the approach of combining HR domains (e.g., Huselid, 1995; Liao, Toya, Lepak, & Hong, 2009; Shaw, Dineen, Fang, & Vellella, 2009; Takeuchi, Lepak, Wang, & Takeuchi, 2007), I averaged the 27 items to create a single index tapping team-based HR practice ($\alpha = .94$).

5.2.2.5 LTX. At Time 2, a month after Time 1, LTX was rated by team members using the 12-item scale adapted from Liden and Maslyn (1998). As validated in the pilot study, the four dimensions of LTX were distinct, but all fell under a higher order factor (i.e., the construct of LTX). Thus, I used overall LTX as a latent factor and averaged the 12 items to represent the quality of LTX relationships ($\alpha = .94$).

5.2.2.6 LTX variance. Within-team variance in individual members’ LTX scores was used to operationalize LTX variance for each team.

5.2.2.7 Team potency. At Time 2, team potency was evaluated by team members with Kirkman, Rosen, and Tesluk’s (2004) three-item scale. A sample item is “My team can get a lot done when it works hard” ($\alpha = .91$).

5.2.2.8 Team cohesion. At Time 2, team cohesion was measured with a 10-item scale from Carless and De Paola (2000), which includes three aspects of team cohesion: task cohesion (4 items, e.g., “Our team is united in trying to reach its goals for performance.”), social cohesion (4 items, e.g., “Members of our team do not stick together outside of work time (reversed).”), and individual attraction of team (2 items, e.g., “For me this team is one of the most important social groups to which I belong.”). Following Carless and De Paola (2000), I averaged the three

subscales to yield a single composite measure, with a high score indicating a high level of cohesion within the team ($\alpha = .89$).

5.2.2.9 Intrateam trust. At Time 2, intrateam trust was rated by team members using a four-item scale developed by Simons and Peterson (2000). An example item is “We count on each other to fully live up to our word.” ($\alpha = .93$).

5.2.2.10 Team viability. At Time 3, two months after Time 1, team members rated their viability perceptions using a seven-item scale from Barrick et al. (1998). A sample item is “working with my team members is an energizing and uplifting experience.” ($\alpha = .94$).

5.2.2.11 Team performance. At Time 3, upper-level managers were asked to rate their supervising teams’ performance with a modified four-item scale by Liden, Wayne, and Stilwell (1993). A sample item is “rate the overall level of performance that you observe for this team” (1 = unacceptable to 7 = outstanding). ($\alpha = .74$).

5.2.2.12 Team OCB. At Time 3, upper-level managers also evaluated team OCB using Ehrhart’s (2004) five-item helping scale adapted to the team level. An example item is “Team members help out others who have been absent and return to work.” ($\alpha = .92$).

5.2.2.13 Control variables. LMX at the team level was controlled given its theoretical linkage with LTX as described above. LMX is rated by team members in the Time 2 survey using Liden and Maslyn’s (1998) 12-item scale. A sample item is “I do not mind working my hardest for my leader.” ($\alpha = .97$). Country source was another important control variable, as leadership may develop in different ways in different cultural contexts (Yukl, 2002).

Additional controls were organizational membership from the six participating companies and team size (Cohen & Bailey, 1997; Hu & Liden, 2011). However, I found insignificant correlations between the organizational membership variables (i.e., five dummy-

coded variables), team size, and the core variables in the proposed model. One-way ANOVA results also revealed non-significant F-values for all of the dependent variables. To conserve statistical power and reduce the risk of Type I errors, I excluded these control variables from the hypothesis testing (Becker, 2005).

5.2.3 Aggregation for Team-Level Analysis

Because all study constructs are at the team level, I first assessed whether it is appropriate to aggregate these individual-rated variables to the team level of analysis. Following James et al. (1984), I assessed inter-rater agreement by computing $\gamma_{wg(j)}$. The mean $\gamma_{wg(j)}$ of all study variables were all satisfactory: .98 for leader provision of resources, .98 for team servant leadership, .94 for shared team goals, .97 for LTX, .98 for LMX, .95 for team potency, .98 for team cohesion, .96 for intra-team trust, and .97 for team viability. These values all exceeded the acceptable value of .70. I then conducted a set of ANOVA tests and found significant between-group variance for all of these variables. I further obtained the following intra-class correlation (ICC1) and the reliability of group mean (ICC2) values: leader provision of resources, .49 and .82; team servant leadership, .33 and .71; shared team goals, .44 and .79; LTX, .48 and .82; LMX, .36 and .73; team potency, .37 and .74; team cohesion, .30 and .74; intra-team trust, .28 and .65; team viability, .49 and .82. These values are comparable to the mean ICC values of aggregated constructs reported in the existing team literature (e.g., de Jong & Elfring, 2010; Hu & Liden, 2011; Schaubroeck et al., 2011; Wu et al., 2010). Thus, aggregating the responses to the team level was appropriate.

Furthermore, because every upper-level manager rated multiple teams' performance and OCB ($M = 2.79$), there may be a potential lack of independence in these ratings (Bliese, 2002). I calculated ICC1s to assess whether the non-independence bias exists. Supporting independence,

the ICC1s for both team performance and OCB were very small, and not close to reaching statistical significance ($ICC1_{performance} = .08$, $F = 1.42$, $p = .16$; $ICC1_{OCB} = .08$, $F = 1.41$, $p = .16$). Thus, the results were not biased by upper-level managers' rating of multiple teams.

5.2.4 Analysis Strategy

Structural equation modeling (SEM) with latent constructs was used to test all hypotheses except Hypothesis 1. Analyses based on the team-level, aggregated data were conducted with path analysis and Lisrel 8.72 software. Hypotheses 2 to 10 were tested via Model 1; this model was compared with Model 2 in which insignificant paths in Model 1 were removed. I used the same goodness-of-fit indices used in the pilot study to evaluate model fit. Paths between the observed variables and the latent constructs were set to be the square root of the composite reliability index for that variable. Paths between the error terms and the observed variables were fixed at $(1 - \text{reliability}) * \text{the variance of the observed variable}$ (Williams & Hazer, 1986). For the objective measure of country source and the measure of LTX variance, I followed the previous literature (Mathieu, Tannenbaum, & Salas, 1992) to estimate a reliability of .90.

The moderation hypotheses (Hypotheses 11a-c and 12a-c) were tested in Model 3, in which the paths from the interaction product (mean LTX * LTX variance) to the team processes and outcomes were added. A chi-square difference test was conducted to examine the incremental changes in model fit resulting from the inclusion of the interaction product. I calculated a reliability value of .90 for the interaction product of LTX and LTX variance by dividing the product of the reliabilities of each component plus the square of the correlation between the two components (Bohrnstedt & Marwell, 1978). I then used this value to estimate the paths from the observed variables to the latent variables and paths from the error terms to the observed variables via the same formulas for all of the other variables.

6. RESULTS

6.1 Discriminant Validity

Two sets of CFA analyses were performed to verify the discriminant validity of measures rated by individual members. A first set of CFA analyses was conducted to examine the extent to which the nine measures (leader provision of resources, team-based servant leadership, shared team goals, LTX, LMX, team potency, team cohesion, intrateam trust, and team viability) obtained from team members at the three times were statistically distinct. The test was conducted at the individual level because there was a sufficient sample size at the individual level and individual-level CFAs would be more reliable and stable (Kline, 2005) than if theory were tested at the team level. The item parceling method (Bagozzi & Edwards, 1998) was used because the subject-to-item ratio would be too low (4:1) if all 81 original items were used with the sample of 321 individual members, which is far below the ideal ratio of 10:1 and below the acceptable ratio of 5:1 (Bandalos, 2002). For unidimensional constructs (i.e., leader provision of resources, shared team goals, team potency, intrateam trust, and team viability), all of the items were used as indicators of their respective constructs. For multidimensional constructs (i.e., servant leadership, LTX, LMX, and team cohesion), parcels were formed with items from each dimension. That is, there were four parcels of items for servant leadership, three parcels for LTX, three parcels for LMX, and three parcels for team cohesion. The hypothesized nine-factor model fit the data very well ($\chi^2(428) = 438.18, p > .05$, CFI = .98, IFI = .98, RMSEA = .07). The hypothesized model was compared with three alternative models: a three-factor model in which measures collected from the same time were combined together (i.e., leader provision of resources, team-based servant leadership, and shared team goals at Time 1 were combined as the first factor; LTX, LMX, team potency, team cohesion, and intrateam trust at Time 2 were

combined as the second factor; and team viability at Time 3 was the third factor); a two-factor model in which leadership factors (i.e., leader provision of resources, team-based servant leadership, LTX, and LMX) and team process factors (i.e., shared team goals, team potency, team cohesion, intrateam trust, and team viability) were set as two separate factors; and a one-factor model in which all measures were combined together as one factor. As shown in Table III, the results showed that the hypothesized nine-factor model fit the data significantly better than the three-factor model ($\Delta\chi^2(33) = 272.19, p < .001$), the two-factor model ($\Delta\chi^2(35) = 171.55, p < .001$), and the one-factor model ($\Delta\chi^2(36) = 291.28, p < .001$).

 Insert Table III about here

As indicated by Tsui, Nifadkar, and Qu (2007), translation/back-translation (Brislin, 1980) is a necessary but not sufficient method to verify the validity of cross-cultural constructs. Thus, a second set of analyses was set to test the psychometric equivalence of measures collected from China (174 individual members) versus that from U.S. (147 individual members). First, it was found that the hypothesized nine-factor model fit very well to the data from China, ($\chi^2(893) = 909.91, p > .05, CFI = .96, IFI = .96, RMSEA = .07$), and the data from U.S. ($\chi^2(893) = 952.30, p > .05, CFI = .96, IFI = .96, RMSEA = .07$). In addition, the hypothesized model fit the data significantly better than the three alternative models in both the Chinese sample and the U.S. sample. Furthermore, a multi-group CFA was conducted to examine the nine-factor model in which the factor correlations, and factor loadings were set to be equivalent in the U.S. and China data. The results provided support for the model ($\chi^2(870) = 896.51, p > .05, CFI = .97, IFI = .96, RMSEA = .06$). Thus, the evidence showed that the measures captured the same constructs in

China and U.S. and demonstrated the psychometric equivalence of measures between China and U.S.

6.2 Hypothesis Testing

The means, standard deviations, and correlations among all study variables are presented in Table IV. The hypothesized models were tested with control variables (i.e., country source and mean LMX). I first examined an overall model with all hypothesized relationships shown in Figure 1, except for the interaction between LTX and LTX variance on team processes and team outcomes. This model contained direct paths from leader provision of resources, servant leadership, shared team goal, and team-based HR to LTX/LTX variance and from LTX/LTX variance to team processes (i.e., team potency, team cohesion, and intra-team trust) and team outcomes (i.e., team performance, team OCB, and team viability). Also included were paths from team processes to team outcomes. Figure 3 presents the overall proposed model with path estimates.

Insert Table IV and Figure 3 about here

As shown in Table V, results revealed that the overall hypothesized model fit the sample data very well ($\chi^2(42) = 42.43, p > .05, CFI = .98, IFI = .98, RMSEA = .01$). However, there were some nonsignificant paths. Thus, I removed all nonsignificant hypothesized paths and compared this model to the hypothesized model. In the alternative model, the paths from the control variables (i.e., country source and mean LMX) to the team processes and outcomes remained significant. The alternative model also fit the data well ($\chi^2(50) = 43.02, p > .05, CFI = .99, IFI = .99, RMSEA = .01$), however, the chi-square difference between the alternative

model and the hypothesized model was not significant ($\Delta \chi^2 (8) = .59, p > .05$). Thus, I retained the hypothesized model because it is consistent with the theoretical framework.

Insert Table V about here

As shown in Figure 3, three of the four hypothesized antecedents of LTX were significantly and positively related to mean LTX ($\beta = .37, p < .001$ for leader provision of resources; $\beta = .12, p < .001$ for team servant leadership; and $\beta = .59, p < .001$ for shared team goal), providing support for Hypothesis 2a, 3a, and 4a. However, team-based HR practice was not a significant indicator of LTX ($\beta = .06, p > .05$), failing to support Hypothesis 5a. In terms of LTX variance, team servant leadership and team-based HR practice were shown to be significantly and negatively related to LTX variance ($\beta = -.14, p < .001$ and $\beta = -.12, p < .001$, respectively) but leader provision of resources and shared team goal were not significantly related to LTX variance ($\beta = -.02, p > .05$ and $\beta = .02, p > .05$, respectively). Thus, Hypothesis 3b and 5b were supported and Hypothesis 2b and 4b were not supported.

With respect to outcomes of LTX, results revealed that, after controlling for mean LMX, LTX was significantly and positively related to team potency ($\beta = .29, p < .001$), team cohesion ($\beta = .21, p < .001$), and team trust ($\beta = .25, p < .001$), substantiating Hypothesis 6a, 6b, and 6c. The hypothesized positive relationships between LTX and team performance ($\beta = .12, p < .05$, Hypothesis 7a) and team viability ($\beta = .28, p < .01$, Hypothesis 7c) were also supported. However, the relationship between LTX and team OCB was not statistically significant ($\beta = .02, p > .05$), failing to support Hypothesis 7b.

Regarding the mediation processes, results demonstrated that, after including the control variables (country source, mean LMX, LTX variance) and LTX in the model, team potency was positively related to team performance ($\beta = .26, p < .01$) and team viability ($\beta = .41, p < .01$), but was not significantly related to team OCB ($\beta = .20, p > .05$). Therefore, the mediating role of team potency in the relationships between LTX and team performance (Hypothesis 8a) and team viability (Hypothesis 8c) was supported, but the mediation in the relationship between LTX and team OCB (Hypothesis 8b) was not supported. The path estimates also supported the mediating role of team cohesion and intra-team trust in the relationship between LTX and team performance ($\beta = .26, p < .01$; $\beta = .26, p < .01$, respectively), substantiating Hypothesis 9a and 10a. However, the paths between team cohesion and intra-team trust and the other two team outcomes (i.e., team OCB and team viability) were not statistically significant, thereby failing to support Hypothesis 9b, 9c, 10b, and 10c.

Furthermore, to provide clearer examination of the indirect effects of LTX on team outcomes through team processes, I tested the statistical significance of the indirect effects using MacKinnon, Fritz, Williams, and Lockwood (2007)'s PRODCLIN program. The choice of the PRODCLIN program was based on the consideration that it estimates asymmetric confidence intervals (CI) for the indirect effect, provides a good balance of small Type I error and high statistical power, and hence offers more accurate estimation of the indirect models than the traditional Sobel test (MacKinnon et al., 2007). In support of Hypothesis 8a and 8c, LTX exhibited statistically significant indirect effects on both team performance and team viability through team potency. Specifically, the 95% CI of the indirect effect for team performance as the outcome was [.26, 1.59], not containing zero; and for team viability as the outcome was [.16, .98], not containing zero. In support of Hypothesis 9a, the indirect effect of LTX on team

performance through team cohesion was significant ([.18, 1.30], excluding zero). Finally, the indirect effect of LTX on team performance through intrateam trust described in Hypothesis 10a was further supported as the 95% CI did not contain zero [.06, 1.15].

It should be noted that although mean LMX was determined by three antecedents (leader resource provision: $\beta = .33, p < .001$; servant leadership: $\beta = .12, p < .001$; and shared team goals: $\beta = .27, p < .001$), mean LMX was not significantly related to any of these team processes (team potency: $\beta = -.16, p > .05$; team cohesion: $\beta = .10, p > .05$; and intrateam trust: $\beta = .10, p > .05$) and team outcomes rated by upper-level managers (team performance: $\beta = .11, p > .05$; and team OCB: $\beta = .07, p > .05$). Team-level mean LMX appeared to be significantly related to team processes and team outcomes in a zero-order sense, but it did not have meaningful relationships with these team-related processes and outcomes when considered along with LTX.

To examine the interactive effect of LTX and LTX variance on team processes (Hypothesis 11a-c) and team outcomes (Hypothesis 12a-c), I added the paths between the product term of LTX and LTX variance and the corresponding outcomes to the hypothesized model (Model 1). As shown in Table V, although Model 3 produced acceptable fit to the data ($\chi^2(36) = 39.66, p > .05$, CFI = .96, IFI = .97, RMSEA = .04), the chi-square difference test indicated that Model 3 was not significantly better than Model 1 ($\Delta \chi^2(6) = 2.77, p > .05$). Indeed, the LTX by LTX variance interaction term was not significantly related to any of the team processes or team outcome variables ($\beta = -.05, p > .05$ for team potency as the outcome; $\beta = -.04, p > .05$ for team cohesion; $\beta = -.07, p > .05$ for intrateam trust; $\beta = -.12, p > .05$ for team performance; $\beta = -.00, p > .05$ for team OCB; and $\beta = -.14, p > .05$ for team viability). Therefore, Hypotheses 11a-c and Hypotheses 12a-c were not supported.

In sum, it was found that leader provision of resources, team servant leadership, and shared team goal were positively related to the quality of LTX relationship, providing support for Hypotheses 2a, 3a, and 4a. Further, it was found that team servant leadership and team-based HR practice were negatively related to LTX variance within the team, supporting Hypotheses 3b and 5b. Hypotheses 8a and 8c were supported, suggesting that team potency mediates the relationships between the quality of LTX relationship and team performance (Hypothesis 8a) and team viability (Hypothesis 8c). Hypotheses 9a and 10a were also supported, which indicates that team cohesion (Hypothesis 9a) and intrateam trust (Hypothesis 10a) mediate the relationship between the quality of LTX relationship and team performance. However, LTX variance did not moderate the relationships between LTX quality and the team processes and outcomes.

7. DISCUSSION

The pervasiveness of work teams and powerful role of leadership make it critical for both researchers and practitioners to understand the integration and interactions between leaders and teams (Morgeson et al., 2010; Zaccaro et al., 2009). The present research was an attempt to integrate existing literatures on leadership and teams by taking social exchange theory (Blau, 1964) as the theoretical lens and proposing the construct of LTX to capture the relationship between the leader and the team as a whole. Specifically, the current study sought to answer four specific research questions pertaining to the leader-team interactions. First, it uncovered what composes a LTX relationship. Second, it provided cues as to the determinants of the LTX relationship by considering factors from both leaders' and teams' perspectives. Third, it answered why LTX is important by endorsing its impact on team processes and effectiveness. Fourth, it offered evidence on whether the LTX relationship and its correlates can generalize across different cultural settings. The findings from a cross-sectional study in China and a

longitudinal study in both U.S. and China provided support to the psychometric properties of the LTX measure and the proposed model regarding the antecedents and consequences of LTX.

7.1 Theoretical Contribution

A major contribution of the current study is that it advances our knowledge of the interaction between leaders and teams by theorizing and demonstrating the validity of the LTX construct. Despite an abundance of research on leadership at the individual or dyadic level of analysis, remarkably little research has been done on the interactions between the leader and the team (Zaccaro et al., 2009). Given the fact that teams are ubiquitous and the evidence that leaders are influential for team functioning (Burke et al., 2006; Morgeson et al., 2010), the omission of leader-team interactions is critical. The current study is among the first to examine the interactions between leaders and teams through the lens of the LTX relationship, which captures a team-level social exchange relationship between the leader and the team as a whole. The current study also extends the previous literature on social exchange, in which investigations have primarily focused on the social exchange process between two individuals, ignoring that it may also happen at the collective level (Ferris et al., 2009). A team-level LTX relationship forms when the leader treats the team with a similar pattern of leadership behaviors in order to guide them toward accomplishing the common goals, and the team reacts to the leader's treatment as a collective. High-quality LTX relationships are characterized by mutual affect, professional respect, loyalty, and willingness to make extra contribution to each other whereas low LTX relationships are limited to the exchanges described in the formal job description. The pilot study confirmed the multidimensionality of the LTX construct. The findings suggested that LTX is related to, but distinct from other related constructs, such as LMX, team-based transformational leadership, and supervisory identification. Also important to note is that the primary study

revealed that the effects of LMX on team processes and effectiveness were not significant when considered along with LTX in the model. The findings demonstrated the uniqueness of LTX in explaining team-level phenomena. Thus, results from the current study provide empirical responses to the recent calls from Zaccaro et al. (2009) and Morgeson et al. (2010) for more research on the leader-team interactions and the distinction from leader-member interactions in the team contexts.

A second novel contribution is that the study provides a rich portrait of factors that contribute to the formation of LTX relationships. While previous theoretical framework primarily focus on how the leader-team dynamic impacts on team functioning (Zaccaro et al., 2001, 2008, 2009), the present study offers a compelling extension to the literature in that it discovers what influences LTX relationships. It was found in the three-phased primary study that both leadership behaviors (i.e., leader provision of resources and servant leadership) and team factors (i.e., shared team goals) were important antecedents of the LTX relationship. That is, high-quality LTX relationships are more likely to occur when leaders provide sufficient task-related (through leader provision of resources behaviors) and socio-economical resources (through servant leadership behaviors) and when team members have a shared understanding of their common objectives and omissions. Although within the team contexts full of interactions and common events, individual members tend to have a high degree of agreement regarding their LTX relationships, it does not deny the possibility that individual members may see LTX differently and have certain degree of LTX variance. The findings further demonstrated that servant leadership and team-based HR practices were related to lower level of LTX variance within the team. That is, teams with servant leaders and team-oriented HR practices are more likely to have low variance in members' LTX perceptions. It is interesting to note that team-

based HR was negatively related to the LTX variance but was not significantly related to the shared LTX relationship. It seems that team-based HR practice is a “hygiene factor” (Herzberg, Mausner, & Snyderman, 1959) for the LTX relationship in that the lack of team-based HR practices results in the divergence of LTX perceptions among individual members within the team, but having team-based HR does not help facilitate a high-quality LTX relationship. This is consistent with Bowen and Ostroff’s (2004) argument that a set of common and consistent HR practices (e.g., team-based HR) affects the *strength* of the climate within the team and fosters a shared perception among members regarding their leaders (e.g., low LTX variance). The reason for the lack of support in the relationship between team-based HR practice and LTX quality may be that individual members may not necessarily attribute the team-based HR practices to the efforts of their leaders and thus may not respond to their leaders in positive ways. Future research is encouraged to further detect the relationship between team-based HR policies and the quality of LTX relationships.

A third and perhaps more important contribution of the current study is that it endorsed the positive connections between LTX and team processes and team effectiveness. The results from the current study revealed that with LMX at the team level controlled, LTX exhibited significantly positive relationships with all of the hypothesized team processes (i.e., team potency, team cohesion, and intrateam trust) and outcomes (i.e., team performance, OCB, and viability). That is, the LTX relationship, instead of the LMX relationship, is particularly germane to the extent to which team members believe in, commit to, and rely on each other, and the degree to which they are able to perform better, contribute more, and stay longer in the team. Furthermore, it was revealed that the relationship between LTX and team performance was mediated by the three motivational states: team potency, team cohesion, and intra-team trust. It

was also found that the link between LTX and team viability perceptions was mediated by team potency. These findings also add value to team motivation theory (Chen & Kanfer, 2006) and the growing yet limited literature on team motivation (e.g., Chen, Kirkman, Kanfer, Allen, & Rosen, 2007; Chen, Sharma, Edinger, Shapiro, & Farh, 2011; Hu & Liden, 2011; Schaubroeck et al., 2007, 2011).

Some nonsignificant findings of this study are thought-provoking. For example, none of the team motivational processes mediated the relationship between LTX and team OCB. Given that all of the mediation processes were simultaneously tested in the same structural model, the results reflect the extent to which a mediating mechanism is supported when considered along with other mediation processes. Keeping this in mind, it is possible that within teams full of cooperation and coordination, there is a fine line between whether helping coworkers and making suggestions to the team are considered formal team performance or extra-role behaviors (Rich, Lepine, & Crawford, 2010). Thus, it is likely that enhanced team motivational states resulting from high-quality LTX relationships may contribute to excellent team performance that involves both task accomplishment and OCB behaviors. It may be interesting for future studies to detect whether helping behaviors are considered a form of team cooperation within the team and whether members' OCB behaviors motivated by LTX relationships help enhance team task performance.

Furthermore, contrary to hypotheses, LTX variance did not alter the relationships between the quality of LTX relationship and team processes and outcomes. That is, LTX quality was positively related to teamwork and team effectiveness regardless of the level of LTX variance within the team. Like the coexistence of climate and climate strength (Schneider et al., 2002), LTX quality and LTX variance together capture the construct of LTX. However, it is

important to consider that because the formation of LTX relationships requires a high level of agreement among team members regarding their relationship with the leader, the variance of LTX should not be very high. Indeed, among the teams from the current study, the LTX variance ranges from the low to moderate levels (Minimum = .01, Maximum = .97 among the 60 teams in the pilot study; Minimum = .22, Maximum = .98 among the 67 teams in the primary study). Thus, differences in LTX variance may not be sufficient to affect the relationship between LTX quality and team processes and outcomes.

A final addition of the current study to the literature on leadership and teams is the examination of LTX and its team-level antecedents and consequences in both a Western (i.e., U.S.) and an Eastern (i.e., China) cultural setting. Given that most leadership and team research of the past decades were conducted in Western societies (Dickson, Den Hartog, & Mitchelson, 2003; Gelfand, Erez, & Aycan, 2007), it is meaningful to explore whether theories developed in the West can be generalized to other cultural settings (Tsui et al., 2007). In response to repeated calls for more cross-cultural research on leadership and teams (e.g., Chen et al., 2011; Hartog & Dickson, 2012; Tsui et al., 2007), the current study using teams from both U.S. and China demonstrated the generalizability of the LTX construct and more broadly team leadership theory, at least across these two settings.

7.2 Practical Contribution

The results of the current study have substantial implications for leadership and team management in organizations. Teams are prevalent in today's organizations and managers and organizations expect teamwork to create synergistic gains (Hackman & Walton, 1986). In the meantime, it has been long recognized that the downside of work teams such as social loafing and free riding problems may stymie the organization's functioning and long-term effectiveness

(Larson, 2010). Thus, managing teamwork well and maintaining good relationships with team members is vital for a team-based organization's success. The current study found that the quality of LTX relationships is an important factor for creating a confident, cohesive, and trusting climate within the team and building superior team performance outcomes. Therefore, it pays for organizations and leaders to cultivate high-quality LTX relationships with their teams.

The current study also provides specific recommendations for leaders to improve the quality of LTX relationships. First, team leaders need to convey their loyalty, trust, respect, and contribution to their team as a whole. This may not only be shown when they interact with the team in their daily work, but also be demonstrated when facing people from the outside. For example, LTX relationships may develop when leaders defend their teams' actions in front of the superiors or when leaders advocate the team to other members in the organization. From a social exchange perspective, leaders' beneficial behaviors toward the team in turn motivate the team members to reciprocate in equally positive ways.

Second, it was found that two types of leadership styles (i.e., leader provision of resources and servant leadership) are beneficial for leaders to facilitate high-quality LTX relationships. Thus, leadership training programs are recommended to develop leaders' behaviors, such as providing team members with sufficient material, financial, and personnel resources to aid team progress, putting team first, concerning team members' career growth and personal well-being, being role models of ethical behaviors, and so on. Other related practices, such as open discussion with team leaders and managers about what specific behaviors that leader provision of resources and servant leadership entail, and feedback channels to welcome individual members' suggestions on leadership behaviors, may also help leaders to develop provision of resources and servant leadership behaviors.

Third, the supported associations between shared team goals and LTX and between team-based HR and LTX variance suggest that management should take efforts in areas, such as facilitating discussions and communications among team members about the team's objectives and omissions, selecting, training, and developing good team players, and rewarding team-based performance.

7.3 Strengths and Limitations

A few methodological strengths increase confidence in the results. First, acquiring information from three distinct sources (i.e., team members, leaders, and upper-level managers) across three different time points with a time lag of three months reduced the common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Second, the sample in the primary study consisted of teams from diverse industries (e.g., construction, law, high technology, and trading). The compatibility across industries is a strength, because it rules out potential extraneous and confounding effects due to different industry-level policies, practices, strategies, and so on. Thus, the findings using data from different industries and cultural settings demonstrated the generalizability of the results. Third, using SEM path analysis and controlling for LMX at the team level adequately showed the unique contribution that LTX made to the team processes and outcomes.

The findings should also be considered in light of a few limitations. First, although I conducted a three-phase data collection with LTX and its antecedents and consequences measured at different stages, the data may still be susceptible to common method bias as LTX and team motivational states were measured at the same time. Second, although team performance and team OCB were rated by upper-level managers, rather than by team leaders, to avoid potential social desirability bias, it would be more favorable to replicate the study with

objective team performance measures. Third, given that frequent interactions are seen as a necessary condition for forming LTX relationships, the focus of the study is on traditional teams, in which team members are working interdependently toward the common goals under the supervision of their leaders (Hackman, 2002). Thus, generalizability of the results to other types of work teams, such as project teams, parallel teams, and virtual teams (Cohen & Bailey, 1997; Hollenbeck, Beersma, & Schouten, 2012), may need to be considered with caution. Future research is encouraged to test whether the LTX relationship contains the same elements and works the same for teams in other types as it does in traditional teams.

7.4 Future Research Direction

The findings from the current study also points to several intriguing areas for future research. First, although the focus of the current study is on the behavioral sides of the leadership (i.e., leader provision of resources and team servant leadership) as determinants of LTX relationships, it does not preclude the possibility that there may be leadership or team member traits that could relate to the quality of LTX relationship and the variance of LTX within the team. For example, it is likely that leaders high on openness to experience are more willing to listen and absorb feedback from the team members, which in turn helps form a good-quality LTX relationship. Further, different combinations of the leader's and team members' traits may result in different ways that leader and team interact with each other and hence affect their LTX relationship. As Grant, Gino, and Hofmann (2011) found, introverted leaders are beneficial for teams with proactive members. Thus, it would be promising avenue for future research to explore the potential impact of leaders' and team members' personality traits or other individual differences on the formation of LTX relationships.

Second, in addition to the team motivational processes investigated in the current study, it would be a worthwhile direction for the future to search for other team processes (e.g., team coordination process, cognitive process, and affective process) as linking mechanisms between LTX and team effectiveness. For instance, leaders having a close relationship with their teams are likely to influence the emotional content of their teams and shape the team's affective climate (Zaccaro et al., 2001). Furthermore, although the primary study involved three data collection points across three months, it would be interesting to explore the role of LTX on team effectiveness in a longer period. Because the focus here is on traditional teams that will not disband after a short period of time, it is likely that these traditional teams need longer time to accomplish their team goals. Given that it is common for organizations to conduct semi-annual or annual evaluations on the team performance, future research may investigate how LTX relationship impacts the team's longer performance (e.g., six months or a year later) and whether it affects team members' subsequent turnover.

Third, because the conceptual arguments used to derive the theory and hypotheses were not culturally bounded, the current study proposed and demonstrated that the study constructs and findings are compatible between U.S. and China. However, it is possible that cultural differences may alter the hypothesized relationships between LTX and team outcomes. For example, it is likely for the power distance (i.e., the extent to which people regard unequal status as legitimate, Hofstede, 1980) dimension of national culture to impact the way individual members interact with their leaders and their LTX relationships. People from countries with greater power distance, such as China, Mexico, and Philippines, may be reluctant to engage in frequent interactions with their leader and hence may be less likely to develop close relationships with their leaders than people in countries with lower power distance like Finland, Israel, and

U.S. Because the current study only involved two societal settings, it is unlikely to examine the cultural influence at the societal level. Future research conducted in a greater array of cultural contexts is encouraged to detect the role of cultural values in the link between LTX and team outcomes.

Furthermore, although cultural values have mostly studied at a societal level, they can also be operationalized as individual-level differences (e.g., Earley & Erez, 1997; Jackson, Colquitt, Wesson, & Zapata-Phelan, 2006; Kirkman, Chen, Farh, Chen, & Lowe, 2009) or team-level norms (Colquitt, Noe, & Jackson, 2002; Levine & Moreland, 1991; Schaubroeck et al., 2007). These cultural values at lower levels of analysis (e.g., individual or team levels) are likely to affect team members' perceptions and attributions of their leaders' behaviors and further impact the way they respond to their leaders. Thus, a promising next step to take is to explore the individual cultural orientation or team cultural norms as the boundary conditions of the impact of LTX on team functioning.

7.5 Conclusion

In conclusion, the current study integrates and extends the theories of leadership and teams, and proposes and demonstrates the LTX construct and its antecedents and consequences. The results suggest that LTX is a multidimensional construct and is shaped by factors from both the leader's and the team's sides. Furthermore, it was found that at the team level, LTX makes a unique contribution beyond LMX in explaining team processes and team effectiveness. I hope the current study encourages more researchers and practitioners to utilize LTX relationships to better understand the integration between leaders and teams.

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Table IMEANS, STANDARD DEVIATIONS, AND CORRELATIONS AMONG VARIABLES IN PILOT STUDY^a

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1 Subordinate sex	1.45	0.45	--										
2 Subordinate age	29.32	7.86	-.16*	--									
3 Subordinate education	2.53	0.64	.11	-.12	--								
4 Mean organizational tenure	5.19	6.64	-.12	.76**	.10	--							
5 Mean team tenure	4.21	5.00	-.21*	.55***	.02	.75***	--						
6 Mean dyadic tenure	3.45	4.45	-.27**	.42**	.05	.69***	.89***	--					
7 LTX	5.31	0.99	-.25**	-.05	.15*	-.05	.03	.15	.92				
8 LMX	5.47	0.99	-.27**	-.06	.21**	.00	.04	.11	.76***	.93			
9 Team transformational leadership	5.73	0.83	-.13*	-.14*	.14*	-.10	-.03	.05	.76***	.72***	.95		
10 Leadership identification	5.57	0.97	-.21**	-.04	.19**	-.05	-.10	-.03	.72***	.70***	.68***	.86	
11 Task interdependence	5.07	0.84	-.11	-.11	.12	-.15	-.09	.05	.66***	.63***	.73***	.56***	.78

^a *N*=60. For subordinate sex, 1= male, 2=female. Cronbach's alpha reliabilities are reported in italic along the diagonal.

p* < .05. ** *p* < .01. * *p* < .001.

Table II
RESULTS OF CONFIRMATORY FACTOR ANALYSIS IN PILOT STUDY ^a

Model	Description	χ^2	<i>df</i>	$\Delta\chi^2 (\Delta df)$	CFI	IFI	RMSEA
Model 1: two factors ^b	LTX and LMX as two factors	415.23	243	36.85(1)***	.98	.98	.07
Model 2: one factor	LTX and LMX as one factor	452.08	244		.93	.93	.12
Model 3: two factors ^c	LTX and team-based transformational leadership as two factors	469.53	291	132.23(1)***	.97	.97	.07
Model 4: one factor	LTX and team-based transformational leadership as one factor	501.76	292		.94	.94	.10
Model 5: two factors ^d	LTX and leadership identification as two factors	268.41	98	7.59(1)**	.98	.98	.07
Model 6: one factor	LTX and leadership identification as one factor	276	99		.96	.96	.08

^a $N = 285$.

^b Model 1 was compared to Model 2.

^c Model 3 was compared to Model 4.

^d Model 5 was compared to Model 6.

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

Table III**CONFIRMATORY FACTOR ANALYSIS RESULTS IN THE PRIMARY STUDY^a**

Model	Description	χ^2	df	$\Delta\chi^2$	Δdf	CFI	IFI	RMSEA
Model 1	Nine-factor model ^b	438.18	428			0.98	0.98	0.07
Model 2	Three-factor model ^c	710.37	461	272.19***	33	0.92	0.92	0.21
Model 3	Two-factor model ^d	609.73	463	171.55***	35	0.92	0.92	0.19
Model 4	One-factor model ^e	829.46	464	391.28***	36	0.91	0.91	0.23

^a $N = 321$. Model 2 to 4 were compared with Model 1.

^b All study variables were treated as independent factors.

^c Variables collected at the same time point were combined as one factor.

^d Leadership-related variables (i.e., leader provision of resources, team-based servant leadership, LTX, and LMX) and team-related variables (i.e., shared team goals, team potency, team cohesion, intrateam trust, and team viability) were set as two separate factors.

^e All variables were combined as one factor.

*** $p < .001$.

Table IVMEANS, STANDARD DEVIATIONS, AND CORRELATIONS AMONG VARIABLES IN PRIMARY STUDY ^a

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1 Country source	1.49	.50	--									
2 Organization 1	.15	.36	-.41***	--								
3 Organization 2	.18	.39	-.46***	-.20	--							
4 Organization 3	.18	.39	-.46***	-.20	-.22	--						
5 Organization 4	.12	.33	.37**	-.15	-.17	-.17	--					
6 Organization 5	.13	.34	.40***	-.16	-.18	-.18	-.15	--				
7 Organization 6	.24	.43	.57***	-.23	-.26*	-.26*	-.21	-.22	--			
8 Team size	4.79	2.09	-.16	-.06	.10	.16	.08	-.15	-.13	--		
9 Provision of resource (T1)	5.35	1.04	-.38***	.19	.09	.21	-.08	-.17	.16	.21	.96	
10 Servant leadership (T1)	5.05	.78	-.28*	.17	.04	.16	-.04	-.23	.06	.11	.68***	.97
11 Shared team goal (T1)	5.07	1.05	-.21	.09	.06	.14	.00	-.23	.11	.19	.65***	.67***
12 Team-based HR (T1)	5.32	.85	-.04	.16	.07	-.17	.14	-.02	-.13	-.05	.29*	.39***
13 LTX (T2)	5.40	.82	-.32**	.23	.07	.14	-.10	-.23	.08	.21	.71***	.70***
14 LTX variance (T2)	.60	.38	-.16	-.18	.12	.23	.22	-.21	-.18	.07	-.12	-.19
15 Mean LMX (T2)	4.66	.77	-.19	.06	-.03	.23	-.02	-.23	.08	.19	.66***	.60***
16 Team potency (T2)	5.67	.81	-.11	.12	-.04	.07	.14	-.23	.00	.21	.64***	.64***
17 Team cohesion (T2)	4.87	.66	-.20	.00	.12	.14	-.04	-.21	.08	.11	.66***	.68***
18 Intrateam trust (T2)	5.52	.72	.00	.04	-.04	.00	.11	-.07	-.03	.09	.54***	.52***
19 Team performance (T3)	5.30	.95	.40***	.02	-.23	-.21	.23	.07	.16	-.14	.16	.18
20 Team OCB (T3)	5.85	.78	.08	.05	.05	-.20	.23	-.02	-.08	-.12	.28*	.31**
21 Team viability (T3)	5.26	.97	-.35***	.17	.10	.20	.03	-.21	.07	.16	.72***	.62***

^a N=67. Cronbach's alpha reliabilities are reported in italic along the diagonal.

Organization1 to 6 were dummy-coded variables with 0 as not belonging to the organization and 1 as belonging to the organization.

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

Table IV (continued)

MEANS, STANDARD DEVIATIONS, AND CORRELATIONS AMONG VARIABLES IN PRIMARY STUDY ^a

Variable	11	12	13	14	15	16	17	18	19	20	21
1 Country source											
2 Organization 1											
3 Organization 2											
4 Organization 3											
5 Organization 4											
6 Organization 5											
7 Organization 6											
8 Team size											
9 Provision of resource (T1)											
10 Servant leadership (T1)	<i>.97</i>										
11 Shared team goal (T1)	<i>.92</i>										
12 Team-based HR (T1)	<i>.36**</i>	<i>.94</i>									
13 LTX (T2)	<i>.62***</i>	<i>.36**</i>	<i>.95</i>								
14 LTX variance (T2)	<i>-.13</i>	<i>-.38***</i>	<i>-.21</i>	<i>--</i>							
15 Mean LMX (T2)	<i>.52***</i>	<i>.39***</i>	<i>.58***</i>	<i>-.21</i>	<i>.97</i>						
16 Team potency (T2)	<i>.74***</i>	<i>.44***</i>	<i>.52***</i>	<i>-.28*</i>	<i>.58***</i>	<i>.91</i>					
17 Team cohesion (T2)	<i>.77***</i>	<i>.37**</i>	<i>.54***</i>	<i>-.13</i>	<i>.55***</i>	<i>.59***</i>	<i>.89</i>				
18 Intrateam trust (T2)	<i>.50***</i>	<i>.45***</i>	<i>.48***</i>	<i>-.33**</i>	<i>.44***</i>	<i>.65***</i>	<i>.62***</i>	<i>.93</i>			
19 Team performance (T3)	<i>.25*</i>	<i>.62***</i>	<i>.20</i>	<i>-.20</i>	<i>.31**</i>	<i>.38***</i>	<i>.18</i>	<i>.35**</i>	<i>.74</i>		
20 Team OCB (T3)	<i>.31**</i>	<i>.78***</i>	<i>.35**</i>	<i>-.25*</i>	<i>.39***</i>	<i>.50***</i>	<i>.37**</i>	<i>.48***</i>	<i>.69***</i>	<i>.92</i>	
21 Team viability (T3)	<i>.62***</i>	<i>.28*</i>	<i>.64**</i>	<i>-.01</i>	<i>.55***</i>	<i>.67***</i>	<i>.61***</i>	<i>.62***</i>	<i>.23</i>	<i>.32**</i>	<i>.94</i>

^a *N*=67. Cronbach's alpha reliabilities are reported in italic along the diagonal.

p* < .05. *p* < .01. ****p* < .001.

Table V
STRUCTURAL MODEL RESULTS IN PRIMARY STUDY ^a

Model	Description	χ^2	df	$\Delta\chi^2$	Δdf	CFI	IFI	RMSEA
Model 1	Hypothesized model excluding interactions	42.43	42			0.98	0.98	0.01
Model 2	Model 1 excluding insignificant paths and interactions	43.02	50	0.59	8	0.99	0.99	0.01
Model 3	Model 1 with the interactions added	39.66	36	2.77	6	0.97	0.97	0.04

^a $N=67$. Model 2 and 3 were compared with Model 1. CFI=comparative fit index; IFI=incremental fit index; RMSEA=root-mean-square error of approximation.

** $p < .01$.

*** $p < .001$.

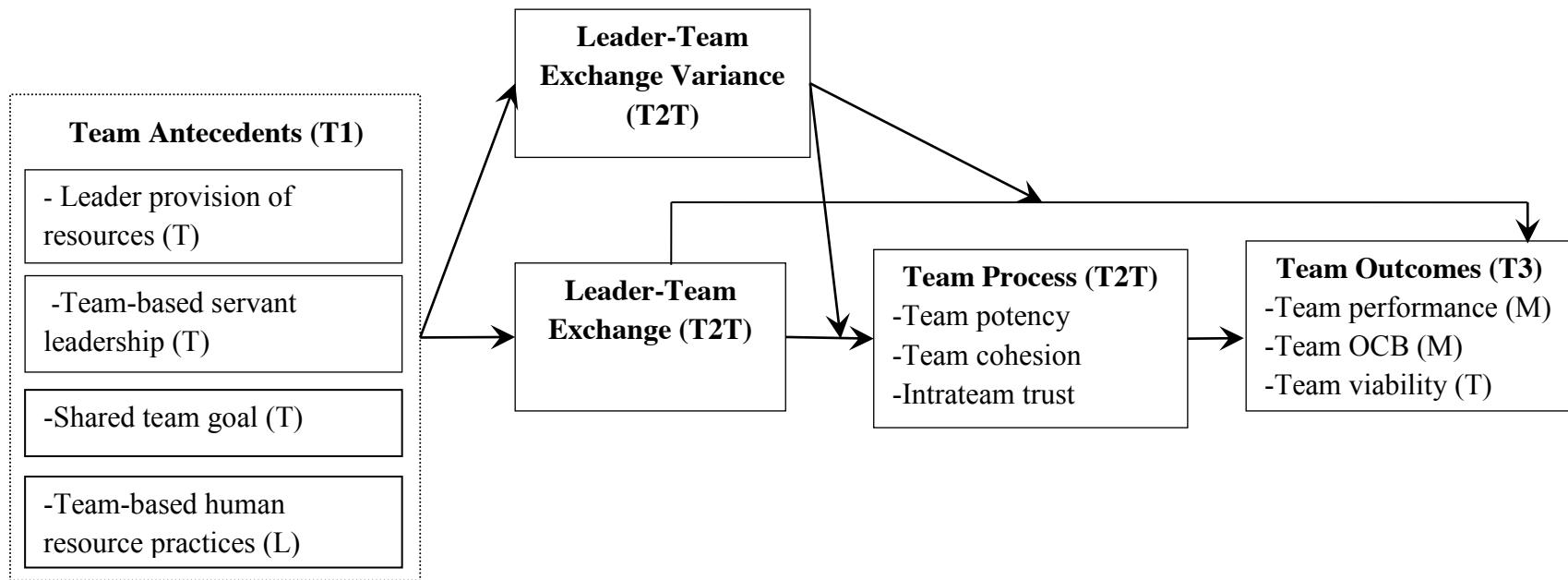


Figure 1. Proposed model of the antecedents and consequences of leader-team exchange^a

^a T1= data collected at Time 1, T2 = data collected at Time 2, a month after Time 1, T3 = data collected at Time 3, two months after Time 1. T = data rated by team members, L = data rated by team leaders, M = data rated by upper-level managers.

Country source and mean LMX were controlled.

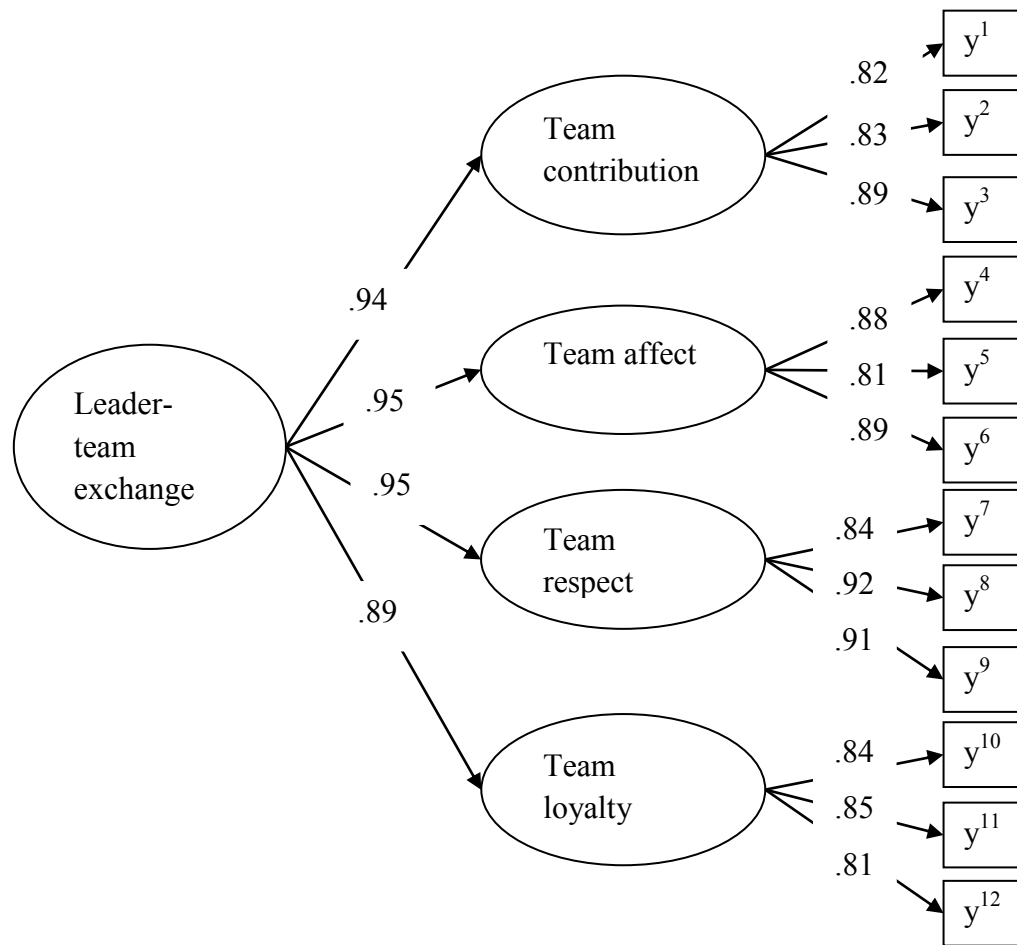


Figure 2. Results of higher-order confirmatory factor analysis results for leader-team exchange^a

^a $\chi^2(50) = 67.03, p > .05$, comparative fit index (CFI) = .99, incremental fit index (IFI) = .99, root-mean-square error of approximation (RMSEA) = .06. ys represents items reflecting first-order factors; the numbers between the first-order factors and the items represent factor loadings for the items.

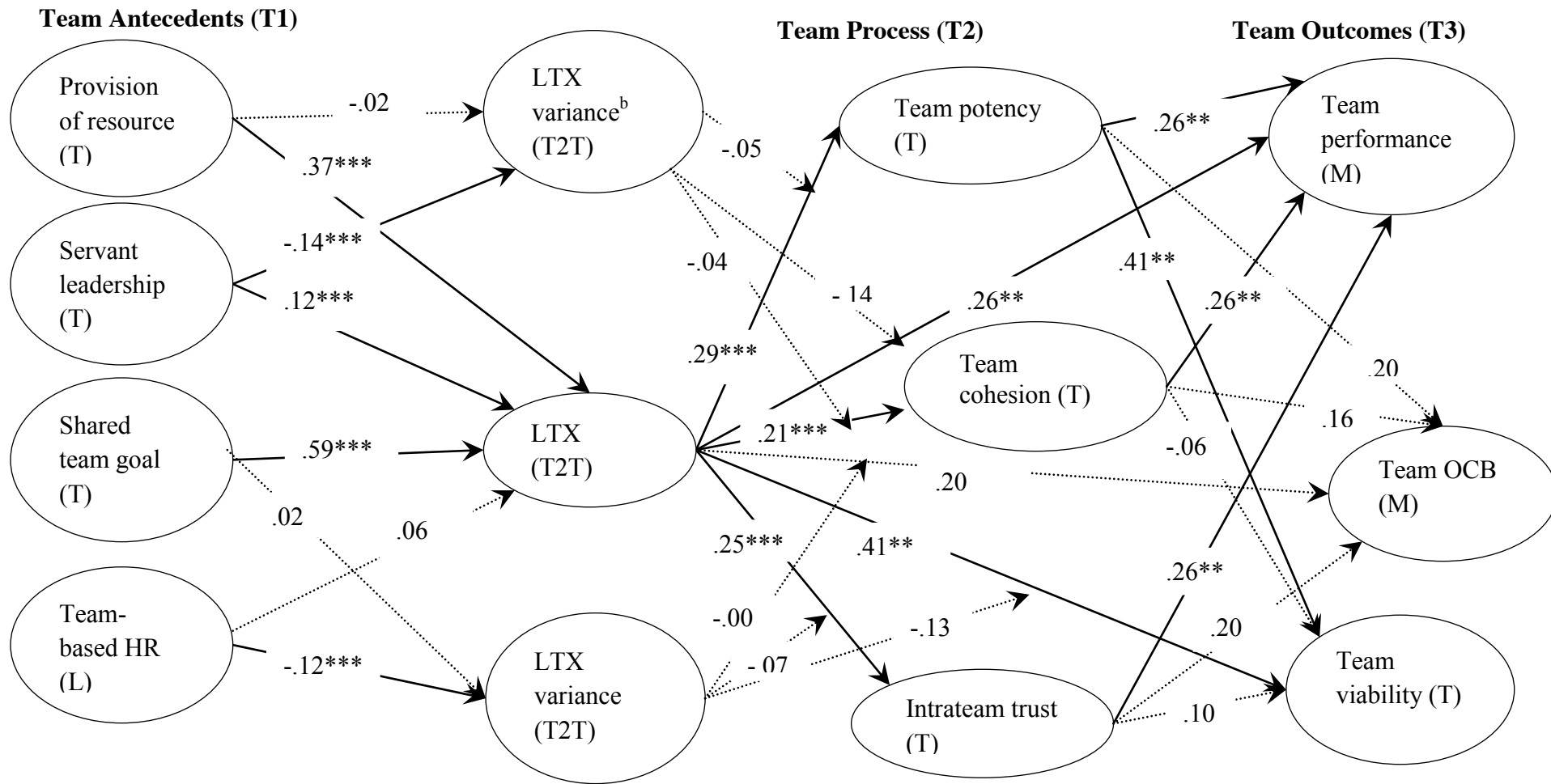


Figure 3. Results of the SEM model with latent constructs ^{a,b}

^a $N = 67$. Standardized path coefficients were presented. For the sake of simplicity, the paths between the control variables (country source and the mean LMX) and the indicators of the study constructs were not shown in this path diagram.

^b The two circles for LTX variance were the same and LTX variance was located at two places to better illustrate its correlations with the study variables and enhance the ease of readability.

The solid lines were paths with significant estimates and the dashed lines were paths with insignificant estimates.

VITA

JIA HU

Department of Managerial Studies
University of Illinois at Chicago
601 South Morgan Street, Chicago, IL, 60607
Phone: 312-996-8285
E-mail: jhu9@uic.edu

EDUCATION

Ph.D. University of Illinois at Chicago Expected May 2012
Major: Organizational Behavior/Human Resources

Dissertation Title: A Team-Level Social Exchange Model: The Antecedents and Consequences of Leader-Team Exchange

Committee Chair: Robert C. Liden

Committee: Sandy J. Wayne, Frederick P. Morgeson,
James R. Larson, Jr., Jenny M. Hoobler.

- Dissertation defended and approved on April 2, 2012
- Recipient of the SIOP foundation graduate student scholarship
- Recipient of the first prize of 2011 IACMR/Li Ning dissertation grant award

M.A. Renmin University of China, Beijing, China 2007
Major: Human Resource Management

B.A. Central University of Finances and Economics, Beijing, China 2005
Major: Human Resource Management

ACADEMIC HONORS AND AWARDS (since 2007)

2012 *SIOP Foundation Graduate Student Scholarship*, SIOP
2011 *First Prize Winner of IACMR/Li Ning Dissertation Award*, IACMR
2011 *Outstanding Research Award for Doctoral Students*, University of Illinois at Chicago
2011 *ASAE Foundation Award*, Institute for Nonprofits, North Carolina State University
2010 *Greenleaf Scholar*, Greenleaf Center for Servant Leadership
2007-2011 *Liautaud Scholarship for Doctoral Studies*, University of Illinois at Chicago

JOURNAL PUBLICATIONS

Jiang, K., Lepak, D. P., **Hu, J.**, & Baer, J. (in press). How does human resource management influence organizational outcomes? A meta-analytic investigation of the mediating mechanism. *Academy of Management Journal*.

Hu, J., & Liden, R. C. (2011). Antecedents of team potency and team effectiveness: An examination of goal and process clarity and servant leadership. *Journal of Applied Psychology*, 96, 851-862.

Hoobler, J., **Hu, J., & Wilson, M.** (2010). Work-family conflict and career outcomes: A meta-analysis review. *Journal of Vocational Behavior*, 77, 481-494.

CONFERENCE PROCEEDING

Hu, J., Wang, Z., Liden, R. C., & Sun, J. (2011). Leader core self-evaluation and transformational leadership. *Best Paper Proceedings of the Academy of Management Meeting*.

BOOK CHAPTERS

Anand, S., **Hu, J.,** Liden, R.C., & Vidhyarthi, P.R. (2011). Leader-member exchange: Recent research findings and prospects for the future. In A. Bryman, D. Collinson, K. Grint, B. Jackson, & M. Uhl-Bien (Eds.), *The Sage Handbook of Leadership* (pp.309-323), Thousand Oaks, CA: Sage.

Liden, R. C., Panaccio, A., Meuser, J. D., **Hu, J.,** & Wayne, S. J. (2012). Servant leadership. To appear in D. V. David (Ed.), *Oxford Handbook of Leadership and Organizations*. Oxford: Oxford University Press.

Lepak, D. P., Jiang, K., Han, K., Castellano, W. & **Hu, J.,** (2012). Strategic HRM moving forward: What can we learn from micro perspectives? To appear in G. Hodgkinson and J. K. Ford (eds.), *International Review of Industrial and Organizational Psychology*. Chichester, UK: Wiley.

MANUSCRIPTS UNDER REVISION

Hu, J., & Liden, R. C. Title removed to protect anonymity. 2nd Revise and Resubmit at *Personnel Psychology*.

Hu, J., Wang, Z., Liden, R. C., & Sun, J. Title removed to protect anonymity. 3rd Revise and Resubmit at *Leadership Quarterly*.

Hong, Y., **Hu, J.,** Jiang, K., & Liao, H. (**equal contribution**). Title removed to protect anonymity. Revise and Resubmit at *Journal of Applied Psychology*.

Hoobler, J. M., & **Hu, J.** Title removed to protect anonymity. Revise and Resubmit at *Leadership Quarterly*.

MANUSCRIPTS UNDER REVIEW

Hu, J., Wayne, S. J., Bauer, T., Erdogan, B., & Liden, R. C. Title removed to protect anonymity. Under review at *Personnel Psychology*.

Jiang, K., **Hu, J.,** Liu, S., & Lepak, D. P. Title removed to protect anonymity. Under review at *Academy of Management Journal*.

Hoobler, J. M., **Hu, J.,** Rospenda, K. M., & Dickens, C. Title removed to protect anonymity. Under review at *Journal of Occupational Health Psychology*.

Jiang, K., Lepak, D.P., **Hu, J.,** & McCarthy, J. Title removed to protect anonymity. Under review at *International Journal of Human Resource Management*.

CONFERENCE PRESENTATIONS

Hu, J., Wayne, S. J., Bauer, T., & Erdogan, B. Understanding the role of person-organization fit in new executive performance outcomes. Paper to be presented at the 2012 Meeting of the Academy of Management Meeting, Boston, MA.

Jiang, K., **Hu, J.,** Liu, S., & Lepak, D. P. The role of humility and narcissism in employee perceptions of human resource management system. Paper to be presented at the 2012 Meeting of the Academy of Management Meeting, Boston, MA.

Hu, J., Wang, Z., Liden, R. C., & Sun, J. (2011). Leader core self-evaluation and transformational leadership. *Best Paper Proceedings of the Academy of Management Meeting*, San Antonio, Texas.

Hoobler, J., & **Hu, J.** (2011). A trickle-down model of leaders' negative affect on subordinates' negative affect. Paper presented at Academy of Management Meeting, San Antonio, Texas.

Jiang, K., & **Hu, J.** (2011). How does human resource management influence organizational outcomes? A meta-analytic investigation of the mediating mechanism. Paper presented at Academy of Management Meeting, San Antonio, Texas.

Marinova, S., **Hu, J.,** Basadur, T., Wang, M., & Shi, J. (2011). Am I creative or not? A contingent perspective on goal orientation in creative context. *Proceedings of the Southern Management Association*, Savannah, GA.

Hu, J., Vidyarthi, P., Anand, S., & Liden, R. C. (2010). Developmental i-deals and employee performance: Mediating effect of leader-member exchange. *Proceedings of the Southern Management Association*, St. Pete Beach, FL.

Marinova, S., **Hu, J.**, Basadur, T., Wang, M., & Shi, J. (2010). A multilevel model of creativity: The role of goal orientation and empowering leadership. *Proceedings of the Southern Management Association*, St. Pete Beach, FL.

Hoobler, J., **Hu, J.**, & Wilson, M. (2010). Work-family conflict and career outcomes: A meta-analysis review. Paper presented at Academy of Management Meeting, Montreal, Canada.

Jiang, K., Lepak, D., **Hu, J.**, & McCarthy, J. (2010). How the components of HR systems work together? The effects of perceived HR systems on employees' attitudes. Paper presented at Academy of Management Meeting, Montreal, Canada.

Hu, J., & Liden, R. C. (2010). Antecedents of team potency and team effectiveness. Paper presented at the Society for Industrial and Organizational Psychology, Atlanta, GA.

Hu, J., & Jiang, K. (2010). Multi-foci commitment, organizational citizenship behavior, and performance in teams. Paper presented at the Society for Industrial and Organizational Psychology, Atlanta, GA.

Hu, J. (2009). Relative leader-member exchange and individual outcomes: The role of group supportive behavior, task interdependence, and psychological empowerment. Paper presented at the Academy of Management Annual Meeting, Chicago, IL.

Hu, J., Lemmon, G., & Kuljanin, G. (2008). Person-team fit and team performance as moderators of the relationship between LMX and work outcomes. Paper presented at the Academy of Management Annual Meeting, Anaheim, CA.

Hu, J. & Sun, J.M. (2008). The construct of employees' psychological contract in Chinese organizations. Paper presented at the International Association for Chinese Management Research Annual Meeting, Guangzhou, China.

CHAired/DISCUSSed PRESENTATION

Chair. (2009). *Performance Management and Supervisor-Subordinate Relations*. (Discussant: Mary Uhl-Bien). Paper session at the Academy of Management Meeting, Chicago, IL.

Discussant. (2010). *OB: Authentic & Charismatic Leadership*. Paper session at the Southern Management Association Meeting, Tampa, FL.

RESEARCH GRANTS

A Team-Level Resource-Based Social Exchange Model: The Antecedents and Consequences of Leader-Team Exchange. Sponsored by IACMR/Li Ning dissertation grant, April, 2011, \$1,520 awarded; Sponsored by SIOP Foundation graduate student scholarship, April, 2012, \$3,000 awarded.

Human Resource Management and Volunteer Psychological Climate. Sponsored by SAE Foundation award of Institute for Nonprofit Research, Education, and Engagement at North Carolina State University, August, 2011, \$ 4,000 awarded (with Sean Rogers, Kaifeng Jiang, and Carmen Rogers).

A Team-Level Social Exchange Model of Servant Leadership and Team Effectiveness. Sponsored by the Greenleaf Center for Servant Leadership, May, 2010, \$2,500 awarded.

Predicting Trust in Organization. Sponsored by a grant from the Center of Human Resources Management, University of Illinois-Champaign and Chicago campuses, April, 2010, \$8,500 awarded (with Dr. Bob Liden and Jeremy Meuser)

A Multi-Level Study of Leadership, Team Process, and Creativity in Teams. Sponsored by a grant from the Center of Human Resources Management, University of Illinois-Champaign and Chicago campuses, April, 2008, \$6,000 awarded (with Dr. Sophia Marinova).

TEACHING EXPERIENCE

Sole Instructor, University of Illinois at Chicago

Organizational Behavior, Undergraduate, Fall 2011; Student Ratings: median 4.7/5.0
Introduction to Management, Undergraduate, Summer 2011; Student Ratings: median 4.8/5.0
Organizational Behavior, Undergraduate, Summer 2010; Student Ratings: median 4.6/5.0
Organizational Behavior, Undergraduate, Fall 2009; Student Ratings: median 4.7/5.0
Organizational Behavior, Undergraduate, Summer 2009; Student Ratings: median 4.2/5.0

Section Instructor, as a Teaching Assistant, University of Illinois at Chicago

Leadership, MBA Course: Organizational Behavior (Prof. Jenny Hoobler), Fall 2010.
Employee Empowerment and Interpersonal Interventions, Undergraduate Course:
Organizational Design (Prof. Jenny Hoobler), Fall 2010.
A Living Wage, Undergraduate Course: Labor-Management Relations (Prof. Jenny Hoobler),
Fall 2007.

PROFESSIONAL EXPERIENCE

Reviewing

Ad-Hoc Reviewer: European Journal of Work and Organizational Psychology	2011 - Present
Ad-Hoc Reviewer: Academy of Management Annual Conference: OB/HR	2008 - Present
Ad-Hoc Reviewer: Southern Management Association	2010 - Present

Memberships

Academy of Management	2008 - Present
Society for Industrial/Organizational Psychology	2009 - Present
Southern Management Association	2010 - Present
International Association for Chinese Management	2011 - Present

Consortia

Doctoral Consortium, Organizational Behavior Division, Academy of Management, 2011

Doctoral Consortium, Human Resource Division, Academy of Management, 2010

Doctoral Consortium, Society of Industrial and Organizational Psychology, 2010

Training

Center for Advancement of Research Methods and Analysis (CARMA) – Multi-level Data
Analysis using R (Instructor: Paul D. Bliese), May, 2008

Scientific Software International (SSI) – HLM session (Instructors: Steve Raudenbush, & Tony
Bryk), September, 2008

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice

Continuing Review

February 29, 2012

Jia Hu, BA, MA
Managerial Studies
601 S Morgan Street
M/C 243
Chicago, IL 60612
Phone: (312) 752-5336 / Fax: (312) 996-3559

RE: **Protocol # 2010-1073**

“A Team-Level Resourced-Based Social Exchange Model: Examining the Leader-Team Relationship”

Please note that this research did not have Institutional Review Board (IRB) approval from midnight *February 24, 2012* until *February 28, 2012*. Any research activities conducted during this time were done without IRB approval and were not compliant with the UICs human subject protection policies, The Belmont Report, UICs Assurance awarded by the Office for Human Research Protections (OHRP) at HHS, and with the federal regulations for the protection of human research subjects, 45 CFR 46.

Dear Jia Hu:

Your Continuing Review was reviewed and approved by the Expedited review process on February 28, 2012. You may now continue your research.

Please note the following information about your approved research protocol:

Protocol Approval Period:

February 28, 2012 - February 26, 2013

Approved Subject Enrollment #:

500 (limit data analysis for 400 enrolled subjects)

Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.

Performance Sites: UIC, China Life Asset Management Company Ltd - Beijing

Sponsor: None

PAF#: Not Applicable

Research Protocol(s):

A Team-Level Recourse-Based Social Exchange Model: Examining the Leader-Team Relationship; Version 3.9; 11/16/2010

Recruitment Material(s):

N/A: Limited to data analysis only

Informed Consent(s):

N/A: Limited to data analysis only

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category(ies):

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
02/23/2012	Continuing Review	Expedited	02/28/2012	Approved

Please remember to:

→ Use your **research protocol number** (2010-1073) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,

"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 355-0816. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Alison Santiago, MSW, MJ

IRB Coordinator, IRB # 2

Office for the Protection of Research Subjects

Enclosure(s):

UIC Investigator Responsibilities, Protection of Human Research Subjects

Data Security Enclosure

cc: Mark Shanley, Managerial Studies, M/C 243

Robert C. Liden (Faculty Sponsor), Managerial Studies, M/C 243

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice

Initial Review (Response To Modifications)

March 2, 2011

Jia Hu, BA, MA
Managerial Studies
601 S Morgan Street
M/C 243
Chicago, IL 60612
Phone: (312) 752-5336 / Fax: (312) 996-3559

RE: **Protocol # 2010-1073**

“A Team-Level Resourced-Based Social Exchange Model: Examining the Leader-Team Relationship”

Dear Mr./Ms. Hu:

Your Initial Review application (Response To Modifications) was reviewed and approved by the Expedited review process on February 25, 2011. You may now begin your research.

Please note the following information about your approved research protocol:

Please note, for future reference, that a waiver of consent is not appropriate for this research. Thus a waiver of documentation of informed consent (allowing subjects to be consented without signing the consent document) and an alteration of consent (allowing some of the elements of consent required by regulatory guidance that do not affect the risk/benefit analysis of the research to be omitted) that are appropriate have been granted for this research by the UIC IRB.

Please remember to submit Mandarin translations of all instruments and documents that will be used in interactions with subjects whose primary language is not English.

Translations must be accompanied by an Amendment form when submitted to the UIC IRB.

Protocol Approval Period:

February 25, 2011 - February 24, 2012

Approved Subject Enrollment #:

500

Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.

Performance Sites:

UIC, China Life Asset Management Company Ltd – Beijing

Sponsor:

None

Research Protocol:

A Team-Level Recourse-Based Social Exchange Model: Examining the Leader-Team Relationship; Version 3.9; 11/16/2010

Recruitment Material:

Talking Points for the Local HR Person; 02/22/2011

Informed Consents:

Cover Letter (English); Version 2.1

Cover Letter (Mandarin); Version 2.1

A waiver of documentation of informed consent has been granted under 45 CFR 46.117 and an alteration of consent has been granted under 45 CFR 46.116(d) for this research (minimal risk, international research in which subjects would be resistant to signing a legal-appearing document, elements of consent that would not affect the risk/benefit presented by the research have been omitted)

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
12/03/2010	Initial Review	Expedited	12/08/2010	Modifications Required

01/24/2011	Response To Modifications	Expedited	01/28/2011	Modifications Required
02/24/2011	Response To Modifications	Expedited	02/25/2011	Approved

Please remember to:

→ Use your **research protocol number** (2010-1073) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,

"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Sandra Costello

Assistant Director, IRB # 2

Office for the Protection of Research Subjects

Enclosures:

UIC Investigator Responsibilities, Protection of Human Research Subjects

Informed Consent Documents:

Cover Letter (English); Version 2.1

Cover Letter (Mandarin); Version 2.1

Recruiting Material:

Talking Points for the Local HR Person; 02/22/2011

cc: Mark Shanley, Managerial Studies, M/C 243

Robert C. Liden, Managerial Studies, M/C 243

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice

Continuing Review

March 9, 2012
Jia Hu, BA,MA
Managerial Studies
601 S Morgan Street
M/C 243
Chicago, IL 60612
Phone: (312) 752-5336 / Fax: (312) 996-3559

RE: Protocol # 2011-0245

“Leader-team Interactions and Team Effectiveness”

Dear Ms. Hu:

Your Continuing Review was reviewed and approved by the Expedited review process on March 8, 2012. You may now continue your research.

Please note the following information about your approved research protocol:

Protocol Approval Period: March 8, 2012 - March 7, 2013

Approved Subject Enrollment #: 595 (data analysis only of 410 subjects)

Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.

Performance Sites: UIC, Beijing Certificate Authority Center, Yiwu
Panduo External Trading Corporation, Krusinski Construction Company

Sponsor: None

Research Protocol(s):

Research Protocol: Leader-Team Interactions and Team Effectiveness; Version 4.0; 05/04/2011

Recruitment Material(s):

None – limited to data analysis

Informed Consent(s):

None – limited to data analysis

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.,

(8c) Continuing review of research previously approved by the convened IRB where the remaining research activities are limited to data analysis.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
03/02/2012	Continuing Review	Expedited	03/08/2012	Approved

Please remember to:

→ Use your **research protocol number** (2011-0245) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,

"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 413-1835. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Kathleen Loviscek, M.S.

IRB Coordinator, IRB # 2

Office for the Protection of Research Subjects

Enclosure(s):

UIC Investigator Responsibilities, Protection of Human Research Subjects

cc: Mark Shanley, Managerial Studies, M/C 243

Robert C. Liden (faculty sponsor), Managerial Studies, M/C 243

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice

Initial Review (Response to Modifications)

May 10, 2011
Jia Hu, BA, MA
Managerial Studies
601 S Morgan Street
M/C 243
Chicago, IL 60612
Phone: (312) 752-5336 / Fax: (312) 996-3559

RE: Protocol # 2011-0245

“Leader-team Interactions and Team Effectiveness”

Dear Jia Hu:

Your Initial Review (Response to Modifications) was reviewed and approved by the Expedited review process on May 5, 2011. You may now begin your research

Please note the following information about your approved research protocol:

Protocol Approval Period: May 5, 2011 - May 3, 2012

Approved Subject Enrollment #: 595

Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.

Performance Sites: UIC, Beijing Certificate Authority Center, Yiwu Panduo External Trading Corporation, Krusinski Construction Company

Sponsor: None

PAF#: Not Applicable

Research Protocol(s):

Research Protocol: Leader-Team Interactions and Team Effectiveness; Version 4.0; 05/04/2011

Recruitment Material(s):

Talking points for the local HR person; 3/18/2011

Informed Consent(s):

Cover Letter (for team members, time 1); Version 2.0

Cover Letter (for team leaders, time 1); Version 2.0

Cover Letter (for team members, time 2); Version 2.0

Cover Letter (for team leaders, time 2); Version 2.0

Cover Letter (for upper-level managers); Version 2.0

Cover Letter (upper-level managers), Chinese; Version 2.0

Waiver of Signed Consent Document granted under 45 CFR 46.117 for this research

Cover Letter (team leaders, time 2), Chinese; Version 2.0

Cover Letter (team members, time 2), Chinese; Version 2.0

Cover Letter (for team leaders, time 2), Chinese; Version 2.0

Cover Letter (for team members, time 1), Chinese; Version 2.0

Waiver of Informed Consent granted under 45 CFR 46.116(d) for recruitment purposes only

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific category:

(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
03/18/2011	Initial Review	Expedited	03/24/2011	Modifications

				Required
05/04/2011	Response to Modifications	Expedited	05/05/2011	Approved

Please remember to:

→ Use your **research protocol number** (2011-0245) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,

"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

Marissa Benni-Weis, M.S.

IRB Coordinator, IRB # 2

Office for the Protection of Research Subjects

Enclosure(s):

UIC Investigator Responsibilities, Protection of Human Research Subjects

Informed Consent Document(s):

Cover Letter (for team members, time 1); Version 2.0

Cover Letter (for team leaders, time 1); Version 2.0

Cover Letter (for team members, time 2); Version 2.0

Cover Letter (for team leaders, time 2); Version 2.0

Cover Letter (for upper-level managers); Version 2.0

Cover Letter (upper-level managers), Chinese; Version 2.0

Cover Letter (team leaders, time 2), Chinese; Version 2.0

Cover Letter (team members, time 2), Chinese; Version 2.0

Cover Letter (for team leaders, time 2), Chinese; Version 2.0

Cover Letter (for team members, time 1), Chinese; Version 2.0

Recruiting Material(s):

Talking points for the local HR person; 3/18/2011

cc: Mark Shanley, Managerial Studies, M/C 243

Robert C. Liden, Managerial Studies, M/C 243