5-2016

An Examination of Leader-Member Exchange and Team Effectiveness

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AN EXAMINATION OF LEADER-MEMBER EXCHANGE AND TEAM EFFECTIVENESS

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Industrial and Organizational Psychology

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by
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May 2016

Accepted by:
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ABSTRACT

Previous research has indicated the importance of leader-member exchange (LMX) relationships for organizational team effectiveness (e.g., Boies & Howell, 2006; Hooper & Martin, 2008). However, few studies have examined the complexity of this relationship empirically, nor examined how leader differentiation of LMX, a main tenet of LMX theory, may affect vital team processes and emergent states required for successful team performance. The current study developed and tested a model of the relations between LMX, perceived LMX variability, team behavioral processes, and emergent affective states on team effectiveness. Individuals representing 66 university research teams from a medium-sized university participated in the current study. Results suggested LMX is a potential lever for team effectiveness and an important influence for a positive team environment. Results also suggested managers who individualize their relationship quality among team members may not necessarily harm the team's ability to perform and adapt to change. Study limitations and practical implications are discussed.

ACKNOWLEDGEMENTS

My dissertation support team, and graduate school support more broadly, has been exemplary. First, I'd like to thank the Creative Inquiry Program and its leaders, who were willing to partner with me for my dissertation research. Second, I am grateful for my professors' pedagogy, which allowed me to gain crucial insight into psychological research and organizational issues during graduate study. Having the opportunity to learn from my advisor, Pat, has meant a great deal. Finally, I would also like to thank my family and friends; their unconditional support throughout graduate school enabled me to enhance my learning capabilities and reach my goals.

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CHAPTER ONE

OVERVIEW AND THEORETICAL FRAMEWORK

Introduction

Much of the work performed in today's business environment can be described as team-oriented, with most organizations requiring their members to operate within teams to facilitate strategic objectives (Hills, 2007; Kozlowski & Bell, 2003; Lawler, Mohrman, & Ledford, 1995). Given their increased prevalence, the effectiveness of work teams has become a focal interest for human resources initiatives in the workplace. Organizational leaders count on the company's teams to display stalwart performance and engage in behaviors that nourish their capacity to perform. Current research demonstrates team effectiveness is a function of how well members leverage social capital in order to enhance cooperation and coordination and evolve adaptations to withstand rapid workplace-related changes (Kozlowski & Bell, 2003). Team performance outcomes, such as quality of team decisions, may be enhanced when members believe they work in positive team atmospheres characterized by respect and interpersonal harmony (Janssen, Van de Vliert, & Veenstra, 1999). In contrast, lack of communication and interconnectivity have been cited as key culprits of team failure (e.g., Allison & Shuffler, 2014; Kozlowski & Ilgen, 2006).

Given the importance of establishing interconnectivity and coherence among team members combined with the body of research supporting effects of leadership behavior on employee and group behavior (e.g., Podsakoff, Bommer, Podsakoff, & MacKenzie, 2006; Schaubroeck, Lam, & Cha, 2007; Wayne & Ferris, 1990), many researchers have

argued for a much deeper understanding of the relationship between leader-team interactions and team effectiveness (e.g., Morgeson, Karam, & DeRue, 2010; Zaccaro, Heinen, & Shuffler, 2009). One leadership approach that may be particularly relevant to the team setting is leader-member exchange (LMX) theory, which focuses on the quality of social exchange relations that leaders form with their subordinates (Graen & Uhl-Bien, 1995). Although initially focused on dyadic relations between leaders and subordinates, recent research has begun to apply the prescriptions of LMX to team settings. Applied to the team setting, LMX theory could be used to explain why leaders who establish desirable and influential social exchanges with followers, and encourage consistent interconnectivity with them, might encourage higher levels of teamwork and produce higher levels of team effectiveness. Consistent with this perspective, meta-analytic evidence suggests greater quality social exchange occurring between leaders and individual team members is associated with greater quality social exchange among teammates (Banks et al., 2014). This view supports that work teams containing individuals who have formed higher LMX relationships with their leaders may be more effective.

It is possible leaders may form differential quality relationships with subordinates based on performance needs (Graen & Uhl-Bien, 1995). Leaders have discretion in forming LMX relationships and may not choose to allocate this type of effort to all team members, perhaps because the leader may see differentiation as an important edge or benefit. Although LMX theory suggests leaders could form differential quality social exchanges with subordinates, variability in LMX among team members could lead to

negative outcomes for teams. Indeed previous research at the individual level of analysis suggests perceptions of LMX variability are positively related to perceptions of team conflict and negatively related to job satisfaction and well-being (Hooper & Martin, 2008), yet little research to date exists to understand how LMX variability affects team effectiveness and its antecedents at the group level of analysis. According to several researchers, a team's communication, coordination, and cohesion habits are vital for facilitating taskwork and teamwork. Each process or emergent state has been referenced as one of the most important processes involved in achieving team effectiveness (Brannick, Salas, & Prince, 1997; Katzenbach & Smith, 1993; Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006). Understanding how LMX affects the team task and interpersonal environment may allow researchers and practitioners to improve team dynamics and performance behavior, as well as further inform relational boundaries or barriers to team effectiveness.

Purpose of the Current Study

The broad purpose of this paper is to enhance our understanding of how LMX and LMX variability are related to a variety of outcomes for teams. The next part of this paper will provide a review of LMX and LMX variability research in the team setting. Next, LMX and LMX variability will be discussed as prospective precursors for the team behavioral processes of voice and coordination, the affective state of team cohesion, and team effectiveness (i.e., performance outcomes and viability). Then, an indirect effect of LMX on team effectiveness will be proposed; specifically, the effect of LMX on team effectiveness was proposed to be mediated by team processes and emergent states. This

will be followed by a discussion of a potential incremental, negative effect of LMX variability on team behaviors, team cohesion, and team outcomes. A theoretical model of the variables examined in this study appears in Figure 1, and consequent study results are discussed in later sections (see also Tables 1-11).

CHAPTER TWO

LMX

LMX theory was developed to explain how supervisor interactions beyond authority and decision latitude interact with employee attitudes and reciprocity motives to affect behavior (Dansereau, Graen, & Haga, 1975). Over time, LMX borrowed from social exchange theory (Blau, 1964) to position the relational leadership process as the formation of mature professional relationships through mutually beneficial social exchanges occurring within leader-member dyads (Graen & Uhl-Bien, 1995). High quality relationships are typically described by high levels of reciprocity, mutual obligation, respect, and trust (Gouldner, 1960; Liden, Sparrowe, & Wayne, 1997; Uhl-Bien & Maslyn, 2003).

LMX is considered by many a multidimensional construct comprised of loyalty, affect, perceived contribution, and professional respect dimensions, which are proposed to underlie the reciprocity, mutual obligation, respect, and trust indicators descriptive of LMX (Hu, 2012; Liden & Maslyn, 1998; Maslyn & Uhl-Bien, 2001). Loyalty describes how members of LMX relationships defend each other's actions publicly. Affect refers to the degree of liking within an LMX dyad and captures the friendliness of social exchange occurring between leader and follower. Perceived contribution refers to the perceptions that members of LMX relationships positively contribute to performance and expend work extending beyond what is normally requested, when these actions are linked to success. Finally, professional respect refers to the admiration of one's professional skills. Leaders and followers in higher quality relationships tend to like each other more, display

higher levels of loyalty and professional respect toward one another, exchange more resources, and demonstrate effort beyond the job description and employee contract (Liden & Maslyn, 1998). On the other hand, low quality relationships tend to be characterized by transactional norms and are limited to formally agreed-upon aspects of an employment contract, such as economic exchange (Blau, 1964).

Most accurately positioned as a descriptive rather than prescriptive theory, LMX has nonetheless proven to be a robust influencer of various employee work attitudes, behaviors, and cognitions—receiving the third highest attention of all organizational leadership theories behind transformational leadership theory and trait theories of leadership (Dienesch & Liden, 1986; Dinh et al., 2014). According to meta-analytic findings, LMX perceptions explain significant variance in job performance outcomes, are positively related to organizational citizenship behaviors (OCBs), organizational commitment, job satisfaction, satisfaction with one's pay, and justice perceptions, and are negatively related to turnover intentions, actual turnover, role ambiguity, and role conflict (Dulebohn et al., 2012; Gerstner & Day, 1997). High-quality social exchanges are especially advantageous for members, as followers in these relationships have been shown to advance more quickly through the organization (Scandura & Schriesheim, 1994) and wield higher levels of power (Sparrowe & Liden, 2005).

Despite the fact that leadership is a multilevel phenomenon involving leaders and followers who typically work within groups or teams, LMX has been studied more often at the dyadic level of analysis. LMX relationships have the capacity to influence teams through several avenues, one being that LMX formations within teams may lead to the

development of attitudes affecting emergent properties of teams. As an example, LMX may contribute to a team member's confidence and trust perceptions over time, which may explain aspects of the team's collective efficacy (Graen & Uhl-Bien, 1995). Aggregating LMX perceptions from the dyadic level to the group level allows one to make comparisons between, as well as within, teams regarding the quality of individual relationships formed between leaders and team members. Strides within the past two decades have conceptualized and tested LMX at the group level in order to examine the variable effects of leader-team interactions on team outcomes (e.g., Boies & Howell, 2006; Cogliser & Schriesheim, 2000). Research in this area can be categorized into two streams: LMX and LMX variability.

LMX in Teams

Teams have been defined as intact social entities comprised of two or more individuals working interdependently toward common goals within an organizational context that sets boundaries (Cohen & Bailey, 1997; Kozlowski & Bell, 2003). For traditional teams comprised of somewhat stable members and formally managed by team supervisors, it is typical for the team supervisor to be responsible for facilitating taskwork and maintaining team dynamics. Likewise team supervisors tend to wear many hats in order to influence the key cognitive, motivational, interpersonal, and affective processes necessary for team effectiveness (Kozlowski & Ilgen, 2006; Zaccaro et al., 2001).

LMX theory suggests leaders who develop high quality social exchange relationships with each team member may create an obligation for the team as a whole to reciprocate what the leader provides as well as appease leader expectations. Teams

characterized by higher LMX relationships should be distinguished by honesty, support, and an open exchange of information between team members and the team supervisor (Banks et al., 2014; Gajendran & Joshi, 2012). High-quality LMX relationships have been described as instrumental in helping to establish psychological connections to the team, motivating and empowering team members to contribute to their teams, establishing the importance of a particular team member to their team, and increasing member willingness to contribute their expertise toward team tasks (Corsun & Enz, 1999; Keller & Dansereau, 1995; Parker & Price, 1994; Tyler & Blader, 2003). LMX has also been characterized as an influencer of knowledge sharing within teams because of its grounding in trust and suspected relationship to interpersonal safety (Gajendran & Joshi, 2012).

Individual LMX relationships may lead to the development of attitudes that may affect emergent properties of teams. As an example, LMX may contribute to a team member's confidence and trust perceptions, which may result in collective self-efficacy (Graen & Uhl-Bien, 1995). Teams tend to perform better when each member feels supported by their leader (Kim, Min, & Cha, 1999), suggesting teams characterized by higher levels of LMX quality may perform better than teams with lower levels of LMX quality. Team members tend to report higher levels of team potency and lower levels of team conflict when within-team mean LMX is high (Boies & Howell, 2006), further supporting that teams tend to have more positive outcomes when the social exchange relationships established between leaders and members are of high quality. These findings are important not only because they highlight the crucial role modern team

leaders play in actively transforming their teams' behavior and creating positive spaces to work, but also hint at consequences of varied interactions with subordinates.

Higher levels of LMX within teams have been shown to correlate with perceptions of a cooperative work climate (Cogliser & Schriesheim, 2000), team potency (Boies & Howell, 2006), and greater team member engagement in OCBs (Erdogan & Bauer, 2010). In globally distributed teams, in which members are geographically separated from other teammates, LMX in the team setting is positively related to communication frequency between leaders and team members, team member influence on team decisions, and team innovation as an outcome (Gajendran & Joshi, 2012). Higher levels of LMX within a team is negatively associated with team conflict, such that teams represented by higher levels of LMX quality tend to report less conflict (Boies & Howell, 2006). When positioned as a moderator, LMX has also been shown to weaken the negative effects of demographic diversity on team performance (Stewart & Johnson, 2009) and actual turnover (Nishii & Mayer, 2009).

Examining LMX in the team setting is distinct from examining the construct of team-member exchange (TMX), because LMX focuses on the perceptions of exchange quality between leaders and team members within teams, whereas TMX reflects how individuals see their relational interactions with other team members (Seers, 1989). Although related, meta-analytic evidence indicates aggregated LMX appears to be a stronger predictor of employee performance, commitment, satisfaction, and turnover intentions than TMX (Banks et al., 2014). Therefore, while TMX may shed important light on team member interconnectivity, LMX is more appropriate to examine when

attempting to understand how a leader's interactions with subordinates affects team effectiveness and the employee experience.

Although previous research espouses the positive benefits of LMX for teams, it is possible teams comprised of equally high LMX relationships may be in the minority. According to LMX theory, it may be more likely that workplace teams have varying degrees of LMX within them rather than equal amounts, because leaders do have discretion over how they engage in social exchange with subordinates (Graen & Uhl-Bien, 1995). In addition, many organizations rely on team supervisors to develop individual talent within the team and maximize individual potential, which may require allocating different types of resources to different subordinates, which may then lead to specialized forms of socioeconomic leader attention. Conceptually, perceived variability of LMX among team members may lead to negative outcomes for teams. As an example, research suggests perceptions of individualized attention may be particularly harmful to team trust if certain members are perceived to have more positive or privileged interactions with the leader (Sias & Jablin, 1995). Compared to LMX, less attention has been devoted to understanding the implications of LMX variability within teams for team effectiveness and supporting this relationship empirically. This understanding and support is particularly important to the study of teams because it continues to address the question of whether—and in what capacity—leaders should differentiate their interactions among team members.

LMX Variability in Teams

LMX variability refers to the degree of within-team variability in the quality of LMX relationships between a supervisor and subordinates within a work team. As mentioned previously, the idea of subordinate differentiation is a main tenet of LMX theory. Managers are thought to affect the thoughts, feelings, and behavior of their teams through team-based activities (e.g., team goal setting) as well as individualized interactions (e.g., career development conversations and constructive criticism). Upon arguing that observed differences between each subordinate's perceptions of their leader were not simply measurement error, but rather a reflection of valid differences in leader-member relationship quality, Graen and colleagues (1972) and Dansereau and colleagues (1975) adopted the premise that successful leaders individualize their behavioral styles depending on employee characteristics and needs. Rather than treating all followers the same, leaders vary interactions with each follower and, in turn, form differentiated relationships with them in exchange for higher or lower levels of subordinate reciprocating behavior (Henderson, Liden, & Glibkowski, 2009).

It has been suggested that differentiating interactions among subordinates may enable leaders to more efficiently use resources and manage teams more effectively through the establishment of a few high quality relationships with select team members that act as assistants to the leader (Dansereau et al., 1975). Leaders in this situation may be less likely to ask certain followers to take on tasks requiring a great deal of responsibility and independent judgment and or may not be as willing to go out of their way to acquire resources for all followers (Liden & Graen, 1980). Consequently, "in-

groups" versus "out-groups" are said to form within work groups (Graen & Uhl-Bien, 1995), and perceptions of interpersonal variation may result (e.g., Hooper & Martin, 2008).

LMX variability appears to have been examined from two approaches: LMX differentiation and perceived LMX variability. LMX differentiation research typically operationalizes LMX variability as the within-group standard deviation value of the aggregated LMX measure used as part of the research study (Erdogan & Liden, 2002; Tse, 2014). In contrast, perceived LMX variability is measured by directly asking participants of research studies whether they perceive any differences between their LMX relationships and those of teammates. Although proponents of a LMX differentiation approach may argue it is more objective, opponents may argue that perceptions of variability are more important to examine because perceptions of variability may be tied more closely with perceptions of fairness. For the purposes of understanding how LMX variability affects team effectiveness in this study, it seems appropriate to examine perceptions of variability in order to capture team member attitudes that may affect team behavior. However, as perceived LMX variability has received less research attention than the LMX differentiation approach, research employing both approaches will be discussed in order to present the current state of knowledge around this issue.

A few studies have demonstrated positive relationships between LMX differentiation and team outcomes, such that higher levels of LMX differentiation coupled with higher levels of LMX quality within teams were associated with perceptions of team potency and OCB engagement among teammates (Erdogan & Bauer, 2010). In

contrast, other research suggests LMX variability within teams may be negatively associated with team dynamics, work attitudes, and team functioning. In their study focused on the individual level of analysis, Hooper and Martin (2008) found that perceptions of LMX variability within the team were negatively related to employee job satisfaction and positively related to perceptions of team conflict. Similarly, but at the group level of analysis, Erdogan and Bauer (2010) discovered LMX differentiation was negatively related to organizational commitment and satisfaction with coworker relations. These findings mirror research corroborating evidence for a negative relationship between a leader's differential treatment in friendliness and feedback sharing and a team member's commitment to the team (Van Breukelen, Konst, & Van der Vlist, 2002). In another study, Van Breuklen and colleagues (2010) found LMX differentiation was negatively related to perceptions of team climate, and Tse (2014) observed a negative relationship between LMX differentiation and team performance, particularly when teams were lower on affective team climate. Tse's (2014) discovery of a significant, positive relationship occurring between TMX and team performance, but a negative relationship occurring between LMX differentiation and TMX, provides some evidence that LMX variability negatively affects the team environment and may be inversely related to aspects of team process involving commitment and interpersonal trust.

CHAPTER THREE

LMX AND TEAM EFFECTIVENESS

Highly effective teams are characterized by high levels of performance and viability (Hackman, 1987; LePine et al., 2008; Mathieu, Maynard, Rapp, & Gilson, 2008). Work team effectiveness is typically operationalized to include both objective (e.g., quantity or quality of performance as rated by supervisors; Shea & Guzzo, 1987) and subjective evaluations (e.g., team vitality as rated by subordinate team members; Hackman, 1987). In this paper, team effectiveness will be operationalized as including both evaluations of team performance outcomes (i.e., evaluations of the results of performance) and team viability (i.e., how sustainable the team's performance may be) dimensions, as teams tend to be held accountable for their performance in organizations, and performance sustainability may be a function of commitment and member stability.

Team Performance Outcomes

Team performance typically reflects the behaviors within teams allocated toward goal accomplishment and is considered a fundamental dimension of team effectiveness (Mathieu et al., 2008; Morgeson et al., 2010). Performance outcomes are affected by a host of processes and emergent states (see Cannon-Bowers & Bowers, 2011, for a recent review of the literature on team functioning). Involving the coordinated efforts of team members, team performance relies on the direction of effort and persistence of allocation. Teams characterized by higher levels of LMX benefit from leaders who establish direction for their teams and team members who exert extra effort toward task work and team dynamics. In addition, teams displaying higher levels of LMX may be more likely

to persist in the face of change and difficult circumstance, as these teams shall be comprised of members hoping to appease leaders and remain on target with expectations.

Team Viability

Team effectiveness may suffer if members are not satisfied or motivated to remain with the team (Hackman, 1987). Team viability may be defined as the capacity of teams to adapt to internal and external changes; and team viability also refers to the likelihood that team members will continue to work together in the future (Hackman, 1987). Research suggests leader behavior that helps team members accept and pursue goals is positively related to perceptions of team viability (Foo, Sin, & Yiong, 2006). Goal acceptance and dedication may facilitate adaptability and goal accomplishment, which may then lead to more successful performance. Teams that have adopted successful goal setting practices are likely to continue engaging in this process to capitalize on opportunities to perform form.

Supervisors who like and care for their subordinates may be willing to spend time with them setting goals and discussing expectations. These supervisors would also be more likely to involve team members in the planning of the work. Team members belonging to teams characterized by higher levels of LMX may appreciate these gestures of their leader and desire to remain part of the group. Additionally, members may desire to stay with a team if it demonstrates successful performance. High levels of LMX may also provide the way for stronger interpersonal climate and interconnectivity within the team, which could lead to stronger TMX and knowledge sharing in certain settings (Banks et al., 2014).

Influence of LMX

A key question regarding the value of examining LMX and its main tenets in a team effectiveness context concerns how the collections of individual leader-follower relationships affect team processes required for achieving team effectiveness. Credible answers to these questions may be informed by an understanding of the nature of team performance. Team performance is fueled by both task work and social relations, indicating teams benefit from members who allocate time to both the group's task goals as well as member social and emotional needs (LePine, Piccolo, Jackson, Mathieu, & Saul, 2008; Marks, Mathieu, & Zaccaro, 2001). Team performance is also characterized by two cycles, or phases. In the transition phase, teams accept goals and engage in evaluation and planning activities (Morgeson et al., 2010). In the active phase, teams actually perform the work necessary to accomplish accepted goals (Morgeson et al., 2010). Specific needs arise during a team's transition and action phases. Acts of satisfying discrepancies, which could involve leaders satisfying team member motivational needs through the formations of high-quality professional relations at work, have been described as crucial for both individual goal accomplishment (Locke & Latham, 2002; Locke, Shaw, Saari, & Latham, 1981) and team goal accomplishment (Morgeson, Lindoerfer, & Loring, 2010). Accordingly, team success appears to rely on the coordination of key processes across the team as well as resources that enable team processes to occur (LePine et al., 2008).

Team processes are defined broadly as the "means by which members work interdependently to utilize various resources, such as expertise, equipment, and money, to

yield meaningful outcomes" (Marks et al., 2001, p. 357). Team processes are typically depicted as part of an IMO (inputs, mediators, outcomes) framework, where team processes are positioned as mediating mechanisms, or proximal influencers of team outcomes (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). Within the IMO model, leadership is often, though not always (e.g., Day et al., 2004), positioned as an input variable and distal influence of team outcomes. Together, team processes and leadership serve as key agents of teamwork and team effectiveness outcomes (e.g., Hu, 2012; Mathieu, Maynard, Rapp, & Gilson, 2008). Teamwork, or the processes of people working together to achieve something beyond what their individual capabilities could have, represents an important collection of team processes that determines if and how task work is completed and has been described as imperative for developing highly effective teams (Marks et al., 2001).

In line with the IMO model of team effectiveness (Ilgen et al., 2005), team communication, coordination, and cohesion have been suggested as the most important teamwork processes and emergent states involved in achieving team effectiveness (Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006). Team communication can be described as the process of information exchange at the team level and is characterized by the frequency and quality with which these messages are exchanged within the team; team communication is a broad term encompassing an array of communication climates and behaviors, such as psychological safety and voice (Levi, 2014). Team coordination refers to the process of orchestrating the timing and sequence of interdependent team actions (Marks et al., 2001). Team cohesion is most appropriately positioned as an

emergent state of team processes and has been defined as the degree to which team members demonstrate commitment to team members and team tasks (Gross & Martin, 1952; Zaccaro et al., 2001).

Although team communication, coordination, and cohesion have been recognized as closely related phenomena (e.g., Kozlowski & Ilgen, 2006), each construct is conceptually distinct, thought to be shaped by different task and social characteristics of the group, and thought to disparately affect a team's effectiveness (e.g., Levi, 2014). Given LMX's previously mentioned relations to team commitment, satisfaction with coworkers, and individual perceptions of TMX (Banks et al., 2014, Erdogan & Bauer, 2010), LMX relationships seem well poised to aid team effectiveness through their positive effects on teamwork processes. Ergo, it is proposed that leaders who put forth effort into forming high-quality relationships with their team members may cultivate greater teamwork and team effectiveness by enabling higher levels of teamwork.

Direct Effects of LMX on Team Processes and Emergent States

High-quality LMX relationships within teams may enable higher levels of team effectiveness by promoting aspects of team communication, coordination, cohesion, performance outcomes, and viability.

Voice. The premise that LMX promotes communication is well-established in the literature (Gajendran & Joshi, 2012; Goulden, 1960; Graen & Scandura 1987; Kacmar, Witt, Zivnuska, & Gully, 2003), as the very nature of social exchange interactions involve a frequency component and profit from reciprocation. One aspect of communication important for team success is voice. Voice is defined as nonrequired, or

extrarole, behavior that emphasizes the expression of constructive challenge with the intent to improve and not merely criticize (Van Dyne & LePine, 1998, p. 109). Voice enables diversity of opinion and has been described as a behavior that may upset interpersonal relationships (LePine & Van Dyne, 1998). Team member willingness to express voice is an aspect of team communication important for decision-making and innovation outcomes, and voice behaviors—as opposed to broad team communication—will be a focus in this study due to widespread organizational efforts to cultivate innovation and tolerate diversity of opinion. In team settings, team supervisors may actively facilitate communication within the team to elicit technical information from members, avoid hindrance to creativity, and focus member attention where appropriate. Leaders may also ask members to participate, or express voice, in an effort to hear diverse perspectives and build trust (Levi, 2014). At the dyadic level of analysis, LMX is associated with greater communication exchanged between followers and leaders as well as increased member influence on team decisions (Gajendran & Joshi, 2012).

LMX may enhance team member voice by influencing whether team members believe it is safe to speak up and voice diverse opinions that disrupt the status quo. According to Levi (2014), free flow of ideas and opinions are more likely to occur in teams characterized by supportive and inclusive communication climates. According to Gibb (1961), communication climates characterized by openness, support, and trust enable teams to be more effective, in part because they help to fulfill individual emotional security needs and allow members to focus on taskwork (Levi, 2014). As high LMX quality is associated with more manifestation of trust between leaders and

followers, teams characterized by higher levels of LMX quality are suspected to establish higher levels of trust, leading to more expression of ideas and diverse opinions not found in other teams. This may suggest that LMX is positively related to team member voice behavior.

However, the affect element of LMX may, at times, be negatively related to voice. Subordinates in high quality LMX relationships are more likely to like their supervisors and view them as friends (Liden & Maslyn, 1998). Thus, it is possible subordinates in these relationships may not voice certain opinions in order to avoid the leader becoming upset, especially if they believe this action may affect the LMX bond that has been developed, whereas subordinates in lower quality LMX relationships may not be as worried about affecting the supervisor's feelings while discussing work because they exhibit lower levels of liking toward the supervisor. Although liking tends to have salient implications for behavior, experimental research indicates normative pressure to reciprocate may have even stronger effects on behavior than liking in social situations (Regan, 1971), further implying LMX may at times be inversely related to voice because LMX theory suggests quality social exchange is developed and strengthened by reciprocation (Graen & Uhl-Bien, 1995).

Adding to the complexity, some subordinates in high quality relationships with supervisors may not fear retaliation from the supervisor due to the establishment of deep trust, professional respect, and loyalty, enabling subordinates in these relationships to feel secure and free to express voice for the good of the supervisor and team without suffering supervisory consequences. Team members in high LMX relationships are also more

likely to expend extra effort beyond what is normally expected, implying that these individuals will engage in voice behaviors when they believe the group will benefit and the supervisor will appreciate the feedback. Therefore, although LMX may positively influence voice initially, voice behavior among teammates may differ as a function of the psychological contracts founded on aspects of LMX. It is thus suspected that the nature of the relationship between LMX and voice behaviors in teams may be positive when examining LMX broadly, as individuals in high-quality LMX relationships may report more voice behaviors overall. However, when examined at the dimensional level of analysis, it is suspected that the element of affect will display a different relationship to voice.

Hypothesis 1a (H1a): LMX will be a positive predictor voice behavior, such that individuals higher on LMX will report engaging in more voice behavior.

Hypothesis 1b (H1b): The affect dimension of LMX will be nonlinearly related to voice, such that as affect increases at low levels, voice will increase, but as affect continues to increase to higher levels, the effect of affect on voice behavior will no longer increase at the same rate and will level off.

Team coordination. Team communication is thought to influence team coordination by enhancing interconnectivity between members as they manage the workflow among interdependent tasks. Team coordination differs from team communication in that coordination is a process of entrainment characterized by the synchronization of within-team efforts (e.g., taskwork, information sharing, mutual actions) against external pressures (e.g., changes in the work environment) to execute and

achieve desired team performance outcomes (Kozlowski & Ilgen, 2006), whereas communication focuses mainly on the frequency and content of information exchanged between individuals. Team coordination is responsible for driving toward the team's end goals.

Although previous research has suggested action teams (i.e., teams arranged for a temporary period of time containing individuals with specialized skill sets working for a specific purpose; Sundstrom, De Meuse, & Futrell, 1990) may rely on higher levels of interdependence and rapid coordination in order to be effective compared to traditional teams (Ellis, Bell, Ployhard, Hollenbeck, & Ilgen, 2005), all teams are defined by interdependent task work and rely on coordinated team member efforts (Kozlowski & Bell, 2003). Therefore, traditional teams are also expected to benefit from high levels of coordination among team members as well as environmental factors conceding this process.

According to the literature, coordination among team mates and consequent outcomes may be influenced by efficacy beliefs. Previous research of the relationship between team efficacy and team effectiveness suggests team coordination acts as a moderating influence on team efficacy (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Specifically, Gully and colleagues (2002) found that the shared perceptions of the team's capability to accomplish its goals (i.e., team efficacy; Bandura, 1997) had a greater effect on team performance when a greater amount of coordination was needed to execute team tasks, indicating teams characterized by highly interdependent task work may be more likely to be effective when all members believe in their capacity to perform. Leaders that

establish high-quality relationships with their entire team may enable greater coordination among team members by influencing individual perceptions regarding the level and quality of socioeconomic and economic resources being offered to team members from their leader. Through their expressionism of trust and professional respect for their followers, leaders may positively affect the composition of individual perceptions of efficacy within the team, which may compile and emerge as shared team efficacy beliefs overtime. Thus, it is hypothesized that LMX will be positively related to team coordination.

Hypothesis 2 (H2): LMX will be a positive predictor of team coordination, such that individuals reporting higher LMX will report higher levels of coordination occurring in their team.

Team cohesion. Cohesion has been referred to as an important aspect of a team's effectiveness because members of groups tend to remain committed to group tasks and perform better when members desire to remain part of the group (Cartwright, 1968). Cohesion reflects the amount of interpersonal bondage holding a team together (Hackman, 1987; Levi, 2014). Members of highly cohesive teams tend to know and like each other well and desire to remain in the team to complete team tasks. Previous literature has positioned team cohesion as an emergent state resulting from dynamic interactions between team members that stabilize over time (Kozlowski & Ilgen, 2006). When viewed as part of a multilevel model, team cohesion has been described as a shared property of teams (Kozlowski & Klien, 2000; Kozlowski et al., 2013).

Evidence exists to suggest cohesion is a multidimensional construct, with task commitment (i.e., task cohesion) and interpersonal attraction dimensions garnering the most attention and support (e.g., Aoyagi, Cox, & McGuire, 2008; Beal, Cohen, Burke, & McLendon, 2003; Hausknecht, Trevor, & Howard, 2009). The level of LMX quality within a team may influence team cohesion by promoting positive social relations among members, which—if true—would suggest that LMX may be strongly related to the interpersonal attraction element of cohesion, which reflect the shared liking and attachment team members have toward each other. However, LMX may also influence task cohesion by encouraging team members to work together in order to effectively accomplish the team's tasks (Hu, 2012), as team members in high quality LMX relationships will likely seek opportunities to exceed the leader's performance expectations, such as by demonstrating strong commitment to tasks as well as each other (Gouldner, 1960).

Team cohesion is positively associated with team member job satisfaction, the team performance behaviors of communication and coordination, and team effectiveness (Beal et al., 2003; Hackman, 1992; Hu, 2012; Mullen & Cooper, 1994), although past research suggests team cohesion may be more strongly related to team performance behaviors than to the team's effectiveness (Gully, Devine, & Whitney, 1995). According to Levi (2014), cohesiveness affects team performance by positively influencing the group's social interactions, which enables a team to handle difficulties and manage conflicts as they arise. Team cohesion has been found to be strengthened by leader-team

interactions in the organizational and sports settings (Hu, 2012; Jowett & Chaundy, 2004).

Leaders that form high quality relationships with their subordinates will likely be perceived as benevolent and supportive by subordinates, which may increase subordinate admiration of the team supervisor, increase subordinate emotional attachment to the team, and instill a sense of pride to the team (Hu, 2012; Zaccaro et al., 2009). According to emotional contagion theory (Barsade, 2002), high levels of LMX relationships within the team may further influence group cohesion by promoting positive emotional exchanges (e.g., smiles) between members and fostering more workplace friendships (Tse, Dasborough, & Ashkanasy, 2008). In addition, by combining findings corroborating evidence for the positive relationships between LMX and TMX (Banks et al., 2014) as well as the positive relationship between social attraction and cohesiveness (Lott & Lott, 1992), one could argue that the social attraction occurring between leaders and team members in high-quality LMX relationships may further facilitate social attraction among team members, leading to more cohesiveness.

Members belonging to teams characterized by lower levels of LMX, on the other hand, may not be willing to devote extra effort to team members in order to exceed the leader's performance expectations, may enjoy working together on the team tasks less, and may experience less positive group-level emotions and social attraction compared to teams characterized by higher levels of LMX. Thus, in line with existing evidence suggesting leader-team interactions positively predict team cohesion (Hu, 2012), team cohesion is suspected to positively covary with LMX.

Hypothesis 3 (H3): LMX will be a positive predictor of team cohesion, such that individuals reporting higher LMX will report higher levels of cohesion occurring in their team.

Indirect Effects of LMX on Team Effectiveness

In addition to potentially covarying with team effectiveness, LMX may indirectly affect team performance outcomes and viability through its direct effect on team processes and states.

Voice. Communication properties of teams proposed to result from high-quality LMX relationships have important implications for team performance outcomes and viability. With more pressure to innovate and remain competitive in today's business environment by maximizing creativity, some researchers suggest all team members must have an influence on the team's goals, priorities, and decisions in order for teams to successfully harness the diverse knowledge and expertise within them (Gajendran & Joski, 2012; Kirkman, Rosen, Tesluk, & Gibson, 2004; Malhotra, Majchrzak, & Rosen, 2007). Voice is necessary for team performance because communication supports both taskwork as well as teamwork. For example, team members need to communicate in order to develop solutions to problems and establish patterns of interactions the team finds favorable, implying the team members need to feel confident and comfortable expressing opinions in their team environments (Kozlowski & Ilgen, 2006; Morgan, Salas, & Glickman, 1993).

Team members who express voice in their teams may find this aspect of the team experience satisfying, especially when it assists with the decision making process and

navigation throughout the organization. LMX may enable teams to engage in more voice behaviors, and teams characterized by higher levels of voice may demonstrate more successful performance and higher levels of viability.

Hypothesis 4a: Teams characterized by higher levels of voice behavior will display higher levels of team performance outcomes.

Hypothesis 4b: Teams characterized by higher levels of voice behavior will display higher levels of team viability.

Hypothesis 5a: Voice will mediate the relationship between LMX and team performance outcomes.

Hypothesis 5b: Voice will mediate the relationship between LMX and team viability.

Team coordination. The coordinative properties of teams proposed to result from high-quality LMX relationships have important implications for team performance results and viability. Team tasks are inherently complex and challenging, mandating interdependent effort (Hackman, 1987). Researchers have noted the importance of teams to possess the ability to shift work among members in order to balance high-workloads during time-pressured or emergency situations (Cannon-Bowers, Tannenbaum, Salas, & Volpe, 1995). Team coordination increases the opportunity for successful team performance by synchronizing team member ideas and opinions, allowing them to be incorporated in team projects while balancing issues of conflict among team members (Levi, 2014). Members in highly coordinative teams know how and when to exchange behavior, information, and effort and maintain high levels of teamwork throughout a

team's transition, action, and interpersonal cycles (Marks et al., 2001). Good coordination tactics may lead to the development of self-efficacy, which may allow teams to be more adaptive to their environments (Pulakos et al., 2002) in addition to demonstrating better performance (Srivastava, Bartol, & Locke, 2006). The familiarly of these exchanges could also lead members to want to remain with the group. As previous research already indicates a positive relationship between team coordination on team performance (Gully et al., 2002), good coordination is likely to foster desired team outcomes as well as team viability.

Hypothesis 6a: Teams characterized by higher levels of coordination will display higher levels of team performance outcomes.

Hypothesis 6b: Teams characterized by higher levels of coordination will display higher levels of team viability.

Hypothesis 7a: Team coordination will mediate the relationship between LMX and team performance outcomes.

Hypothesis 7b: Team coordination will mediate the relationship between LMX and team viability.

Team cohesion. Further, the cohesive properties of teams proposed to result from high-quality LMX relationships have important implications for team results and viability. Cohesive teams tend use their resources more efficiently because they know team members well and are motivated to complete their tasks (Beal et al., 2003). Once team cohesion is established, it enhances the team's interpersonal processes and increases the amount of effort members are willing to exert toward team tasks which promotes

more effective task work, which then promotes more effective performance (Zaccaro et al., 2001). The relationship between team cohesion and team performance is supported by meta-analytic evidence, such that both interpersonal attraction and task commitment components of cohesion share positive correlations with performance when measured as behavior, efficiency, and effectiveness (Beal et al., 2003). Empirical research also exists to support the position that leader interactions often strengthen performance indirectly through its effect on group cohesion (Michalisin, Karau, & Tangpong, 2007). According to Levi (2014), the purpose of cohesion building is to develop a team spirit and increase a sense of belonging to the team. Individuals working in a team characterized as cohesive may be more satisfied and long to remain with that group as well more committed to their goals. Indeed, empirical evidence exists to support that the actions leaders take to cultivate relationships with subordinates and create a cohesive team environment positively predicts a team's effectiveness (Hu, 2012).

Hypothesis 8a: Teams characterized by higher levels of cohesion will display higher levels of team performance outcomes.

Hypothesis 8b: Teams characterized by higher levels of cohesion will display higher levels of team viability.

Hypothesis 9a: Team cohesion will mediate the relationship between LMX and team performance outcomes.

Hypothesis 9b: Team cohesion will mediate the relationship between LMX and team viability.

CHAPTER FOUR

PERCEIVED LMX VARIABILITY AND TEAM EFFECTIVENESS

Recent research has begun to investigate the variability in LMX and the types of implications this has for work groups. Recent research has also begun to examine the effects of LMX variability in work team settings to determine the impact of leader-team member relational differences on team outcomes. When examining the variability in LMX in work group or team settings, perceptions of the phenomena may be the most important to consider. Subjective evaluations of LMX relational variety within a team may offer unique perspectives and explanations for why certain teams experience less conflict, communicate effectively, and demonstrate successful, sustainable performance.

Perceived LMX Variability

Hooper and Martin (2008) examined the relationships between perceptions of LMX variability and individual well-being; they discovered LMX variability was negatively associated with reports of individual well-being and positively associated with perceptions of conflict among team members. Unfortunately, these researchers were not able to conduct group-level analyses with the samples they collected. Therefore, the effect of perceived LMX variability on team effectiveness has yet to be explained. Likewise, it is unknown whether perceived LMX variability is consistent across team members and how this influences interpersonal and task-oriented team processes vital for effectiveness.

As mentioned previously, research indicates that work teams function well when their members coordinate and collaborate well together, or display high levels of

cohesion (e.g., Marks et al., 2001), which may suggest equality enhances cooperation in groups (Deutsh, 1975; Greenberg, 1982; Sinclair, 2003). The more equal or similar a leader's interactions are with each team member, the more likely team members may perceive their leader as just or fair (Hu, 2012; Scandura, 1999) and experience less perceptions of relational team conflict (i.e., interpersonal rifts of anger, distrust, fear, and other forms of negative affect; Pelled, 1996). Ergo, variation in relationship quality within a team may present unwanted challenges to interpersonal team processes.

According to equity and balance theories (Heider, 1958; Sherony & Green, 2002), employees establish expectations for fairness in their work groups and strive to achieve balance in their attitudes toward coworkers by minimizing discrepancies between their leader-member relational quality and that of their coworker's leader-member relational quality. In one study, team members only perceived differential treatment to be fair under certain conditions (e.g., when a target member was more competent than other members in the group; Sias & Jablin, 1995). In another study, coworker relationship quality decreased as dissimilarity in LMX increased (Sherony & Green, 2002). Not surprisingly, Hooper and Martin (2008) found that perceptions of LMX variability negatively and incrementally influenced employee well-being beyond the positive influence of LMX relationship quality. Leaders that behave more uniformly across team members may develop similar relationships with team members, establish shared team norms, and foster more effective teamwork. In this regard, team supervisors could establish fair climate and enhance team perceptions of equality by providing necessary equipment, key resources,

and timely information to each team member, but damage relations or negatively affect team climate if certain members received more or higher quality resources. (Hu, 2012).

Based on extant research of LMX variability and principles of fairness, inverse relations between perceived LMX variability and a number of team-related constructs may exist. According to the literature, LMX differentiation may moderate the relationship between mean team LMX and team conflict, such that teams with higher mean LMX, but higher levels of differentiation, were associated with higher levels of conflict compared to teams with lower levels of mean team LMX and less differentiation (Boies & Howell, 2006). In contrast, Hu (2012) found that, when examining shared perceptions of LMX climate within teams, LMX climate was positively related to teamwork and team effectiveness regardless of the level of LMX variance within the team. However, it is likely that the interaction found between LMX differentiation and conflict in Erdogan and Liden's (2002) research may more closely mirror the relationships in this study than Hu's (2012) research examining LMX variability from a climate perspective.

Additionally, LMX variability may not only hinder effective teamwork (Van Breukelen et al., 2010), but may also influence interpersonal interactions associated with team malfunctioning (e.g., conflict perceptions; Hooper & Martin, 2008). When perceptions of LMX variability in a team are low, team members would be expected to get along more favorably, although this relationship may look different if the overall level of LMX in a team was low. Alternatively, when perceptions of LMX variability in a team are high, team members would not be expected to coalesce as well, communicate as

openly, or trust and respect their leaders, suggesting the team would not be as successful. Because previous evidence has found a negative relationship between LMX differentiation and team performance (Tse, 2014), perceived LMX variability is hypothesized to be negatively related to team performance behaviors and cohesion, which are known to be crucial for successful team functioning (Kozlowski & Ilgen, 2006; Levi, 2014).

Hypothesis 10: There will be an incremental, negative effect of perceived LMX variability on (a) voice, (b) team coordination, (c) team cohesion, (d) team performance outcomes, and (e) team viability when controlling for LMX.

Perceived LMX Variability and LMX Differentiation

As mentioned previously, LMX variability in work groups and teams is typically examined using two approaches: LMX differentiation and perceived LMX variability. LMX differentiation is typically operationalized as the within-group standard deviation of LMX quality scores and does not capture unique perceptions of relational variety in the team (Le Blanc & Gonzalez-Roma, 2012). To date, no study to my knowledge has compared these methods when examining workplace phenomena related to LMX. This lack of measurement comparison is problematic for at least two reasons. First, the psychological literature tends to give precedence to perceptions of phenomena, because perceptions offer a lens through which individuals shape and experience reality. LMX variability research has been primarily conducted using LMX differentiation measurement, implying the LMX variability literature does not yet provide a holistic picture of how differential quality relationships between leaders and followers affect

individuals and groups. Second, determining which LMX variability method shares stronger relations to team outcomes will inform the study of LMX by providing researchers with recommendations for which measure to use. If subjective variability is found to be a stronger predictor of team processes compared to objective variability, then it is possible researchers may need to determine whether previously posited LMX differentiation relationships still hold relevance when examined from a perceptual lens. In order to establish how perceived LMX variability and LMX differentiation compare, the following research question is proposed.

Research Question 1 (RQ1): How does LMX differentiation compare to perceived LMX variability when explaining team outcomes?

CHAPTER FIVE

SUMMARY OF HYPOTHESES

In order to understand how LMX may influence the effectiveness of work teams, the following hypotheses are proposed. As previously mentioned, the hypothesized model can be found in Figure 1.

Hypothesis 1a (H1a): LMX will be a positive predictor of voice behavior, such that individuals higher on LMX will report engaging in more voice behavior.

Hypothesis 1b (H1b): The affect dimension of LMX will be nonlinearly related to voice, such that as affect increases at low levels, voice will increase, but as affect continues to increase to higher levels, the effect of affect on voice behavior will no longer increase at the same rate and will level off.

Hypothesis 2 (H2): LMX will be a positive predictor of team coordination, such that individuals reporting higher LMX will report higher levels of coordination occurring in their team.

Hypothesis 3 (H3): LMX will be a positive predictor of team cohesion, such that individuals reporting higher LMX will report higher levels of cohesion occurring in their team.

Hypothesis 4a (H4a): Teams characterized by higher levels of voice behavior will display higher levels of team performance outcomes.

Hypothesis 4b (H4b): Teams characterized by higher levels of voice behavior will display higher levels of team viability.

Hypothesis 5a (H5a): Voice will mediate the relationship between LMX and team performance outcomes.

Hypothesis 5b (H5b): Voice will mediate the relationship between LMX and team viability.

Hypothesis 6a (H6a): Teams characterized by higher levels of coordination will display higher levels of team performance outcomes.

Hypothesis 6b (H6b): Teams characterized by higher levels of coordination will display higher levels of team viability.

Hypothesis 7a (H7a): Team coordination will mediate the relationship between LMX and team performance outcomes.

Hypothesis 7b (H7b): Team coordination will mediate the relationship between LMX and team viability.

Hypothesis 8a (H8a): Teams characterized by higher levels of cohesion will display higher levels of team performance outcomes.

Hypothesis 8b (H8b): Teams characterized by higher levels of cohesion will display higher levels of team viability.

Hypothesis 9a (H9a): Team cohesion will mediate the relationship between LMX and team performance outcomes.

Hypothesis 9b (H9b): Team cohesion will mediate the relationship between LMX and team viability.

Hypothesis 10 (H10): There will be an incremental, negative effect of perceived LMX variability on (a) voice, (b) team coordination, (c) team cohesion, (d) team performance outcomes, and (e) team viability when controlling for LMX.

Research Question 1 (RQ1): How does LMX differentiation compare to perceived LMX variability when explaining team outcomes?

CHAPTER SIX

METHOD

This study used a field investigation to test the proposed hypotheses. In order to locate teams and individuals for participation in this study, a partnership was formed with an undergraduate research program at a medium-sized Southeastern university, which promotes and funds research conducted by groups of students and is supervised and mentored by faculty. According to Hackman (2002), teams share common goals, have relatively stable membership, and have a common leader to supervise and monitor team processes. By meeting with the undergraduate research program's coordinators and several supervisors of these research teams, I learned that the teams sponsored by the undergraduate research program satisfied the definition of teams because they share a common goal related to specific research activities, have team members that rely on each other for work to be completed, have a common leader who provides supervision and guidance, and have members that tend to remain as part of the team for at least four months. I also learned that these teams may have several leaders, who serve as supervisors or mentors to the student members in various capacities. Each team is supervised to a degree by a primary faculty leader, who is accountable for providing grades to team members at the end of each semester. Thus, the current study was conducted with research teams possessing diverse interests and goals (e.g., engineering, biology, psychology, English literature, agriculture, music, and sport). These teams were comprised of undergraduate student members led by faculty members, although it should be noted that graduate students sometimes led these teams.

Sample and Procedure

Data were collected from all possible members and leaders of the undergraduate research teams. Participant data were collected online over two time periods, with all participants accessing a survey link through email for each data collection period. LMX and LMX variability perceptions were collected before team process, emergent state, and effectiveness information in order to establish a level of temporal precedence. The establishment of temporal precedence was important for justifying an effect of LMX on team processes and effectiveness. Research on team processes and team effectiveness suggests a one-month time lag may be sufficient to establish temporal precedence (e.g., Hu, 2012), as many teams are able to demonstrate successful performance within this time frame, depending on the scope and length of each task. Given that many teams in the undergraduate research program may be expected to accomplish tasks on a weekly or biweekly basis, a one-month time lag was executed for the current study. During each data collection period, participants received a brief purpose of the study, were assured confidentially of their responses, were asked to provide the name of the research team they belonged to, and were asked to create a unique identification code based on their student ID and the city they were born in, which was used to match data from each survey. Also during each data collection period, participants were informed of potential incentives (i.e., participation in both online surveys would qualify them for one of five $50 Visa gift cards). Incentives were provided in this study in hopes of increasing team participation.

Online questionnaires were distributed to both team members (e.g., undergraduate students) and team leaders (e.g., faculty and some graduate students) in order to reduce methodological concerns associated with common method bias by obtaining multisource information. At time 1, team members provided demographic information (see Appendix H), answered items related to their individual LMX relationship with the leader they perceived to contribute the most leadership to the team (see Appendix H), and provided information related to the amount of relationship variation they perceived to occur within their team between this leader and other teammates. In addition, participants were asked about the number of individuals they perceived to lead the team in order to learn more about the team environment and avoid making assumptions about the nature of the leader structure on the team. To ensure consistency, participants were asked to complete the LMX and LMX variability measures for the same individual that was perceived to be the main, or primary, leader of the team. Finally, in order to examine the hypothesized model while taking into account team and team member differences in development and leader-member relationship length, the number of months a participant had served as a member of one's current team and the number of months a participant had worked for his or her current leader were controlled for in this study (see Appendix H). Toward the end of time 1 data collection, the undergraduate research program provided up-to-date size information about each research team; however, the undergraduate research program did not have this information for all teams. Where possible, team size information was used to confirm the size of each team and check for inconsistencies with team member-provided data before time 2 data collection began. A total of 204 participants across 119

teams completed the survey at time 1, resulting in approximate response rates of 11% (individual participants) and 46% (teams) given available team size and team count data. Fifty-three percent of teams were perceived as having two or more team leaders. Not all members of the same team perceived to have the same leaders.

At time 2, one month after the first data collection, team members completed measures of voice, team coordination, team cohesion, and team viability. Also at time 2, primary faculty team leaders were asked to complete a measure of team performance outcomes for each team. Supervisor-rated performance outcomes was chosen as an alternative to team member ratings of performance outcomes. Although supervisor ratings can pose statistical challenges when determining whether explained variance in performance is a function of team variation or of supervisor bias, there is some evidence to suggest supervisor ratings may be less susceptible to social desirability bias than are employee ratings (e.g., Atkins & Wood, 2002). In addition, supervisors more than team members may have unique insight into the moving parts internal and external to the team required for team performance, and thus may provide more accurate information than team members regarding their team's performance (Morgeson et al., 2010). A total of 210 student participants across 116 research teams completed the survey at time 2, resulting in approximate response rates of 11% (individual participants) and 45% (teams) given available team size and team count data. Ninety-five team leaders provided team performance information; however, 15 leaders were deleted because they did not indicate the name of the team they rated. This resulted in 80 leaders across 61-rated teams, with 9

teams receiving ratings from multiple mentors. (Teams with ratings from multiple leaders received an averaged score.)

Using unique identifier codes to match participants across time, it was determined that a total of 91 student participants (76.0% Female, 90.1% Caucasian) across 66 teams completed both online surveys. Forty-eight out of the 66 teams were only represented by one team member, indicating a large percentage (76.4%) of teams only had participation from one team member—and only 18 teams had participation from more than one member. The lack of participation from multiple members on the same team indicated that there may be data nesting limitations. An initial analysis of within and between team variance suggested a lack of variance occurring within teams, resulting in the inability to estimate intercept variance when using mixed models analysis in SPSS. Consequently, this resulted in the inability to obtain accurate ICC and *rwg* information for the study variables, excluding team performance, which was already measured at the group level. Using hierarchical linear modeling, one can disentangle individual level from team level variance based on the way intercept and residual variance is reduced across groups (Atkins, 2005). Unfortunately, I was not able to disentangle, or deconflate, individual level and team level variance as part of this research. Thus, it was determined the data collected were more appropriate for examination at the individual level of analysis and would still inform the literature on how perceptions of LMX may be predictive of team behaviors and perceptions of team outcomes.

In order to provide support that differences in participant responses could reflect differences between teams, responses from teams containing more than one team member

were averaged to obtain one value for each team (e.g., one score for team coordination given three team member responses to team coordination items), resulting in a total of 66 participant responses representing 66 different teams to be investigated for the current study. Responses to items asking for gender and ethnicity information were not averaged, resulting in a sample of 32 females (16 males), 42 Caucasians (6 Minorities), and 18 cases not associated with gender or ethnicity information. Of the 66 cases in this study, 59 were associated with completed measures of LMX variability, in which a self-quality rating and ratings of other LMX relationships within the team were provided; however, the seven cases that did not have LMX variability information were not discarded because they had complete information for the other measures. Of the 66 cases, 22 received performance ratings about their teams from team leaders, and any teams that received performance ratings from multiple mentors received an averaged leader rating, as mentioned previously. Due to glaring challenges associated with discarding cases from an already small sample, participants with missing LMX variability information or leader ratings were still included in the sample.

Measures

For all measures, a 7-point Likert scale was used unless stated otherwise, where 1 = Strongly Disagree and 7 = Strongly Agree.

Leader-Member Exchange (LMX). LMX refers to each team member's perceptions of the quality of his or her own relationship with the team's leader. LMX was assessed with Liden and Maslyn's (1998) 12-item LMX-MDM measure (see Appendix A), which assessed the extent to which team members liked their leader (affect), made

extra efforts for their leader (contribution), respected their leader's professional knowledge and skills (professional respect), and the extent to which the leader publically supports the follower (loyalty). Sample items included, "I like my leader very much as a person", "I do not mind working hard for my leader", I am impressed with my leader's knowledge", and "My leader would defend me to the organization if I made an honest mistake".

In order to provide empirical support for the construct validity of LMX, Liden and Maslyn's (1998) LMX-MDM measure was factor-analyzed to ensure the four dimensions were distinct by conducting a series of confirmatory factor analyses using EQS software (Byrne, 2006). Robust estimation was used in this study in order to address limitations associated skewed, or non-normal, data. I assessed the measurement model using the original Time 1 data (N = 204). Since the ICCs were non-zero, LMX item scores were team-mean centered in order to deconflate within group variance from between group variance. Overall model fit was assessed by obtaining the comparative fit index (CFI) and root mean square error of approximation (RMSEA) and then comparing obtained values to commonly accepted guidelines of CFI > .90 and RMSEA < .08, respectively (Hu & Bentler, 1999). Factor loadings suggested that two items were unreliable and likely contributing to unacceptable fit (CFI = .84, RMSEA = .11, RMSEA 90% CI = .09, .12). Upon reviewing the items, "My leader defends my work actions to others, even without complete knowledge of the issue in question," and, "I do work for my leader that goes beyond what is specified in typical expectations," and determining the item content may not be appropriately describing situations likely to occur within a university classroom

setting, the two items were removed from their contribution and loyalty dimension, leaving 10 items representing four dimensions. With the revised ten-item measure, the four-factor model, with two error terms co-varied, demonstrated acceptable fit (CFI = .935, RMSEA = .077, RMSEA 90% CI = .05, .10), supporting a four-factor structure for LMX compared to a one-factor structure of LMX (CFI = .72, RMSEA = .16, RMSEA 90% CI = .14, .18). When examining the four-factor model, small to moderate correlations between factors (range: r = .13 - .44, p < .05) lent support that the four dimensions were distinct.

A higher-order CFA test was conducted to assess whether the four dimensions would load onto a higher LMX factor. For the higher order model, the CFA results demonstrated some harm to model fit (CFI = .92, RMSEA = .08, RMSEA 90% CI = .06, .11). A chi-square difference test was conducted to determine which model, the first order or second order, exhibited better fit. The Satorra-Bentler scaled chi-square difference test between the higher order model and four-factor structure was significant, χ^2 (3) = 8.94, p < .05, suggesting the first order model exhibited better fit (see Table 2). Thus, the first order model, in which the four dimensions of LMX were examined without the presence of a higher order factor, was used for hypothesis testing. Internal consistency reliability for the affect, loyalty, contribution, and professional respect dimensions were acceptable (α =.84, .78, .85, and .84, respectively). Previous internal consistency reliabilities for the affect, loyalty, contribution, and professional respect dimensions have been similar (α = .90, .86, .81, and .94, respectively; Choi, 2013).

LMX Differentiation. Although proposed to be operationalized as the perceived within-group standard deviation of the Liden and Maslyn (1998) LMX measure (see Appendix A) for each team (e.g., Le Blanc & Gonzalez-Roma, 2012; Roberson, Sturman, & Simons, 2007), the *rwg* value associated with each team was unable to be calculated due to a lack of team participation and a lack of variance within teams. In addition, 48 of the teams in this study only received participation from one member. Therefore, LMX differentiation was not examined in the model.

Perceived LMX Variability. Perceived LMX variability was measured using Hooper and Martin's (2008) single-item LMX Distribution measure (see Appendix B), which has displayed strong correlations with the LMX-7 measure sometimes used to assess LMX quality (Hooper & Martin, 2008). Participants were asked to rate the LMX relationship quality of each of their team members by indicating the number of people in their team whose relationship quality with their leader can be described as 1 = very poor, 2 = poor, 3 = satisfactory, 4 = good, or 5 = very good. Participants also indicated how they would describe their own LMX relationship using this scale using the one item, "The quality of the working relationship between myself and my supervisor is [very poor – very good]". When examining the scores among the 66 cases, self-ratings on the LMX Distribution measure were positively correlated with three dimensions of LMX (affect: $r = .54$, $p < .01$; contribution: $r = .38$, $p < .01$; respect: $r = .48$, $p < .01$), suggesting congruence among participant responses on similar LMX measures. Interestingly, the loyalty dimension of LMX was not significantly related to self-ratings on the LMX Distribution measure (loyalty: $r = .23$, $p = .06$). Using the information collected on this

measure, the perceived standard deviation of LMX scores within a team was computed (Hooper & Martin, 2008).

Perceived LMX variability was not operationalized by calculating the coefficient of variation, which involves dividing the standard deviation of LMX relationships within a team by the team mean reported by each participant (e.g., Allison, 1978), because the resultant score of variability for each participant would have been affected by whether the participant's response was high or low on the 1 to 5 scale. Rather, the sample standard deviation was simply used. For teams that received participation from more than one leader, the standard deviation was calculated using all of the individual team member's perceptions.

Voice. Voice behavior was assessed using Van Dyne and LePine's (1998) six-item measure often used to examine voice behavior in group settings (e.g., Morrison, Wheeler-Smith, & Kamdar, 2011; Walumbwa & Schaubroeck, 2009). A sample item was, "I speak up in this team with ideas for new projects or changes in procedure" (see Appendix C). For the larger time 2 sample (N = 210), with team-mean centered items to control for possible group-level variance, this measure demonstrated acceptable fit as a one-factor structure (CFI = .98, RMSEA = .06, RMEA 90% CI = .01, .12). This measure demonstrated acceptable internal consistency reliability (α = .90).

Team Coordination. Lewis's (2003) five-item scale was used to assess team coordination (see Appendix D). A sample item was, "Our team coordinates its efforts well." For the larger time 2 sample (N = 210), with team-mean centered items to control for possible group-level variance, this measure demonstrated good fit as a one-factor

structure (CFI = .98, RMSEA = .07, RMEA 90% CI = .01, .132). This measure demonstrated acceptable internal consistency reliability (α = .88).

Team Cohesion. Team cohesion (see Appendix E) was assessed using 6 items from Carless and De Paolo's (2000) cohesion measure. Task cohesion was assessed with four items (e.g., "Our team is united in trying to reach its goals for performance") and interpersonal attraction to the team was assessed using two items (e.g., "For me this team is one of the most important social groups to which I belong"). In order to provide empirical support for the construct validity of team cohesion, and to ensure the task and interpersonal attraction dimensions were distinct, I conducted a series of confirmatory factor analyses using EQS software (Byrne, 2006). Again, I assessed the measurement model using the larger time 2 data (N = 210), and cohesion item scores were team-mean centered in order to control for possible group-level effects. When examining the two-factor model, a relatively small correlation (r = .20) between factors lent support that the two dimensions were distinct, and the two-dimensional structure demonstrated good fit (CFI = .95, RMSEA = .07, RMSEA 90% CI = .01, .12) compared to a unidimensional structure (CFI = .52, RMSEA = .21, RMSEA 90% CI = .17, .24), which demonstrated poor fit (see Table 3). This discrepancy suggested that when testing hypotheses, task cohesion and interpersonal cohesion should be used separately. Task and interpersonal attraction dimensions of cohesion both demonstrated acceptable internal consistency reliability (α = .78).

Team Performance Outcomes. Aubé and Rousseau's (1998) procedure was used to assess each team's performance outcomes (see Appendix F). Team leaders provided

ratings of overall team performance by responding to three items regarding goal achievement, work quality, and productivity. A sample item is, "The members of this team attain their assigned performance goals." For the 66 *N* sample, this measure demonstrated an internal consistency value of .93. For the slightly larger time 2 sample of leader ratings (*N* = 80), item loadings for the three performance outcome items were above .90, lending some support to a one-factor structure; and this approach was taken during hypothesis testing. However, chi-square and fit index information were unable to be calculated due to 0 degrees of freedom associated with only loading three indicators to a one factor structure.

Team Viability. Team viability was assessed using Aubé and Rousseau's (2005) four-item team viability measure (see Appendix G). A sample item is, "My team members adjust to the changes that happen in their work environment." For the larger time 2 sample (*N* = 210), with team-mean centered items to control for possible group-level variance, this measure demonstrated good fit as a one-factor structure (CFI = .99, RMSEA = .04, RMSEA 90% CI = .01, .15), with item loadings ranging from .60 to .88. The internal consistency reliability for this measure was acceptable (α = .84).

Control Variables. In addition to two demographic items asking for gender and ethnicity information, participants responded to two items in open-response form: length of time worked for the perceived team leader (in months) and length of time served in current team (in months) (see Appendix H). The average tenure with the team and the individual perceived as the team's main leader was 7.44 months (*SD* = 6.31) and 7.69 months (*SD* = 6.54), respectively. According to team size information, which was

provided by the university research program, teams varied from 2 to 28 members. Team tenure and leader tenure were controlled for in this study, as previous research has linked these variables with LMX or team effectiveness outcomes in the workplace (Liden, Erdogan, Wayne, & Sparrowe, 2006; Sin, Nahrgang, & Morgeson, 2009; Tse et al., 2008). Team size was not included as a control variable, as the undergraduate research program was missing current team size information for several of the teams and only including cases with team size information would have decreased the sample size.

CHAPTER SEVEN

RESULTS

Data were screened for multivariate outliers based on scores of Mahalanobis distance in SPSS, and then checked for assumptions of heteroscedasticity and normality (Tabachnick & Fidell, 2007). All cases were within an acceptable range of normality, and observed Mahalanobis distance did not violate estimated values when using chi-square indices. As mentioned previously, because part of the data was nested within groups (i.e., teams), but hierarchical linear modeling was not possible given challenges with sample size, steps were taken to deconflate the data where appropriate in order for each case to represent a different team for comparison purposes. All analyses were conducted at the single level of analysis using multiple regression, and—in some cases—correlations. Table 1 presents the means, standard deviations, intercorrelations, and reliability estimates for the study variables (see Table 1).

Several interrelations among study variables yielded small standard deviations (e.g., .06, see Table 1). Small standard deviations indicate lower levels of dispersion around the mean; however, small standard deviations can also create measurement challenges because they indicate low levels of variability occurring within a measure. Upon examining the range of scores associated with each measure, range restriction appeared to be occurring, such that the distribution of scores for certain measures (e.g., LMX dimensions and team performance) tended to be concentrated around the higher end of the scale. This is important to note because these ceiling effects are likely to pose

measurement limitations for hypothesis testing, especially when examining and making sense of quadratic effects.

Hypothesis Testing

All multiple regression analyses were tested with the following control variables: team tenure and leader tenure. Thus, the results that follow include the models when controlled for the previously mentioned variables.

Hypothesis 1 (H1). To test whether LMX was a positive predictor of voice behavior, voice scores were regressed on the control variables and then on the four dimensions of LMX, separately. The LMX dimensions of affect (β = .40, B = .31, SE = .09, sr^2 = .15, $p < .05$), contribution (β = .52, B = .45, SE = .10, sr^2 =.27, $p < .05$), and professional respect (β = .50, B = .47, SE = .11, sr^2 =.25, $p < .05$) positively predicted voice behavior one month later. Individuals who perceived their leader to be loyal to their relationship were not significantly more likely to engage in voice behavior within the team setting (β = .20, B = .16, SE = .10, sr^2 = .04, $p > .05$), contrary to expectations. Thus, Hypothesis 1a was partially supported (see Table 4). To test whether affect for the leader was nonlinearly related to voice behavior, such that voice behavior increases at different rates as affect increases, affect was centered prior to creating a product term in order to reduce the effects of multicollinearity (Aiken & West, 1991). The interaction term was not significant (β = -.05, B = -.02, SE = .06, sr^2 = .00, $p > .05$), suggesting that as affect for the leader increases, voice behavior tends to increase in a linear direction, which does not provide support Hypothesis 1b.

Hypothesis 2 (H2). To test whether LMX was a positive predictor of team coordination, perceived team coordination scores were regressed on the control variables and then on the four dimensions of LMX, separately. Although the loyalty dimension approached significance, none of the LMX dimensions significantly predicted team coordination (affect: $\beta = .17$, $B = .19$, $SE = .14$, $sr^2 = .03$, $p > .05$; loyalty: $\beta = .22$, $B = .25$, $SE = .13$, $sr^2 = .17$, $p > .05$; contribution: $\beta = .13$, $B = .17$, $SE = .15$, $sr^2 = .02$, $p > .05$; professional respect: $\beta = .15$, $B = .20$, $SE = .17$, $sr^2 = .02$, $p > .05$) beyond control variables, failing to support Hypothesis 2 (see Table 5). When team tenure and leader tenure were removed, perceptions of team leader loyalty to the student became a positive influence on team coordination ($\beta = .25$, $B = .28$, $SE = .14$, $sr^2 = .06$, $p < .05$).

Hypothesis 3 (H3). To test whether LMX was a positive predictor of team cohesion, perceived team cohesion scores from the task and interpersonal attraction dimensions were separately regressed on the control variables and then on the four different dimensions of LMX. Affect ($\beta = .25$, $B = .27$, $SE = .13$, $sr^2 = .06$, $p < .05$) and loyalty ($\beta = .29$, $B = .32$, $SE = .13$, $sr^2 = .08$, $p < .05$) positively predicted the perceived task cohesion of teams one month later, whereas perceptions of contribution ($\beta = .19$, $B = .24$, $SE = .15$, $sr^2 = .04$, $p > .05$) and professional respect for the leader ($\beta = .17$, $B = .22$, $SE = .16$, $sr^2 = .03$, $p > .05$) did not significantly predict perceptions of task cohesion. Alternatively, affect ($\beta = .27$, $B = .49$, $SE = .23$, $sr^2 = .07$, $p < .05$), loyalty ($\beta = .25$, $B = .46$, $SE = .22$, $sr^2 = .06$, $p < .05$), and contribution ($\beta = .27$, $B = .56$, $SE = .25$, $sr^2 = .08$, $p < .05$) positively predicted team members' interpersonal attraction to their teams one month later, whereas perceptions of professional respect for the leader ($\beta = .22$, $B = .48$, $SE =$

.28, sr^2 =.05, $p > .05$) did not significantly predict individuals' perceptions of interpersonal attraction to their team. Thus, Hypothesis 3 was partially supported (see Table 6).

Hypothesis 4 (H4). Although the collected data did not afford direct insight into Hypothesis 4, which stated that teams characterized by higher levels of voice behavior would display higher levels of leader-rated team performance outcomes (H4a) and team viability (H4b), correlational analyses contributed relevant information. Higher levels of voice behavior did not appear to be related to leader-rated team performance outcomes (r = -.06, $p > .05$), although it should be noted that this relationship hinged on a mere 22 participants. Voice behavior and perceptions of team viability were positively associated (r = .46, $p < .05$), lending some support for H4b (see Table 1).

Hypothesis 5 (H5). When testing for Hypothesis 5, which stated that voice would mediate the relationship between LMX and leader-rated team performance outcomes (H5a) and team viability (H5b), I used the PROCESS macro for SPSS (Hayes, 2013) and followed best practice mediation guidelines specified by Preacher and Hayes (2004). When testing the model with team performance outcomes, the overall model and normal theory test and bootstrap tests for indirect effects was not significant for affect (R^2 = .09, $F(4,17)$ = .42, $p > .05$; B = -.02, SE = .18, Z = -.05, 95% CI = -.18, .21, $p > .05$), loyalty (R^2 = .12, $F(4,17)$ = .59, $p > .05$; B = -.00, SE = .04, Z = -.01, 95% CI = -.07, .08, $p >$ .05), contribution (R^2 = .12, $F(4,17)$ = .57, $p > .05$; B = -.08, SE = .15, Z = -.50, 95% CI = -.55, .32, $p > .05$), or professional respect (R^2 = .10, $F(4,17)$ = .47, $p > .05$; B = -.05, SE =

.21, Z = -.25, 95% CI = -1.07, .28, p > .05), failing to support Hypothesis 5a (see Table 7).

When testing the model with team viability, the overall model was significant for affect, (R^2 = .34, F(4,61) = 7.79, p < .05). Affect was significantly related to voice (B = .31, t = 3.31, p < .05), and voice was significantly related to team viability (B = .40, t = 2.89, p < .05). Normal theory testing for indirect effects revealed a significant mediating effect (B = .12, SE = .06, Z = 2.12, p < .05), and bootstrapped confidence intervals did not include 0 [.03, .32]. Similarly, the overall model was significant for contribution, (R^2 = .29, F(4,61) = 6.08, p < .05). Contribution was significantly related to voice (B = .45, t = 4.75, p < .05), and voice was significantly related to team viability (B = .42, t = 2.72, p < .05). Normal theory testing for indirect effects revealed a significant mediating effect (B = .19, SE = .08, Z = 2.32, p < .05), and bootstrapped confidence intervals did not include 0 [.06, .39]. The overall model including professional respect was also significant (R^2 = .29, F(4,61) = 6.30, p < .05). Professional respect was significantly related to voice (B = .47, t = 4.50, p < .05), and voice was significantly related to team viability (B = .41, t = 2.72, p < .05). Normal theory testing for indirect effects revealed a significant mediating effect (B = .19, SE = .08, Z = 2.29, p < .05), and bootstrapped confidence intervals did not include 0 [.05, .43]. For the loyalty dimension of LMX, the overall model was significant (R^2 = .36, F(4,61) = 8.50, p < .05), but the normal theory test of the indirect effect of voice behavior on team viability was not significant (B = .07, SE = .05, Z = 1.44, p > .05), and bootstrapped confidence intervals included 0 [-.03, .23]. Taken together, Hypothesis 5b received partial support (see Table 7).

Hypothesis 6 (H6). Although the study data did not afford direct insight into Hypothesis 6, which stated that teams characterized by higher levels of coordination would display higher levels of team performance outcomes (H6a) and team viability (H6b), correlational analyses contributed relevant information. Higher levels of perceived team coordination were not related to leader-rated team performance outcomes (N = 22, r = .11, p > .05), failing to support H6a. However, voice behavior and perceptions of team viability were positively associated (N = 66, r = .62, p < .05), lending some support for H6b (see Table 1).

Hypothesis 7 (H7). Hypothesis 7 stated team coordination would mediate the relationship between LMX and leader-rated team performance outcomes (H7a) and team viability (H7b). When testing the model with team performance outcomes, the overall model and normal theory test and bootstrap tests for indirect effects was not significant for affect (R^2 = .12, F(4,17) = .59, p > .05; B = .03, SE = .06, Z = .48, p > .05, 95% CI = -.03, .20), loyalty (R^2 = .14, F(4,17) = .67, p > .05; B = .03, SE = .07, Z = .41, p > .05, 95% CI = -.03, .33), contribution (R^2 = .13, F(4,17) = .61, p > .05; B = .03, SE = .07, Z = .41, p > .05, 95% CI = -.04, .21), or professional respect (R^2 = .12, F(4,17) = .57, p > .05; B = .02, SE = .08, Z = .28, p > .05, 95% CI = -.04, .32), failing to support Hypothesis 7a (see Table 8).

When testing the model with team viability, the overall model was significant for affect, (R^2 = .50, F(4,61) = 15.48, p < .05). Affect was significantly related to coordination (B = .19, t = 1.39, p < .05), and coordination was significantly related to team viability (B = .45, t = 5.61, p < .05). However, normal theory testing for indirect

effects did not reveal a significant mediating effect (B = .09, SE = .07, Z = 1.33, p > .05), and bootstrapped confidence intervals included 0 [-.04, .30]. Similarly for professional respect, loyalty, and contribution dimensions, the overall models were significant (professional respect: R^2 = .48, F(4,61) = 13.93, p < .05; loyalty: R^2 = .46, F(4,61) = 13.22, p < .05; contribution: R^2 = .48, F(4,61) = 13.90, p < .05), but the indirect effects were not (professional respect: B = .09, SE = .08, Z = 1.19, p > .05, 95% CI = -.07, .34); loyalty: B = .11, SE = .06, Z = 1.71, p > .05, 95% CI = .00, .31); contribution: B = .08, SE = .07, Z = 1.06, p > .05, 95% CI = -.04, .29). Thus, Hypothesis 7b was not supported (see Table 8).

Hypothesis 8 (H8). Although the study data did not afford direct insight into Hypothesis 8, which stated that teams characterized by higher levels of cohesion would display higher levels of team performance outcomes (H8a) and team viability (H8b), correlational analyses contributed relevant information. Leader-rated team performance outcomes were not related to either type of task cohesion (task cohesion: N = 22, r = -.14, p > .05; interpersonal attraction: N = 22, r = .17, p > .05), failing to support H8a. However, team viability was positively associated with perceptions of task cohesion (N = 66, r = .52, p < .05) and interpersonal attraction to the team (N = 66, r = .38, p < .05), lending some support for H8b (see Table 1).

Hypothesis 9 (H9). Hypothesis 9 stated the relationship between LMX and leader-rated team performance outcomes (H9a) and team viability (H9b) would be partially mediated by team cohesion. When testing the model with leader-rated team performance outcomes, the overall models and normal theory tests for indirect effects

were not significant for any of the LMX dimensions nor for any of the cohesion dimensions, indicating individual LMX relationships may not influence leader perceptions of team performance. Thus, Hypothesis 9a was not supported (see Table 9). As stated previously, these relationships were assessed with a small sample, and it's likely the previous results are unreliable.

When testing the model with team viability, there were no indications of mediating effects for any of the LMX dimensions or cohesion dimensions except for loyalty and task cohesion. When specifically examining task cohesion, the overall model for the loyalty dimension of LMX was significant (R^2 = .35, F(4,61) = 8.22, p < .05). Loyalty was significantly related to task cohesion (B = .32, t = 2.47, p < .05), and task cohesion was significantly related to team viability (B = .34, t = 2.68, p < .05). Normal theory testing for indirect effects revealed a significant mediating effect of task cohesion on team viability (B = .11, SE = .06, Z = 1.97, p < .05), and bootstrapped confidence intervals did not include 0 [.02, .28], providing some support for a mediating effect of LMX at the dimensional level of analysis. Thus, Hypothesis 9b was partially supported (see Table 10).

Hypothesis 10 (H10). Hypothesis 10 stated there would be a negative, incremental effect of perceived LMX variability on voice (a), team coordination (b), team cohesion (3), team performance outcomes (d), and team viability, when controlling for LMX. To test this hypothesis, voice, coordination, cohesion, performance, and viability scores were separately regressed on control variables, then regressed on the LMX dimensions, and then regressed on perceived LMX variability. Most models were not

significant (see Table 11), suggesting perceptions of LMX variability may not negatively color perceptions of the team environment as previously thought. Alternatively, at the dimensional level of analysis, there was a positive, incremental effect of perceived LMX variability on team viability when controlling for LMX (affect: $\beta = .29$, $B = .68$, $SE = .27$, $sr^2 = .08$, $p < .05$; loyalty: $\beta = .28$, $B = .66$, $SE = .28$, $sr^2 = .08$, $p < .05$, contribution: $\beta = .25$, $B = .60$, $SE = .28$, $sr^2 = .06$, $p < .05$, professional respect: $\beta = .31$, $B = .73$, $SE = .28$, $sr^2 = .09$, $p < .05$), suggesting that perceptions of LMX variability may be linked with perceptions of team viability, contrary to expectations. Considering the large number of null findings and the contrary finding that perceptions of LMX variability within a team tended to be related to perceptions of the longevity of a team, Hypothesis 10 was not supported.

Research Question 1 (RQ1). Finally, Research Question 1 proposed to investigate whether perceived LMX variability or LMX differentiation had a stronger effect on study variables. Within team variance was unable to be accurately estimated because I experienced the inability to obtain data for a larger number of teams, and, importantly, a large number of multiple members per team. Therefore, data are at a single level, and Research Question 1 was unable to be tested. Future researchers are encouraged to collect both types of information in their studies, as this comparison will benefit the LMX variability literature by providing unique insight into aspects of LMX operationalization and measurement that influence—or possibly do not influence—participant responses in the team setting.

CHAPTER EIGHT

DISCUSSION

Leadership shapes team member behavior, cognition, and emotion throughout the performance cycle (Morgeson et al., 2010). LMX relationships appear poised to aid work teams through their influence on social exchange within the team; and previous research suggests LMX encourages extra role behaviors, facilitates individual performance, and influences communication behavior within work groups, among a number of other behaviors (Dulebohn et al., 2012). The present study was an attempt to understand how LMX influences the team environment in order to provide additional insight into the processes and emergent states LMX shapes, the benefits of LMX relationships for team effectiveness, and some potential challenges LMX variability may create. The current study established relations among LMX and commonly accepted team processes and emergent states important for a variety of teams, established relations between LMX and team effectiveness, and provided initial insight into the effects of LMX variability on the team environment.

Theoretical Contributions

This study is among the first to examine how social exchange interactions between leaders and followers in teams influence team member behavior and attitudes (e.g., Hu, 2012). Communication behaviors, coordination behaviors, and cohesion are thought to positively influence the team environment (Kozlowski & Ilgen, 2006). The findings suggested that certain aspects of LMX relationships have positive consequences for team members being willing to voice opinions to the team. How much the team

member likes the leader, is willing to work hard for the leader, and respects the leader were positive predictors of how likely the team member was to engage in voice behavior, whereas how loyal the team member perceived the leader to be to their relationship did not seem to have an impact on how likely to team member was to engage in voice behavior within the team setting. This finding is important because it potentially highlights a lever for getting people to voice diverse, sometimes controversial, opinions within teams. Although the current study did not examine whether voice behavior was a result of the leader's support for an environment where speaking up is encouraged, or whether the leader models these behaviors, the data suggest the LMX relationship is important for voice. I proposed LMX relationships would also be important for team coordination, because higher levels of LMX may have a positive influence on follower self-efficacy, team resource gathering, and team functioning (Gully et al., 2002; Morgeson et al., 2010). Contrary to expectations, neither of the four dimensions of LMX were predictive of team member perceptions of the team's coordination abilities. Only after tenure with the team and one's team leader was removed from examination, the leader's loyalty had a positive influence on the team member's perceptions of the team's coordination. It is possible loyalty was the only marginally significant influence on team coordination because a leader's loyalty to team mates may affect the team's ability to gain resources overtime and may signal to the follower that the leader values team member contributions. It is also possible none of the LMX dimensions predicted team coordination because coordinated acts among members may have more to do with team-member exchanges than leader-member exchanges (e.g., Banks et al., 2014); more

research is likely needed to establish relations between team coordination and team-member exchange.

Findings related to LMX and team emergent states suggested that certain elements of LMX are likely to have positive influences on team cohesion. Affect for the leader and perceived loyalty from the leader were predictors of task cohesion in the current study, suggesting that how much a leader is liked and perceived as loyal may positively influence how team members approach their tasks as a team. Affect for the leader and perceived loyalty from the leader, as well as how much team members perceived that they contribute to the team, were also associated with how interpersonally attracted members felt to the team, highlighting the important role leaders likely play in how important the team feels to its members.

The present study's longitudinal field study methodology helped to provide some support for the consequences of LMX on teams. This study is among the first to examine how LMX relationships influence team outcomes (e.g., Hu, 2012). Performance outcomes and the viability of teams have been acknowledged as hallmark criteria for determining team effectiveness (Hu, 2012; Mathieu et al., 2008). Contrary to expectations, follower-reported LMX and leader-rated performance outcomes were not statistically associated, suggesting LMX relationships did not seem to have much effect on whether the team leaders thought their teams were demonstrating strong performance outcomes and meeting their productivity and quality goals. Although these relations were contingent on 22 participant responses, it is possible that, with a larger sample, the results would remain similar. According to Graen and colleagues (1995), LMX evolves partly

because of the leader's need to enhance performance within the group. If the leaders supervising and mentoring the undergraduate research teams believed spending more time mentoring a few individuals compared to all individuals would benefit the team, they might do so. Future research is encouraged to provide more meaningful information on the relations between LMX and team performance outcomes.

An important finding was that LMX tended to be related to team viability. Affect, loyalty, contribution, and professional respect dimensions of LMX were all positively associated with perceptions of team viability, suggesting higher quality LMX relationships may have favorable consequences for how teams react and adapt to changes in their environment. Voice behavior significantly mediated the relations between LMX (affect, contribution, and professional respect) and team viability, indicating the positive influence of perceived dyadic social exchange on team effectiveness. In addition, task cohesion significantly mediated the relationship between perceptions of a leader's loyalty and team viability, suggesting that perceptions of leader loyalty may help to reinforce members' commitment to the teams' tasks, which may then influence the team's viability. Interestingly, team coordination did not mediate any of the relations between LMX and team viability, as was proposed. Keeping in mind that the sample was comprised of students likely graduating in a few years or less, it is possible that how well the team coordinates may not have direct repercussions for team viability, because the team's member naturally turnover around graduation.

Finally, this study is among the first to examine how perceptions of variability in social exchange interactions between leaders and members of a team setting influence

team outcomes. To my knowledge, perceptions of LMX variability have only been examined a few times in the literature (e.g., Hooper & Martin, 2008) and were not examined with constructs focused on the team's processes and effectiveness. Perceived LMX variability was proposed to be negatively related to the study variables when controlling for LMX, as the LMX literature unanimously suggests variation in follower treatment is bound to have negative consequences for followers. However, findings suggested LMX variability within teams does not tend to have a negative effect on team behaviors, cohesion, or effectiveness. Alternatively, LMX variability positively predicted perceptions of team viability when controlling for each dimension of LMX. Possible reasons for this alternative finding may include the expectation that relational variability within groups is a common occurrence in group settings, and perhaps that relational variability may allow teams to be more strategic (Graen & Uhl-Bien, 1995). Another possibility is that leaders may be able to form differential quality relationships with followers at the same time that other important forces are acting on the team to bond them. Future research is encouraged to gain a deeper understanding of why perceptions of LMX variability may influence perceptions of team viability, and if there are any covariates of this relationship not accounted for in this current study. For example, previous research has suggested team members may be accepting of differences in leader treatment if the target of better treatment has more competence and is a strong contributor to the team (e.g., Sias & Jablin, 1995). Competence may be among a number of confounding variables influencing the positive relationship found between perceived LMX variability and team viability.

Practical Contributions

Several findings from the current study could be generalized to organizations. First, higher levels of LMX tended to be associated with higher engagement in voice, perceived task cohesion and interpersonal attraction to the team, and the team's viability in the current study. These findings suggest leaders should strive to be well-received by their followers, such as by being friendly, honest, and engaging in behaviors that will attract likeness from a variety of people. The findings also suggest leaders can make a difference in the ways people choose to speak up and voice opinions to the team. Morgeson and colleagues (2010) state that leaders who support the team's climate may encourage pro-social behaviors that profit the team; this may include voice behavior. Being loyal to the team was also associated with the team's coordination, commitment to tasks and members, and its viability, indicating that demonstrating commitment to the team and its people may, in turn, lead to reciprocations of commitment from the team. Leaders can demonstrate commitment to the team in a number of ways, including prioritizing team tasks, assisting team members with work, and ensuring barriers to performance are removed (Morgeson et al., 2010).

Future Research Directions

Although the focus of the current study was on the behaviors, affective states, and outcomes associated with teams and their members, this study did not examine how the individual differences of leaders or team members may affect how LMX is perceived or how the team performs. As the personality literature is abundant with individual-level findings, an examination of traits, LMX, and team-level outcomes would provide

important insight for the usefulness of personality for team performance. In addition, this study only examined two processes and one emergent state as possible transmitting influences on team effectiveness. A much larger number of team behaviors, cognitions, and affects have been identified as crucial for performance in teams, and examining these constructs in relation to LMX and other leadership theories would benefit the literature on teams. Cannon-Bowers and Bowers (2011) highlight a number of topics ripe for research.

In addition to personality and trait theory, the culture literature may benefit from research on LMX. Specifically, LMX variability research may have implications for culture and distributed teams. Future research could examine whether LMX variability is acceptable (or unacceptable) in certain cultures, such as those characterized by collectivism orientations or different levels of power distance (Hofstede, 2001). For example, it is possible individuals in collectivistic cultures may be less likely to tolerate LMX variability, whereas individualistic cultures may be more tolerant, even expectant, of these types of relational variety. In addition, future research may focus on the assessment of variability in distributed teams. Further examination may be needed to determine effective ways of capturing LMX variability information across geographically dispersed teams, as well as understanding how global dispersion may affect the formation of perceptions of LMX variability.

Future research is also encouraged to investigate compilational processes where possible in relation to leadership and teams. Compilational processes emerge overtime and transform from properties at the individual level to changed properties at the team

level (Kozlowski & Klein, 2000). Emergent properties describe several team states and outcomes, such as team cohesion and performance, respectively, because the inputs of cohesion and performance look different and are made of different elements than their outputs. Leadership is likely an emergent process that shapes other emergent processes, but these processes are difficult to capture without longitudinal study or other methods that can pose practical challenges. In order to understand how leadership influences the perceptions and behaviors that unfold overtime into team-level outcomes, more longitudinal and innovative research methods will be needed.

In the present study, LMX tended to explain meaningful variance in team viability, but not in leader-rated team performance outcomes. The present study examined the effects of LMX on team performance outcomes and team viability separately, whereas another approach could have been taken to examine the relations between the two characteristics of team effectiveness. Future research may examine how these constructs interrelate to explain team performance, such as whether team viability demonstrates positive influences on team performance outcomes or vice versa. It is possible that teams skilled at adapting to change may more effectively accomplish their goals; it is also possible team performance and goal accomplishment may lead to higher levels of team viability.

The loyalty dimension of LMX may also warrant future study, because this dimension tended to be the least consistent explainer of team processes and outcomes, such that loyalty was sometimes predictive and sometimes not predictive. In this sample, loyalty influenced perceptions of commitment for team tasks, which may have influences

on team viability. However, loyalty did not influence perceptions of voice behavior, which was also found to influence team viability. Future research is encouraged to gain a deeper understanding of how loyalty in relationships affects team-level behaviors, processes, and effectiveness.

Strengths and Limitations

A strength of the current study was its longitudinal (time-lag) methodology, which may have allowed for inference of temporal precedence. However, information was only collected at two time periods, which was a limitation of the approach. LMX development is a highly dynamic process, and team effectiveness is an outcome of a multitude of integrated processes. Future research is encouraged to lengthen the tenure and volume of the data collection when examining team behavior and attitudes to further examine the predictive nature of LMX on team outcomes. Another strength of the current study was that it was conducted in the field, with participant responses reflecting attitudes and opinions of the leaders and team members they interact with on a regular basis. I was also able to measure and control for team tenure and leader tenure, which have been linked previously to team outcomes (Liden, Erdogan, Wayne, & Sparrowe, 2006; Sin, Nahrgang, & Morgeson, 2009; Tse et al., 2008). However, because it was a field study, I was not able to control for a variety of potentially confounding variables, and limitations associated with participation rate undermined my ability to examine the size of the team in relation to LMX, the team's behaviors, the team's attitudes, or the team's outcomes. Similarly, due to lack of participation from teammates, I was unable to test Hypotheses 4, 6, 8, which hypothesized relations at the team-level of analysis.

A limitation of the current study is that the data was self-reported and susceptible to a host of biases. These challenges may have been attenuated by having self-report data from multiple sources, had more team supervisors provided performance data for their teams. Additionally, insight into common or shared perceptions of a team's unique environment would have been strengthened if more individuals from the same team had participated. This also would have allowed for a deeper understanding of how variation in LMX relationships within a team may influence the team, as well as considerations for future methodological approaches when assessing LMX variability within a group context. In addition to the inability to compare LMX variability measurement strategies and responses from multiple teammates, another major limitation of having a small sample size centers on the fact that I am not able to further or enhance the research of Hooper and Martin (2008). Hooper and Martin (2008) were unable examine LMX variability at the team-level due, in part, to issues with obtaining a larger sample size. In addition, these researchers uncovered several negative effects of perceived LMX variability, such as heightened perceptions of conflict from team members. Given that conflict may have implications for team coordination and cohesion, it is possible there may have been negative relations between LMX variability and some of my study variables with a larger sample and or with a different methodology. Another important limitation of the current study concerns generalizability and threats to external validity. Approximately 11% of research team members responded to study items, indicating that nearly 90% of team member perceptions were not captured. Similarly, the small number of leader-provided team ratings ($N = 22$) inhibits one's ability to trust the performance

outcomes results in this study. This results in the difficulty to assertion certain findings to larger team populations. Although the trustworthiness of the team performance outcome results was harmed by the participation rate, it is possible the sample obtained is representative of the university's research teams and also that of many teams; sampling among teams who meet the commonly accepted definition of teams (Hackman, 2002) helped to provide some support. Notwithstanding, there were other challenges that may have caused harm to internal validity. The Liden and Maslyn (1998) measure in its entirety demonstrated poor fit for this sample; only after deleting two items did the measure become acceptable for use with hypothesis testing. This measure also assessed one view of the LMX relationship; leader perceptions of LMX were not captured in this study. Because LMX relationships are two-sided, important information about the LMX construct was not comprehensively used to test the study hypotheses. In addition to longitudinal research, researchers interested in examining the LMX construct should consider collecting LMX perspectives from both leaders and followers.

Conclusion

In summary, it is important for organizations to be aware of success factors for teams. The results from this study suggested LMX is a potential lever for team effectiveness and a positive team environment. Results from this study also suggested managers who individualize their relationship quality among individuals involved in interdependent working conditions may not necessarily harm the team's ability to perform and adapt to change, as perceived LMX variability was actually predictive of team viability perceptions. It is my hope that this information will be useful to the

broader scientific community and to the professionals attempting to create more positive workspaces for teams and organizations.

APPENDICES

Appendix A

Leader-Member Exchange (LMX)

1. I like my leader very much as a person
2. My leader is the kind of person one would like to have as a friend
3. My leader is a lot of fun to work with
4. My leader defends my work actions to a superior, even without complete knowledge of the issue in question
5. My leader would come to my defense if I were “attacked” by others
6. My leader would defend me to others in the organization if I made an honest mistake
7. I do work for my supervisor that goes beyond what is specified in typical expectations
8. I am willing to apply extra efforts, beyond those normally required, to further the interests of my team
9. I do not mind working hard for my leader
10. I am impressed with my leaders knowledge and competence
11. I respect my supervisor's knowledge of and competence on the job
12. I admire my leader’s professional skills

Appendix B

Perceived LMX Variability

The boxes below represent different quality relationships that may exist between members of your team and your primary team leader. Please indicate in each box the number of members in your team whose relationship with the primary team leader falls within each category. (Please do not include yourself)

Very Poor	**Poor**	**Satisfactory**	**Good**	**Very Good**

The quality of the working relationship between myself and my leader is (please circle):

Very Poor **Poor** **Satisfactory** **Good** **Very Good**

NOTE: The numbers in the boxes and your circled response should add together to equal the total number of people in your work team. If unsure, please make a reasonable estimate.

Appendix C

Voice Behavior

1. I develop and make recommendations concerning issues that affect this team
2. I speak up and encourage others in this team to get involved in issues that affect the team
3. I communicate my opinions about work issues to others in this team even when my opinion is different and others in the team disagree with me
4. I keep well informed about issues where my opinion might be useful to this team
5. I get involved in issues that affect the quality of work life in this team
6. I speak up in this team with ideas for new projects or changes in procedure

Appendix D

Team Coordination

1. Our team works together in a well-coordination fashion
2. Our team has very few misunderstandings about what to do
3. Our team needs to backtrack and start over a lot (reversed)
4. We accomplish the tasks smoothly and efficiently
5. There is much confusion about how we will accomplish our tasks (reversed)

Appendix E

Team Cohesion

1. Our team is united in trying to reach its goals for performance
2. I'm unhappy with my team's level of commitment to tasks (reversed)
3. Our team members have conflicting aspirations for the team's performance (reversed)
4. This team does not give me enough opportunities to improve my personal performance (reversed)
5. For me this team is one of the most important social groups to which I belong
6. Some of my best friends are in this team

Appendix F

Team Performance Outcomes

1. The members of this team attain their assigned goals
2. The members of this team produce quality work
3. This team is productive

Appendix G

Team Viability

1. My team members adjust to the changes that happen in their work environment
2. When a problem occurs, the members of this team manage to solve it
3. Any new members are easily integrated into this team
4. The members of this team could work a long time together

Appendix H

Demographic Items and Control Variable Items

1. Please create a unique code to help us keep track of your responses.

   Your code = last 4 digits of your CUID + the city you were born in

   (examples: 0000houston; 9999austin; 5555dallas)

2. Gender: (select one) Male Female

3. Ethnicity: (select all that apply)

   African American American Indian Arab or Arab American

   Asian or Asian American Caucasian Hispanic Origin

   Hispanic or Latino Other: _____

4. How many years have you been a part of this team? (enter number of months below)

   _____years

5. Please provide the name of the individual you perceive to be the primary leader of your Creative Inquiry team.

   _____

6. How many months have you worked with the primary leader of this team? (enter number of months below)

   _____years

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage.

Allison, B. B. & Shuffler, M. L. (2014). Getting the "I" out of multiteam systems: A case study from the financial services industry. In E. Salas, M. L. Shuffler, & R. Rico (Eds.), *Pushing the boundaries: Multiteam systems in research and practice.* Bristol, UK: Emerald Group Publishing.

Allison, P. D. (1978). Measures of inequality. *American Sociological Review, 43*, 865−880.

Aoyagi, M. W., Cox, R. H., McGuire, R. T. (2008). Organizational citizenship behavior in sport: Relationships with leadership, team cohesion, and athlete satisfaction. *Journal of Applied Sport Psychology, 20*, 25-41.

Atkins, P. W. B., & Wood, R. E. (2002). Self-versus others' ratings as predictors of assessment center ratings: Validation evidence for 360-degree feedback programs. *Personnel Psychology, 55*(4), 871-904. doi/10.1111/j.1744-6570.2002.tb00133

Aubé, C., & Rousseau, V. (2005). Team goal commitment and team effectiveness: The role of task interdependence and supportive behaviors. *Group Dynamics, 9*(3), 189-204. doi: 10.1037/1089-2699.9.3.189

Banks, G. C., Batchelor, J. H., Seers, A., O'Boyle, Jr., E. H., Pollack, J. M., & Gower, K. (2014). What does team-member exchange bring to the party? A meta-analytic review of team and leader social exchange. *Journal of Organizational Behavior, 35*, 273-295.

Barsade, S. G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly, 47*, 644–675.

Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: New procedures and recommendations. *Psychological Methods, 11*(2), 142-163.

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). Cohesion and performance in groups: A meta-analytic clarification of construct relations. *Journal of Applied Psychology, 88*(6), 989-1004. doi:10.1037/0021-9010.88.6.989

Blau, M. P. (1964*). Exchange and power in social life.* New York: Wiley.

Boies, K. & Howell, J. M. (2006). Leader-member exchange in teams: An examination of the interaction between relatiohip differentiation and mean LMX in explaining team-level outcomes. *Leadership Quarterly, 17,* 246-257.

Brannick, M. T., E. Salas, E., & Prince, C. (1997). *Team performance and measurement: Theory, methods, and applications* (pp. 85-108). Mahwah, NJ: Erlbaum.

Byrne, B. M. (2010). *Structural equation modeling with EQS: Basic concepts, applications, and programming* (2nd ed.). Mahwah, NJ: Erlbaum.

Cannon-Bowers, J. A., & Bowers, C. (2011). Team development and functioning. In S. Zedeck (Ed.), *APA Handbook of Industrial and Organizational Psychology* (Vol. 1, pp. 597-650). Washington, DC: American Psychological Association.

Cannon-Bowers, J. A., Tannenbaum, S. I., Salas, E., & Volpe, C. E. (1995). Defining competencies and establishing team training requirements. In R. A. Guzzo & E. Salas (Eds.), *Team effectiveness and decision making in organizations* (pp. 333-381). San Francisco: Jossey-Bass.

Carless, S. A., & De Paola, C. (2000). The measurement of cohesion in work teams. *Small Group Research, 31*(1), 71-88.

Cartwright, D. (1968). The nature of group cohesiveness. In D. Cartwright & A. Zander (Eds.), *Group Dynamics: Research and theory* (3rd ed., pp. 91-109). New York: Harper and Row.

Choi, D. (2013). *Differentiated leader-member exchange and group effectiveness: A dual perspective.* (Unpublished doctoral dissertation). University of Iowa.

Cogliser, C. C., & Schriesheim, C. A. (2000). Exploring work unit context and leader-member exchange: A multilevel perspective. *Journal of Organizational Behavior, 21,* 487-511.

Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23,* 239-290.

Corsun, D.L., & Enz, C.A. (1999). Predicting psychological empowerment among service workers: The effect of support-based relationships. *Human Relations, 52*(2), 205-224.

Dansereau, F., Jr., Graen, G., & Haga, W. J. (1975). A vertical dyad linkage approach to

leadership within formal organizations—A longitudinal investigation of the role making process. *Organizational Behavior and Human Performance, 13,* 46-78.

Day, D., Gronn, P., & Salas, E. (2004). Leadership capacity in teams. *Leadership Quarterly, 15,* 857–880. doi:10.1016/j.leaqua.2004.09.001

DeRue, D. S., Barnes, C. M., & Morgeson, F. P. (2010). Understanding the motivational contingencies of team leadership. *Small Group Research, 41*(5), 621-651. doi: 10.1177/1046496410373808

Dienesch, R. M., & Liden, R. C. (1986). Leader–member exchange model of leadership: A critique and further development. *Academy of Management Review, 11,* 618–634.

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *Leadership Quarterly, 25,* 36-62.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2011). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past with an eye toward the future. *Journal of Management, 38*(6), 1715-1759.

Ellis, A. P. J., Bell, B. S., Ployhart, R. E., Hollenbeck, D. R., & Ilgen, D. R. 2005. An evaluation of generic teamwork skills training with action teams: Effects on cognitive and skill-based outcomes. *Personnel Psychology, 58,* 641-672.

Erdogan, B., & Bauer, T. N. (2010). Differentiated leader-member exchanges: The buffering role of justice climate. *Journal of Applied Psychology, 95,* 1104-1120.

Erdogan, B. & Liden, R. C. (2002) Social exchanges in the workplace: A review of recent developments and future research directions in leader-member exchange theory. In Neider LL and Schriesheim CA (Eds.), *Leadership* (pp. 65-114). Greenwich, CT: Information Age Publishing.

Erdogan, B., Liden, R. C., & Kraimer, M. L. (2006). Justice and leader-member exchange: The moderating role of organizational culture. *Academy of Management Journal, 49,* 395–406. doi:10.5465/AMJ.2006.20786086

Foo, M., Sin. H., & Young, L. (2006). Effects of team inputs and intrateam processes on perceptions of team viability and member satisfaction in nascent ventures. *Strategic Management Journal, 27*(4), 389-399. doi:10.1002/smj.514

Gajendran, R. S., & Joshi, A. (2012). Innovation in globally distributed teams: The role

of LMX, communication frequency, and member influence on team decisions. *Journal of Applied Psychology, 97*(6): 1252-1261. doi: 10.1037/a0028958

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

Gibb, J. (1961). Defensive communication. *The Journal of Communication, 11*,141-148.

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review, 25,* 161-178.

Graen, G., Dansereau, F., Jr., & Minami, T. (1972). Dysfunctional leadership styles. *Organizational Behavior and Human Performance, 7,* 216-236.

Graen, G. B., & Scandura, T. A. (1987). Toward a psychology of dyadic organizing. *Research in Organizational Behavior, 9,* 175-208.

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

Gross, N., & Martin, W.E. (1952). On group cohesiveness. *American Journal of Sociology, 52*,546-554.

Gully, S. M., Devine, D. J., & Whitney, D. J. (1995). A meta-analysis of cohesion and performance. *Small Group Research, 26*(4), 497-520.

Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of team-efficacy, potency, and performance: Interdependence and level of analysis as moderators of observed relationships. *Journal of Applied Psychology, 87*, 819–832.

Hackman, J. R. (2002). *Leading teams: Setting the stage for great performances*. Boston, Mass: Harvard Business School Press.

Hackman, J. R. (1987). *The design of work teams.* In Handbook of organizational behavior (pp.315-342). Englewood Cliffs, NJ: Prentice-Hall.

Hackman, J. R. (1992). Group influences on individuals in organizations. In M. Dunnettte & L. Hough (Eds.), *Handbook of industrial and organizational psychology* (pp. 199-267). Palo Alto, CA: Consulting Psychologists Press.

Hackman, J. R., & Wageman, R. (2005). A theory of team coaching. *Academy of Management Review, 30*(2), 269-287.

Hackman, J. R., & Walton, R. E. (1986). Leading groups in organizations. In P. S. Goodman (Ed.), *Designing effective work groups* (pp. 72-119). San Francisco: Jossey-Bass.

Hausknecht, J. P., Trevor, C. O., Howard, M. J. (2009). Unit-level voluntary turnover rates and customer service quality: Implications of Group cohesiveness, newcomer concentration and size. *Journal of Applied Psychology, 94,* 1068-1075.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis.* New York: Guilford Press.

Henderson, D. J., Liden, R. C., Glibkowski, B. C., & Chaudhry, A. (2009). LMX differentiation: A multilevel review and examination of its antecedents and outcomes. *Leadership Quarterly, 20,* 517–534.

Hills, H. (2007). *Team-based learning.* Burlington, VT: Gower.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations.* Thousand Oaks, CA: Sage.

Hooper, D. T., & Martin, R. (2008). Beyond personal leader-member exchange (LMX) quality: The effects of perceived LMX variability on employee reactions. *Leadership Quarterly, 19,* 20-30.

Hu, J. (2012). *A team-level social exchange model: The antecedents and consequences of leader-team exchange.* (Unpublished doctoral dissertation). University of Illinois at Chicago.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. doi:10.1080/10705519909540118

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in organizations: From I-P-O models to IMOI models. In S. Fiske, D. L. Schacter, & A. Kasdin (Eds.), *Annual review of psychology* (pp. 517–543). Palo Alto, CA: Annual Reviews.

Janssen, O., Van De Vliert, E., & Veenstra, C. (1999). How task and person conflict shape the role of positive interdependence in management teams. *Journal of Management, 25*(2), 117-142.

Jowett, S., & Chaundy, V. (2004). An investigation into the impact of coach leadership and coach-athlete relationship on group cohesion. *Group Dynamics: Theory, Research, and Practice, 8,* 302-311.

Kacmar, K. M., Witt, L. A., Zivnuska, S., & Gully, S. (2003). The impact of leader-member exchange on communication type, frequency, and performance. *Journal of Applied Psychology, 88*, 764-772

Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.

Katzenbach, J. R., & Smith, D. K. 1993. *The wisdom of teams: Creating the high performance organization.* Boston: Harvard Business School Press.

Keller, T., & Dansereau, F. (1995). Leadership and empowerment: A social exchange perspective. *Human Relations, 48*, 127-146.

Kim, Y., Min, B., & Cha, J. (1999). The roles of R&D team leaders in Korea: A contingent approach. *R&D Management, 18*(2), 153–165.

Kirkman, B. L., Rosen, B., Tesluk, P. E., & Gibson, C. B. (2004). The impact of team empowerment on virtual team performance: The moderating role of face-to-face interaction. *Academy of Management Journal*, *47*, 175–192. doi:10.2307/20159571

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, D. R. Ilgen & R. J. Klimoski (Eds.), *Handbook of psychology: Industrial and organizational psychology* (pp. 333-375). London: Wiley.

Kozlowski, S. W. J., Chao, G. T., Grand, J. A., Braun, M. T., Kuljanin, G. (2013). Advancing multilevel research design: Capturing the dynamics of emergence. *Organizational Research Methods, 16*(4), 581-615. doi:10.1177/1094428113493119

Kozlowski, S. W. J., & Ilgen, D. (2006). Enhancing the Effectiveness of Work Groups and teams. *Psychological Science in the Public Interest, 7*, 77–124.

Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco, CA: Jossey-Bass.

Lawler, E. E., Mohrman, S. A., & Ledford, G. E. (1995). *Creating high performance organizations: Practices and results of employee involvement and total quality management in Fortune 1000 companies.* San Francisco: Jossey-Bass.

LePine, J. A., Piccolo, R. F., Jackson, C. L., Mathieu, J. E., & Saul, J. R. (2008). A meta-analysis of teamwork processes: Tests of a multidimensional model and relationships with team effectiveness criteria. *Personnel Psychology, 61*, 273-307.

LePine, J. A., & Van Dyne, L. V. (1998). Predicting voice behavior in work groups. *Journal of Applied Psychology, 83*(6), 853-868.

Levi, D. (2014). *Group dynamics for teams* (4th ed.). Los Angeles, CA: Sage Publications.

Lewis, K. (2003). Measuring transactive memory systems in the field: Scale development and validation. *Journal of Applied Psychology, 88*, 587–604.

Liden, R. C., Erdogan, B., Wayne, S. J. & Sparrowe, R. T. (2006). Leader-member exchange, differentiation, and task interdependence: Implications for individual and group performance. *Journal of Organizational Behavior, 27*, 723-746

Liden, R. C., Sparrowe, R. T., & Wayne, S. J. (1997). Leader–member exchange theory: The past and potential for the future. *Research in Personnel and Human Resources Management, 15,* 47–119.

Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of Management, 24*(1), 43-72.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57,* 705-717.

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance. *Psychological Bulletin, 90,* 125-152.

Malhotra, A., Majchrzak, A., & Rosen, B. (2007). Leading virtual teams. *Academy of Management Perspectives, 21*(1), 60-70.

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review, 26,* 356-376.

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management, 34,* 410-476.

Michalisin, M. D., Karau, S. J., & Tangpong, C. (2007). Leadership's activation of team cohesion as a strategic asset: An empirical investigation. *Journal of Business Strategies, 24*(1), 1-26.

Morgan, B.B., Salas, E., & Glickman, A.S. (1993). An analysis of team evolution and maturation. *Journal of General Psychology, 120,* 277–291.

Morgeson, F. P., DeRue, D. S., & Karam, E. P. (2010). Leadership in teams: A functional approach to understanding leadership structures and processes. *Journal of Management, 36,* 5-39.

Morgeson, F. P., Lindoerfer, D., & Loring, D. (2010). Developing team leadership capability. In E. Van Velsor, C. McCauley, & M. Ruderman (Eds.), *The Center for Creative Leadership handbook of leadership development* (3rd ed.). San Francisco: Jossey-Bass.

Morrison, E. W., Wheeler-Smith, S. L., & Kamdar, D. (2011). Speaking up in groups: A cross-level study of group voice climate and voice. *Journal of Applied Psychology, 96*(1), 183-191. doi:10.1037/a0020744

Murphy, K. R. (1996). Individual differences and behavior: Much more than "g." In K. R. Murphy (Ed.), *Individual differences and behavior in organizations* (pp. 3-30). San Francisco: Jossey-Bass.

Nishii, L. H., & Mayer, D. M. (2009). Do inclusive leaders help reduce turnover in diverse groups? The moderating role of leader-member exchange in the diversity to turnover relationship. *Journal of Applied Psychology, 94*(6), 1412-1426.

Parker, L. E., & Price, R. H. (1994). Empowered managers and empowered workers: The effects of managerial support and managerial perceived control on workers' sense of control over decision making. *Human Relations, 47*(8), 1994.

Pelled, L. H. (1996). Demographic diversity, conflict, and work group outcomes: An intervening process theory. *Organizational Science, 7,* 615−631.

Podsakoff, P., M., Bommer, W. H., Podsakoff, N. P., & MacKenzie, S. B. (2006). Relationships between leader reward and punishment behavior and subordinate attitudes, perceptions, and behaviors: A meta-analytic review of existing and new research. *Journal of Organizational Behavior and Human Decision Processes, 99*(2), 113-142.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect

effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers, 36,* 717-731. doi:10.3758/BF03206553

Pulakos, E. D., Schmitt, N. Dorsey, D. W., Arad, S. Borman, W. C., Hedge, J. W. (2002). Predicting adaptive performance: Further tests of a model of adaptability. *Human Performance, 15*(4), 299-323. doi:10.1207/S15327043HUP1504_01

Regan, D. T. (1971). Effects of a favor and liking on compliance. *Journal of Experimental Social Psychology, 7*, 627-639.

Roberson, Q. M., Sturman, M. C., & Simons, T. L. (2007). Does the measure of dispersion matter in multilevel research? A comparison of the relative performance of dispersion indexes. *Organizational Research Methods, 10*, 564–588.

Scandura, T. A. (1999). Rethinking leader-member exchange: An organizational justice perspective. *Leadership Quarterly, 10*, 25−40.

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

Schaubroeck, J., Lam, S. S. K., & Cha, S. E. (2007). Embracing transformational leadership: Team values and the impact of leader behavior on team performance. *Journal of Applied Psychology, 92*(4), 1020-1030. doi:10.1037/0021-9010.92.4.1020

Seers, A. (1989). Team-member exchange quality: A new construct for role-making research. *Organizational Behavior and Human Decision Processes, 43,* 118-135.

Shea, G. P., & Guzzo, R. A. (1987). Groups as human resources. In K. M. Rowland & G. R. Ferris (Eds.), *Research in personnel and human resources management* (pp. 323-356). Greenwich, CT: JAI Press.

Sias, P. M., & Jablin, F. M. (1995). Differential superior-subordinate relations, perceptions of fairness, and co-worker communication. *Human Communication Research, 22*, 5-38.

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

Sinclair, A. L. (2003). The effects of justice and cooperation on team effectiveness. *Small Group Research, 34,* 74−100.

Sparrowe, R. T., & Liden, R. C. (2005). Two routes to influence: Integrating leader–member exchange and social network perspectives. *Administrative Science Quarterly, 50,* 505–535.

Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal, 49*(6), 1239-1251.

Stewart, M. M., & Johnson, O. E. (2009). Leader-member exchange as a moderator of the relationship between workgroup diversity and team performance. *Group and Organization Management, 34,* 507-535.

Sundstrom, E., De Meuse, K. P., Futrell, D. (1990). Work teams: Applications and effectiveness. *American Psychologist, 45,* 120-133.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education.

Tse, H. H. M. (2014). Linking leader-member exchange differentiation to work team performance. *Leadership and Organizational Development Journal, 35*(8), 710-724. doi:10.1108/LODJ-09-2012-0119

Tse, H. H. M., Dasborough, M. T. & Ashkanasy, N. M. (2008) A multilevel analysis of team climate and interpersonal exchange relationships at work. *Leadership Quarterly, 19(1),* 195-211.

Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review, 7,* 349 –361.

Uhl-Bien, M., & Maslyn, J. M. (2003). Reciprocity in manager-subordinate relationships: Components, configurations, and outcomes. *Journal of Management, 29,* 511-532.

Van Breukelen, W., Konst, D., & Van Der Vlist, R. (2002). Effects of LMX and differential treatment on work unit commitment. *Psychological Reports, 91*(1), 220-230.

Van Breukelen, W., van der Leeden, R., Wesselius, W., & Hoes, M. (2010). Differential treatment within sports teams, leader–member (coach–player) exchange quality, team atmosphere, and team performance. *Journal of Organizational Behavior, 33,* 43-63.

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extrarole behavior: Evidence of

construct and predictive validity. *Academy of Management Journal, 41*, 108-119.

Walumbwa, F. O., & Schaubroeck, J. (2009). Leader personality traits and employee voice behavior: Mediating roles of ethical leadership and work group psychological safety. *Journal of Applied Psychology, 94*(5), 1275-1286. doi: 10.1037/a0015848

Wayne, S. J., & Ferris, G. R. (1990). Influence tactics, affect, and exchange quality in supervisor-subordinate interactions: A laboratory experiment and field study. *Journal of Applied Psychology, 75*(5), 487-499.

Zaccaro, S. J., Heinen, B., & Shuffler, M. (2009). Team leadership and team effectiveness. In E. Salas, G. F. Goodwin & C. S. Burke (Eds.), *Team effectiveness in complex organizations: Cross-disciplinary perspectives and approaches* (pp. 83-111). New York: Routledge.

Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *The Leadership Quarterly, 12,* 451-483.

Table 1.

Means, Standard Deviations, Intercorrelations, and Reliability Estimates among Study Variables

Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8	9
1 Gender	48	1.33	0.48	-								
2 Ethnicity	48	4.81	1.25	.00	-							
3 Team Tenure	66	7.44	6.31	-.17	-.16	-						
4 Leader Tenure	66	7.69	6.54	-.17	-.15	.95 **	-					
5 LMX – Affect	66	6.09	0.88	.03	.16	-.14	-.08	(.86)				
6 LMX – Loyalty	66	5.73	0.88	.02	.25	-.03	.00	.66 **	(.72)			
7 LMX - Contribution	66	6.20	0.79	.14	.05	.01	.03	.48 **	.33 **	(.85)		
8 LMX - Respect	66	6.43	0.73	.06	.27	-.09	-.05	.74 **	.46 **	.68 **	(.91)	
9 Perceived LMX Variability	58	0.38	0.36	-.17	-.23	-.11	-.10	-.03	-.03	.04	-.09	-
10 Voice Behavior	66	5.74	0.69	.03	.03	-.03	-.01	.39 **	.21	.52 **	.50 **	.12
11 Team Coordination	66	5.35	0.99	-.37 **	.06	-.10	-.01	.22	.25 *	.15	.19	.21
12 Cohesion – Task	66	5.72	0.98	-.15	.20	-.23	-.15	.30 *	.31 *	.20	.21	.10
13 Cohesion – Interpersonal	66	3.21	1.61	-.16	.01	.10	.12	.25 *	.25 *	.28 *	.21	.16
14 Team Viability	66	5.66	0.84	-.11	.24	-.14	-.08	.48 **	.42 **	.39 **	.42 **	.28 *
15 Team Performance	22	6.37	0.59	-.23	n/a	.05	.00	-.05	.15	.16	-.02	.36

Note : Internal consistency reliability estimates are plotted on the diagonal.

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed).

Table 1 (continued).

Means, Standard Deviations, Intercorrelations, and Reliability Estimates among Study Variables

	Variable	*N*	*M*	*SD*	10	11	12	13	14	15
10	Voice Behavior	66	5.74	0.69	(.86)					
11	Team Coordination	66	5.35	0.99	.33 **	(.85)				
12	Cohesion – Task	66	5.72	0.98	.26 *	.63 **	(.79)			
13	Cohesion – Interpersonal	66	3.21	1.61	.31 *	.23	.04	(.79)		
14	Team Viability	66	5.66	0.84	.46 **	.62 **	.52 **	.38 **	(.82)	
15	Team Performance	22	6.37	0.59	-.06	.11	-.14	.17	-.08	(.93)

Note : Internal consistency reliability estimates are plotted on the diagonal.

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed).

Table 2.

Confirmatory Factor Analysis Results for LMX

Model	Description	SB χ^2	df	$\Delta\chi^2$(df)	Robust CFI	Robust RMSEA	Robust RMSEA 90% CI
Model 1	Four-factor model	61.55	28		0.94	0.077	0.05,0.10
Model 2	Second-order model	71.53	31	8.94*	0.92	0.081	0.06,0.11
Model 3	One-factor model	216.59	35	275.14***	0.72	0.161	0.14,0.18

Note: N = 210. Models 2 and 3 were compared with Model 1. SB χ2 = Satorra-Bentler scaled chi-square; $\Delta\chi$2(df) = chi-square scaled difference for degrees of freedom; CFI = comparative fit index for Robust estimation; RMSEA = root-mean-square error of approximation for Robust estimation; RMSEA 90% CI = confidence interval for RMSEA value using Robust estimation

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

Table 3.

Confirmatory Factor Analysis Results for Team Cohesion

Model	Description	SB χ^2	df	$\Delta\chi^2$(df)	Robust CFI	Robust RMSEA	Robust RMSEA 90% CI
Model 1	Two-factor model	15.59	8		0.95	0.07	0.01,0.12
Model 2	One-factor model	88.37	9	53.02***	0.52	0.21	0.17,0.24

Note: N = 210. Model 2 was compared with Model 1. SB χ2 = Satorra-Bentler scaled chi-square; $\Delta\chi$2(df) = chi-square scaled difference for degrees of freedom; CFI = comparative fit index for Robust estimation; RMSEA = root-mean-square error of approximation for Robust estimation; RMSEA 90% CI = confidence interval for RMSEA value using Robust estimation

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

Table 4.

Effects of LMX Dimensions when Predicting Voice Behavior (Hypothesis 1)

Variable	R^2(Adjusted R^2)	$B(\beta)$	*SE*	sr^2	*t*
	.15(.11)**				
Team Tenure		.00(.02)	.04	.00	.05
Leader Tenure		.00(.04)	.04	.00	.02
LMX - Affect for Leader		.31(.40)	.09	.15	3.31 **
	.16(.10)*				
Team Tenure		.00(.01)	.04	.00	.03
Leader Tenure		.00(.02)	.04	.00	.05
LMX - Affect for Leader		.28(.36)	.13	.07	2.18 *
LMX - Affect for Leader^2 (mean-centered)		-.02(-.05)	.06	.00	-.28
	.05(.00)				
Team Tenure		-.02(-.16)	.05	.00	-.39
Leader Tenure		.02(.15)	.04	.00	.36
LMX - Loyalty from Leader		.16(.20)	.10	.04	1.63
	.27(.24)***				
Team Tenure		-.02(-.14)	.04	.00	-.39
Leader Tenure		.01(.11)	.04	.00	.31
LMX - Contribution for Leader		.45(.52)	.10	.27	4.75 ***
	.25(.21)***				
Team Tenure		.00(.01)	.04	.00	.02
Leader Tenure		.00(.01)	.04	.00	.03
LMX - Professional Respect for Leader		.47(.50)	.11	.25	4.50 ***

Note: Results for *N* size of 66

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 5.

Effects of LMX Dimensions when Predicting Team Coordination (Hypothesis 2)

Variable	R^2(Adjusted R^2)	$B(\beta)$	*SE*	sr^2	*t*
	.11(.07)				
Team Tenure		-.13(-.84)	.06	.06	-2.07 *
Leader Tenure		.12(.80)	.06	.06	2.00
LMX - Affect for Leader		.19(.17)	.14	.03	1.39
	.13(.09)*				
Team Tenure		-.14(-.87)	.06	.07	-2.21 *
Leader Tenure		.12(.82)	.06	.06	2.01 *
LMX - Loyalty from Leader		.25(.22)	.13	.05	1.84
	.10(.06)				
Team Tenure		-.15(-.92)	.06	.08	-2.31 *
Leader Tenure		.13(.87)	.06	.07	2.17 *
LMX - Contribution for Leader		.17(.13)	.15	.02	1.09
	.10(.06)				
Team Tenure		-.14(-.87)	.06	.07	-2.17 *
Leader Tenure		.13(.83)	.06	.06	2.07 *
LMX - Professional Respect for Leader		.20(.15)	.15	.02	1.24

Note: Results for *N* size of 66

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 6.

Effects of LMX Dimensions when Predicting Team (Task) Cohesion (Hypothesis 3)

Variable	R^2(Adjusted R^2)	$B(\beta)$	*SE*	sr^2	*t*	
	.16(.11)*					
Team Tenure		-.11(-.74)	.06	.05	-1.88	
Leader Tenure		.09(.58)	.06	.03	1.47	
LMX - Affect for Leader		.27(.25)	.13	.06	2.08	*
	.18(14)**					
Team Tenure		-.12(-.80)	.06	.06	-2.10	*
Leader Tenure		.09(.61)	.06	.03	1.60	
LMX - Loyalty from Leader		.32(.29)	.13	.08	2.47	*
	.13(.09)*					
Team Tenure		-.13(-.86)	.06	.07	-2.20	*
Leader Tenure		.10(.67)	.06	.04	1.70	
LMX - Contribution for Leader		.24(.19)	.15	.04	1.64	
	.12(.08)*					
Team Tenure		-.13(-.82)	.06	.06	-2.06	*
Leader Tenure		.10(.64)	.06	.04	1.61	
LMX - Professional Respect for Leader		.22(.17)	.16	.03	1.40	

Note: Results for *N* size of 66

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 6 (continued).

Effects of LMX Dimensions when Predicting Team (Interpersonal) Cohesion (Hypothesis 3)

Variable	R^2(Adjusted R^2)	$B(\beta)$	*SE*	sr^2	*t*	
	.08(.04)					
Team Tenure		.01(.05)	.11	.00	.11	
Leader Tenure		.02(.10)	.10	.00	.23	
LMX - Affect for Leader		.49(.27)	.23	.07	2.13	*
	.08(.03)					
Team Tenure		-.01(-.04)	.10	.00	-.09	
Leader Tenure		.04(.15)	.10	.00	.38	
LMX - Loyalty from Leader		.46(.25)	.22	.06	2.06	*
	.09(.05)					
Team Tenure		-.02(.10)	.10	.00	-.19	
Leader Tenure		.05(.18)	.10	.00	.45	
LMX - Contribution for Leader		.56(.27)	.25	.07	2.25	*
	.06(.02)					
Team Tenure		-.01(-.02)	.11	.00	-.05	
Leader Tenure		.04(.15)	.10	.00	.36	
LMX - Professional Respect for Leader		.48(.22)	.28	.05	1.76	

Note: Results for *N* size of 66

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 7.

LMX Dimensions Predicting Team Performance through Voice Behavior (H5a)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Voice Behavior	.09	-.02	.22	-.00	-.17,.17
LMX - Affect for Leader		-.02	.18	-	
Voice Behavior	.12	-.02	.21	-.00	-.10,.09
LMX - Loyalty from Leader		.13	.17	-	
Voice Behavior	.12	-.14	.26	-.08	-.58,.33
LMX - Contribution for Leader		.18	.24	-	
Voice Behavior	.10	-.07	.27	-.05	-1.02,.29
LMX - Professional Respect for Leader		.10	.33	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for N size of 22

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 7 (continued).

LMX Dimensions Predicting Team Viability through Voice Behavior (H5b)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Voice Behavior	.34***	.40	.14	.12*	.03,.32
LMX - Affect for Leader		.30*	.11	-	
Voice Behavior	.36***	.46	.13	.07	-.03,.23
LMX - Loyalty from Leader		.31*	.10	-	
Voice Behavior	.29***	.42	.15	.19*	.06,.39
LMX - Contribution for Leader		.21	.14	-	
Voice Behavior	.29***	.41	.15	.19*	.05,.43
LMX - Professional Respect for Leader		.26	.14	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for N size of 66

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 8.

LMX Dimensions Predicting Team Performance through Team Coordination (H7a)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Team Coordination	.12	.14	.18	.03	-.03,.21
LMX - Affect for Leader		-.05	.18	-	
Team Coordination	.14	.10	.19	.03	-.05,.25
LMX - Loyalty from Leader		.10	.18	-	
Team Coordination	.13	.12	.18	.03	-.03,.22
LMX - Contribution for Leader		.07	.20	-	
Team Coordination	.12	.13	.18	.02	-.03,.38
LMX - Professional Respect for Leader		.02	.26	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 22

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 8 (continued).

LMX Dimensions Predicting Team Viability through Team Coordination (H7b)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Team Coordination	.50***	.45	.08	.09	.04,.30
LMX - Affect for Leader		.34***	.09	-	
Team Coordination	.46***	.45	.08	.11	-.00,.31
LMX - Loyalty from Leader		.27**	.09	-	
Team Coordination	.48***	.47	.08	.08	-.04,.29
LMX - Contribution for Leader		.33**	.10	-	
Team Coordination	.48***	.46	.08	.09	-.07,.34
LMX - Professional Respect for Leader		.36**	.11	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 66

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 9.

LMX Dimensions Predicting Team Performance through Team (Task) Cohesion (H9a)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Cohesion - Task	.09	-.05	.27	-.01	-.28,.19
LMX - Affect for Leader		-.01	.18	-	
Cohesion - Task	.15	-.22	.29	-.08	-.35,.20
LMX - Loyalty from Leader		.21	.19	-	
Cohesion - Task	.11	-.09	.26	-.02	-.24,.17
LMX - Contribution for Leader		.12	.20	-	
Cohesion - Task	.10	-.07	.26	-.02	-.32,.13
LMX - Professional Respect for Leader		.07	.27	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 22

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 9 (continued).

LMX Dimensions Predicting Team Performance through Team (Interpersonal) Cohesion (H9a)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Cohesion - Interpersonal Attraction	.10	.03	.08	.01	-.07,.28
LMX - Affect for Leader		-.03	.17	-	
Cohesion - Interpersonal Attraction	.13	.03	.08	.00	-.10,.16
LMX - Loyalty from Leader		.13	.17	-	
Cohesion - Interpersonal Attraction	.11	.02	.09	.02	-.12,.20
LMX - Contribution for Leader		.09	.20	-	
Cohesion - Interpersonal Attraction	.10	.03	.09	.02	-.07,.28
LMX - Professional Respect for Leader		.02	.26	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 22

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 10.

LMX Dimensions Predicting Team Viability through Team (Task) Cohesion (H9b)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Cohesion - Task	.38***	.34	.09	.09	.01,.34
LMX - Affect for Leader		.33**	.10	-	
Cohesion - Task	.35***	.34	.10	.11*	.02,.28
LMX - Loyalty from Leader		.28**	.10	-	
Cohesion - Task	.36***	.37	.09	.09	.01,.26
LMX - Contribution for Leader		.31**	.11	-	
Cohesion - Task	.37***	.37	.09	.08	-.01,.35
LMX - Professional Respect for Leader		.37**	.12	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 66

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 10 (continued).

LMX Dimensions Predicting Team Viability through Team (Interpersonal) Cohesion (H9b)

Variable	R^2	*B*	*SE*	Indirect Effect	Bootstrap 95% CI
Cohesion - Interpersonal Attraction	.32***	.15	.06	.07	.01,.21
LMX - Affect for Leader		.35**	.11	-	
Cohesion - Interpersonal Attraction	.30***	.16	.06	.07	.01,.22
LMX - Loyalty from Leader		.31**	.11	-	
Cohesion - Interpersonal Attraction	.28***	.16	.06	.09	.02,.24
LMX - Contribution for Leader		.32*	.12	-	
Cohesion - Interpersonal Attraction	.30***	.16	.06	.08	.01,.26
LMX - Professional Respect for Leader		.37**	.13	-	

Note: Team tenure and leader tenure were controlled for in this study; Results for *N* size of 66

* $p < .05$ (two-tailed). ** $p < .01$ (two-tailed). *** $p < .001$ (two-tailed).

Table 11.

Effects of Perceived LMX Variability beyond LMX when Predicting Study Variables (Hypothesis 10)

Variable	Voice					Team Coordination				
	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*
	.12(.06)					.24(.18)**				
Team Tenure		.01(.05)	.04	.00	.10		-.12(-.79)	.06	.05	-1.93
Leader Tenure		.00(.02)	.04	.00	.05		.12(.78)	.06	.05	1.93
LMX - Affect for Leader		.32(.33)	.13	.10	2.54 *		.50(34)	.18	.11	2.76 **
Perceived LMX Variability		.26(.14)	.24	.02	1.09		.62(.22)	.34	.05	1.82
	.04(-.03)					.23(.17)**				
Team Tenure		-.01(-.10)	.05	.00	-.21		-.14(-.88)	.06	.07	-2.18 *
Leader Tenure		.01(.12)	.04	.00	.27		.13(.84)	.06	.06	2.06 *
LMX - Loyalty from Leader		.13(.16)	.11	.02	1.18		.41(.32)	.15	.10	2.66 *
Perceived LMX Variability		.24(.13)	.25	.02	.97		.61(.21)	.34	.04	1.77
	.20(.14)*					.16(.10)				
Team Tenure		-.01(-.09)	.04	.00	-.21		-.15(-.96)	.07	.08	-2.26 *
Leader Tenure		.01(.09)	.04	.00	.21		.14(.90)	.07	.07	2.13 *
LMX - Contribution for Leader		.39(.43)	.11	.18	3.52 **		.24(.17)	.18	.03	1.36
Perceived LMX Variability		.20(.11)	.22	.01	.88		.56(.20)	.36	.04	1.56
	.18(.12)*					.21(.15)*				
Team Tenure		.00(-.01)	.04	.00	-.01		-.14(-.88)	.07	.07	-2.15 *
Leader Tenure		.01(.06)	.04	.00	.14		.13(.86)	.06	.06	2.09 *
LMX - Professional Respect for Leader		.45(.41)	.13	.17	3.32 **		.49(.29)	.21	.08	2.37 *
Perceived LMX Variability		.30(.17)	.23	.03	1.34		.66(.23)	.35	.05	1.89

Note: Results for *N* size of 59

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 11 (continued).

Effects of Perceived LMX Variability beyond LMX when Predicting Study Variables (Hypothesis 10)

Variable	Team (Task) Cohesion					Team (Interpersonal) Cohesion				
	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*
	.24(.18)					.15(.08)				
Team Tenure		-.12	.06	.05	-1.91		.03(.13)	.11	.00	.31
Leader Tenure		.10(.64)	.06	.04	1.59		.01(.05)	.10	.00	.11
LMX - Affect for Leader		.54(.36)	.18	.13	2.99 **		.75(.33)	.30	.10	2.53 *
Perceived LMX Variability		.26(.09)	.34	.01	.76		.81(.18)	.56	.03	1.45
	.22(.16)**					.12(.05)				
Team Tenure		-.14(-.89)	.06	.07	-2.17 *		.01(.03)	.11	.00	.07
Leader Tenure		.11(.71)	.06	.04	1.73		.03(.11)	.10	.00	.25
LMX - Loyalty from Leader		.41(.32)	.15	.10	2.68 *		.54(.27)	.25	.07	2.13 *
Perceived LMX Variability		.24(.09)	.34	.01	.70		.79(.18)	.57	.03	1.38
	.18(.12)*					.11(.04)				
Team Tenure		-.15(-.95)	.07	.08	-.2.28 *		-.01(-.02)	.11	.00	-.05
Leader Tenure		.12(.76)	.06	.05	1.81		.03(.14)	.10	.00	.75
LMX - Contribution for Leader		.36(.26)	.18	.07	2.07 *		.55(.25)	.29	.06	1.94
Perceived LMX Variability		.18(.06)	.35	.00	.61		.70(.16)	.57	.06	1.22
	.18(.12)*					.08(.01)				
Team Tenure		-.14(-.90)	.07	.07	-2.15 *		.00(.01)	.11	.00	.02
Leader Tenure		.11(.73)	.06	.05	1.76		.03(.14)	.11	.00	.32
LMX - Professional Respect for Leader		.44(.26)	.21	.07	2.11 *		.49(.19)	.34	.03	1.43
Perceived LMX Variability		.29(.10)	.35	.01	.81		.59(.19)	.59	.03	1.42

Note: Results for *N* size of 59

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Table 11 (continued).

Effects of Perceived LMX Variability beyond LMX when Predicting Study Variables (Hypothesis 10)

Variable	Team Performance					Team Viability				
	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*	R^2(Adj. R^2)	$B(\beta)$	*SE*	sr^2	*t*
	.17(-.07)					.30(.25)**				
Team Tenure		.10(.15)	.15	.02	.65		-.07(-.50)	.05	.02	-1.29
Leader Tenure		-.10(-.98)	.16	.02	-.64		.06(.49)	.05	.02	1.25
LMX - Affect for Leader		.49(.31)	.43	.08	1.14		.53(.43)	.14	.18	3.69 **
Perceived LMX Variability		.09(.10)	.21	.01	.42		.68(.29)	.27	.08	2.51 *
	.25(.03)					.26(.20)**				
Team Tenure		.11(1.08)	.15	.03	.74		-.08(-.64)	.05	.04	-1.60
Leader Tenure		-.10(-1.00)	.15	.00	-.69		.07(.56)	.05	.03	1.42
LMX - Loyalty from Leader		.25(.31)	.19	.02	1.32		.38(.36)	.12	.13	3.08 **
Perceived LMX Variability		.50(.32)	.40	.02	1.25		.66(.28)	.28	.08	2.38 *
	.16(-.08)					.27(.21)**				
Team Tenure		.09(.94)	.15	.02	.61		-.09(-.70)	.05	.04	-1.77
Leader Tenure		-.09(-.92)	.16	.02	-.60		.08(.60)	.05	.03	1.53
LMX - Contribution for Leader		.06(.07)	.20	.01	.30		.44(.38)	.14	.14	3.21 **
Perceived LMX Variability		.46(.42)	.42	.07	1.09		.60(.25)	.28	.06	2.16 *
	.16(-.09)					.04(-.03)				
Team Tenure		.10(1.01)	.16	.02	.64		-.08(-.62)	.05	.03	-1.57
Leader Tenure		-.10(1.00)	.16	.02	-.64		.07(.57)	.05	.03	1.45
LMX - Professional Respect for Leader		.04(.03)	.27	.00	.13		.55(.40)	.16	.15	3.39 **
Perceived LMX Variability		.47(.30)	.43	.07	1.10		.73(.31)	.28	.09	2.64 *

Note: Results for *N* size of 19 (team performance) and 59 (team viability)

** p < .05 (two-tailed). ** p < .01 (two-tailed). *** p < .001 (two-tailed).*

Figure 1. Hypothesized Relations Among Study Variables.