A Motivational and Social-Comparison Perspective on Team-Member Exchange:

Multi-Level Antecedents and Consequences of Relationship Quality in Teams

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Dedication

This dissertation is dedicated to my Poppop, Gilbert Shor, whose passion for education

has always fueled my love of learning.

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Abstract

A Motivational and Social-Comparison Perspective on Team-Member Exchange: Multi-

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Team-member exchange (TMX) examines a team member's willingness to exchange

ideas, feedback, advice, and support with his or her teammates and the team's willingness

to reciprocally provide help and recognition to this individual. I adopt a multi-level

motivational perspective on team-based exchanges and examine the motivational

antecedents and outcomes of exchanges at both the individual and team levels. I propose

that prosocial motivation is an antecedent of team-based exchanges. More specifically, I

contend that prosocial motivation in the form of psychological collectivism positively

influences TMX and team-level collectivism positively influences TMX-team, and I

further contend that a training to improve prosocial competencies within the team

provides trait-activating cues that positively moderate these relationships. Further, I

contend that prosocial competency training has a positive direct relationship with TMX-

team and a negative direct relationship with TMX differentiation. With regards to

outcomes, I propose that exchanges have an empowering effect on teams and their

members, however this relationship is contingent on TMX differentiation. Using social

comparison theory as a conceptual base, I contend that differentiation is indicative of the

comparisons that occur in teams. At the individual level, I propose that differentiation

allows for comparisons amongst team members with regards to TMX levels and that

these comparisons emphasize individual TMX levels; correspondingly, I propose that

differentiation positively influences the relationship between TMX and psychological empowerment. At the team level, I propose that differentiation represents a team that isn't functioning optimally because of the variability in exchange quality, thus I contend that differentiation diminishes the empowering effect of TMX-team. Finally, I argue that empowerment provides a motivational mechanism linking TMX to individual success (task performance and viability) and linking TMX-team to team success (task performance and viability) that is contingent upon the differentiation within the team. I examine my hypotheses through utilizing the Harvard Business Publishing simulation titled "Everest V2" (Roberto & Edmondson, 2011). This teamwork simulation consists of a team of five hikers that are attempting to summit Mount Everest. Using a sample of 295 students who composed 59 teams, I find varied levels of support for my hypotheses. I find that psychological collectivism and team mean collectivism positively influence TMX and TMX-team respectively, however prosocial competency training did not moderate these relationships as proposed. Prosocial competency training surprisingly increased rather than decreased TMX differentiation. With regards to outcomes, TMX promoted peer-rated performance and individual viability through psychological empowerment as predicted, however TMX differentiation did not significantly influence these relationships. At the team-level, TMX-team similarly promoted performance and viability through team empowerment, and TMX differentiation did have a significant influence on these relationships. However, differentiation affected these relationships in the opposite direction than proposed such that the effects were strengthened as differentiation increased. The theoretical and practical implications of these findings are discussed.

CHAPTER 1: INTRODUCTION

"Great things in business are never done by one person, they're done by a team of people"
– Steve Jobs on "60 Minutes" (2003)

When asked to address how leaving his position as chief executive of Apple would impact the company's success, Steve Jobs contended that the organization would continue to flourish because the accomplishments of the company were the result of a collaboration of people rather than him alone (Millan, 2011). Organizations ranging from the online retailer Zappos (Hsieh, 2010) to the global coffee chain Starbucks (Strauss, 2002) have similarly lauded the benefits of collaboration and teamwork. Tony Hsieh, Zappos' CEO, explains with fervor in his book about his management philosophy that teamwork facilitates satisfaction and happiness within the organization he leads (Hsieh, 2010). The top management of Starbucks has similarly emphasized the importance of teamwork, arguing that it is necessary for employee productivity and efficiency (Strauss, 2002). Despite the benefits that some organizations have acquired through teams, other companies such as Microsoft have discovered not all employees who regularly work in teams are able to build effective working relationships and not all teams are able to work successfully as a unit (Wartzman, 2013). Ineffective communication, coordination, and interactions can hinder teams from becoming successful (Banks, Batchelor, Seers, O'Boyle, Pollack, & Gower, 2013; Seers, 1989). Accordingly, Microsoft and many other companies are on a mission "to create real teamwork, not just teams" (Wartzman, 2013) within their organizations.

A core premise underlying the increasing emphasis on team-based work arrangements is that teams as opposed to individuals are able to work on larger and more complex problems because they are able to draw upon a broader pool of knowledge, skill,

and ability resources (Glassop, 2002; Marks, Mathieu, & Zaccaro, 2001; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Stevens & Campion, 1994). However, as those at Microsoft and many other companies have discovered (Wartzman, 2013), not all teams work together well. Ineffective team processes, such as inadequate coordination and communication or excessive conflict, can negatively influence team performance (Mathieu et al., 2008). Breakdowns in cognitive (e.g., mental models), motivational (e.g., team efficacy), and affective (e.g., team cohesion) states, known as emergent states (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Marks et al., 2001), can also adversely impact team achievement. Further, the characteristics and attributes of both those within a team and of the team as a whole can impact these team processes and emergent states (Ilgen et al., 2005; Mathieu et al., 2008). These components of team effectiveness can be understood through the IMOI (inputs-mediators-outcomes-inputs) model (Ilgen et al., 2005; Mathieu, Maynard, Rapp, & Gilson, 2008), which is an episodic model that specifies the manner in which team inputs and mediators (i.e., processes and emergent states) impact team outcomes. Team inputs affect team processes and emergent states, which subsequently influence the effectiveness of the team in achieving its goals. The success (or lack of success) in achieving its outcomes feeds back into the team, affecting inputs and mediators.

In this dissertation, I focus on team processes from an exchange relationship perspective. Social exchanges, which are defined as interdependent interactions that result in feelings of obligation and reciprocity (Blau, 1964; Cropanzano & Mitchell, 2005; Emerson, 1976), influence the extent to which teams are able to capitalize on their human capital resources and work together effectively (Bunderson, 2003; Edmondson,

1999; Murphy, Wayne, Liden, & Erdogan, 2003; Kozlowski & Ilgen, 2006; Seers, 1989).

Exchange relationships amongst team members are a type of teamwork process that

impacts how members view their capabilities and their willingness to exert effort to help

the team succeed (Seers, 1989; Banks et al., 2013). While all members of a team are

likely to engage in some form of social exchange with their fellow team members, the

strength and quality of these exchanges may vary considerably from person to person

within a team (Seers, 1989). Seers presented the notion of team-member exchange

(TMX) to capture this varying level of reciprocity in the social exchanges between an

individual and the other members of his or her team (Seers, 1989). More specifically,

TMX refers to a member's "perception of his or her willingness to assist other members,

to share ideas and feedback and in turn, how readily information, help, and recognition

are received from other members" (Seers, 1989; p. 119). Accordingly, each team member

is thought to have a distinctive perception of his or her own relationship with the team

(Seers, 1989).

Empirical studies on TMX have largely focused on its implications for individual

performance, commitment, satisfaction, and turnover intentions (Banks et al., 2013).

However, focusing exclusively on TMX as individual-level phenomenon failed to

consider the team-level implications of the emergent levels of TMX quality within the

team. To address this shortcoming, a growing literature has extended the TMX construct

to the team-level (e.g., Alge, Wiethoff, & Klein, 2003; Cogliser, Gardner, Trank, Gavin,

Halbesleben, & Seers, 2013; Haynie, 2012; Jordan, Feild, & Armenakis, 2002; Liu,

Keller, & Shih, 2011). As a team level construct, TMX (which shall be referred to as

TMX-team) has been conceptualized as the average level of TMX within the team, thus it

is thought to provide insights into the collaboration and cohesion amongst the team as a whole (Alge et al., 2003; Dierdorff & Ellington, 2012; Liu et al., 2011). Despite the initial research at both the individual and team levels of analyses, critical questions remain unanswered regarding the antecedents of high-quality exchanges in teams along with the importance of these exchanges for individual and team success. Accordingly, this study intends to expand on existing TMX theory through adopting a motivational perspective to understanding TMX at both the individual and team levels. This is of fundamental importance to TMX theory, because teams are innately multi-level such that individuals are nested within these teams. However, multi-level models of TMX are rare as most existing research adopts a sole focus on either the individual or the team level. Thus, this study intends to expand upon the current fragmented understanding of the causes and effects of TMX through pulling on theories of motivation and social comparisons to better understand team-based exchanges at the individual and team levels.

More specifically, at the individual level of analysis, contextual (e.g., task characteristics; Chae, Seo, & Lee, In Press) and relational (e.g., interactional justice; Murphy et al., 2003) characteristics have been examined as antecedents of TMX. At the team level, characteristics of the team as a whole (e.g., virtuality and temporal scope; Alge et al., 2003) and characteristics of the average team member (e.g., mean team member self-efficacy—Dierdorff & Ellington, 2012) have been examined as antecedents of TMX-team. However, many questions still remain about the motivational bases of TMX and TMX-team. This is a critical oversight as motivation provides insight in where people focus their energy and direct their actions (Latham & Pinder, 2005). Prosocial motivational characteristics are thought to be particularly beneficial in teams because

they promote cooperative interactions and information processing efforts (Grant, 2007; Nijstad & De Dreu, 2012; Resick, Murase, Randall, & DeChurch, 2014). Thus, in this dissertation, I examine TMX from a motivational perspective by proposing that proposocial motivation, in terms of the internal trait-based motivational force of psychological collectivism and the external motivational force of prosocial competency training, are core motivational drivers of TMX and TMX-team.

The majority of the research on the outcomes of TMX has focused on performance, satisfaction, and commitment (Banks et al., 2013). However the motivational implications of TMX, particularly in regards to psychological empowerment, are unclear. Whereas multiple studies have proposed a positive relationship between TMX and psychological empowerment (Chen & Klimoski, 2003; Srivastava & Singh, 2008; Liden, Wayne, & Sparrowe, 2000), mixed empirical support has been found for this relationship (Chen & Klimoski, 2003; Liden et al., 2000). Because psychological empowerment has been found to have among the highest effect sizes of motivational constructs on performance-related outcomes (Seibert, Wang, & Courtwright, 2011), it is critical to reconcile and clarify these prior inconsistencies.

At the team level, very few studies have examined the consequences of TMX-team (Banks et al., 2013); those that have examined the outcomes of TMX-team have largely found inconsistent relationships. For example, Jordan and colleagues (2002) found that whereas TMX-team was positively related to superior's ratings of performance, it was not significantly related to objective indicators of performance. Further, more recent research has begun to find that the effects of TMX may be dependent on the interdependence (Alge et al., 2003) and structure (Cogliser et al., 2013) of the team. Yet,

because this research is in its infancy, researchers have called for future research to further explore and clarify these relationships (Liao, Liu, & Loi, 2010). To address these calls, I seek to examine the motivational consequences of TMX-team through the lens of team empowerment. For teams, empowerment has been found to facilitate success and therefore is a critical team process to understand (Seibert et al., 2011; Maynard, Gilson, & Mathieu, 2012). Further, because team empowerment is significantly impacted by the structure and relationships of the team (Seibert et al., 2011; Maynard et al., 2012), it is important to examine team-based exchanges in relation to team empowerment.

To further clarify previous inconsistencies in the literature, I propose that the dispersion of TMX quality within the team (i.e., TMX differentiation; Liao et al., 2010) acts as an important boundary condition to the empowering effects of TMX and TMX-Team. Drawing on social comparison theory (Festinger, 1954), I propose that differentiation either enhances or diminishes the impact of team-based exchanges on empowerment via social comparison processes depending on the level of analysis. Specifically, I propose that TMX differentiation enhances the positive relationship between TMX and psychological empowerment whereas it diminishes the positive relationship between TMX-team and team empowerment. Additionally, I expect that TMX has an indirect effect on employees' current task performance and viability through empowerment and conditional on TMX differentiation in the team such that the positive effect of TMX on success through empowerment is strengthened when differentiation is high. Similarly, I expect that TMX-team is indirectly linked to both team performance and team viability through team empowerment and the effects are conditional on TMX differentiation such that the positive effect of TMX-team on team success through

empowerment is weakened when differentiation is high. Lastly, to examine the origins of TMX differentiation, I seek to demonstrate the effect of prosocial competency training on lowering TMX differentiation within teams.

In summary, I seek to contribute to theory on team member exchanges through examining the factors that contribute to the formation of high quality relationships and the implications of these relationships across levels using a motivational lens. More specifically, I look to address the following research questions. First, *is trait-based prosocial motivation in the form of collectivism a driver of TMX and TMX-team quality? Second, how does prosocial competency training effect relationships with TMX, TMX-team, and TMX differentiation? Third, does TMX differentiation in teams serve as a boundary condition on the empowering effects of TMX and TMX-team?* And finally, *does empowerment serve as a motivational mechanism linking TMX and TMX-team to task performance and viability, and are these effects conditional on TMX differentiation?* In what follows, I provide a high level overview of how my dissertation will address each of these questions.

Beginning with antecedents, previous studies have demonstrated that contextual (e.g., task characteristics; Chae et al., 2013) and relational characteristics (e.g., interactional justice; Murphy et al., 2003) provide a foundation for individual TMX quality to form. However, there is still much that we do not know with regards to the antecedents of TMX. Most notably, the research on what leads to high quality TMX relationships has yet to provide insight into the importance of personal characteristics as a driver of the formation of high quality TMX. Because TMX often varies amongst members within the same team (Seers, 1989) and the contextual and relational

characteristics are generally stable across multiple members of a team, they provide an incomplete understanding of the factors that promote TMX. For instance, Tse and colleagues' (2008) found that LMX and affective climate impacted TMX; this research provides clearer insights into differences in TMX levels *between* teams as opposed to *within* teams. Accordingly, it is important to understand how individual characteristics impact TMX, as this can provide insights into differences among TMX levels *within* teams.

To begin to address this gap in the literature, I examine the impact of individuals' trait-based social motivation (i.e., psychological collectivism) on TMX. Psychological collectivism is a value-based approach to understanding an individual's prosocial motivation in teams (Randall, Resick, & DeChurch, 2011). Psychological collectivism captures one's preference for working teams along with his or her willingness to rely on teammates and accept the norms and goals of the team (Jackson, Colquitt, Wesson, & Zapata-Phelan, 2006). The theoretical basis of TMX is grounded in the idea that individuals within teams differently process information and correspondingly vary in their communications with one another (Seers, 1989). Social motivation provides a foundation for understanding an individual's drive for obtaining and sharing information in teams (De Dreu, Nijstad, & van Knippenberg, 2008). Further, motivation is a strong determinant of both people's behavior and interactions with others (e.g., Baumeister & Leary, 1995; Grant, 2007), which are essential components of TMX (Seers, 1989). Therefore, I expect that individual differences in social motivation are an important driver of TMX. Social motivation ranges from being completely proself to prosocial (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Whereas proself individuals have a desire to

benefit themselves, prosocially motivated individuals have a desire to benefit other people (Grant, 2008). Employees with a prosocial motivation tend to make concessions that serve the whole, they value reciprocity and cooperation, and they tend to engage in caring and helpful relationships (Aaledering, Greer, Van Kleef, & De Dreu, 2000; Grant, 2007, 2008). Employees with a proself motivation are uncooperative with others, do not reciprocate kindness and sharing, and concentrate on activities that benefit themselves (Aaledering et al., 2000). Further, whereas prosocial individuals focus on attaining and sharing information that is valuable to the group, proself individuals focus on attaining information that is valuable to the self and are unlikely to share this information with the group (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Accordingly, I propose that employees with a prosocial motivation via high level of psychological collectivism are likely to have higher levels of TMX because of their internal desire to benefit those individuals with whom they work closely and interdependently.

Furthermore, I extrapolate these arguments to the team-level through looking at the effect of the average team member's level of prosocial motivation, or team mean collectivism, on TMX-team. There have been very few studies that have concentrated on understanding the antecedents of TMX-team. The limited research that has examined the drivers has examined team structure (Seers et al., 1995), behavior regulation (Dierdorff & Ellington, 2012), and temporal scope and communication media (Alge et al., 2003) as important antecedents. Yet, we are still uncertain about the motivational basis of TMX-team. Understanding this relationship is a critical next step, as motivation provides insights into team member's behaviors and actions (e.g., Baumeister & Leary, 1995; Grant, 2007) and therefore can provide insights into the drivers of team-based exchanges.

Thus, extrapolating the individual-level arguments to the team member, I propose that teams who have high levels of team mean collectivism will be likely to have high quality exchanges amongst the members of their team, corresponding to a high-level TMX-team.

Whereas trait-based prosocial motivation indicates one's desire to benefit those around him or her, prosocial motivation can also be effected by the knowledge and skills within the team. Teamwork competencies within a team include the communication and collaborative problem solving knowledge and skills that team members hold (Stevens & Campion, 1994). These competencies are consistent with a prosocial orientation (De Dreu et al., 2008; Grant, 2007), and therefore I will refer to these two competencies jointly as prosocial competencies. Specifically, prosocial competencies involve the knowledge and skills that relate to the accumulation of collaborative problem solving and communication teamwork proficiencies that are applicable to both an individual's current team and can be transferrable to future teams (Ellis, Bell, Ployhart, Hollenbeck, & Ilgen, 2005; Stevens & Campion, 1994, 1999). These competencies enhance individuals' abilities to work together through encouraging open communication and effective problem solving techniques (Stevens & Campion, 1994). It is important to examine prosocial competencies in relation to TMX-team because research has shown that teamwork KSAs have an important impact on how team members interact with one another (Ellis et al., 2005; Stevens & Campion, 1999). Further, teamwork KSAs have been shown to be developable within teams through training (Ellis et al., 2005; Stevens & Campion, 1999).

In incorporating prosocial competency training into my model, I propose that team prosocial competencies will act as a moderator of the relationships between

collectivism and TMX and TMX-team quality. Trait activation theory argues that environmental cues can influence the activation of individual traits and serve to enhance or mitigate trait-to-behavior relationships (Tett & Burnett, 2003). Using this theoretical base, I propose that prosocial competency training is likely to enhance the activation of prosocial tendencies among team members, while prosocial tendencies may be constrained in teams that are less skilled and knowledgeable about the importance of prosocial competencies. In a prosocially trained team, the trait-based prosocial motivation of individual members should be activated, strengthening the relationship with TMX. Conversely, in teams that do not receive the training, individual trait-based prosocial motivation may not be activated, thus weakening the relationship with TMX. As such, I argue that training has an important cross-level implication for TMX among members. Further, I argue that competency training will affect the overall impact of team-level trait-based prosocial motivation on TMX-team through similarly enhancing the effect of team mean collectivism.

Moving to the outcomes of team-based exchanges, high quality TMX relationships have most commonly been related to enhanced job performance and positive attitudes such as job satisfaction and organizational commitment (Banks et al., 2013). Notwithstanding these findings, the motivational states through which TMX affects motivation, performance, and attitudes remain unclear. Several studies have theorized a positive link between TMX and psychological empowerment (Chen & Klimoski, 2003; Liden et al., 2000; Srivastava & Singh, 2008). However, empirical findings from these studies have been mixed. Whereas Chen and Klimoski (2003) found that a composite measure which included exchanges with one's teammates was positively

related to psychological empowerment, Liden and colleagues (2000) found that TMX was unrelated to psychological empowerment in a study of 337 service industry employees in 60 teams. The mixed support for a TMX-to-psychological empowerment may be a result of a boundary condition under which TMX is positively related, negatively related, and unrelated to psychological empowerment. Accordingly, I propose that TMX differentiation acts as a moderator of the relationship between TMX to psychological empowerment.

TMX differentiation is the extent to which teammates vary in their exchange relationships with one another (Liao et al., 2010). TMX differentiation is important to understand as it offers insight into the dispersion of TMX levels on a team. Although TMX differentiation is a relatively new construct (Liao et al., 2010), previous studies have demonstrated the crucial role that relationship differentiation plays in understanding how employees interpret their exchange relationships (e.g., Erdogan & Liden, 2002; Ford & Seers, 2006; Liden, Erdogan, Wayne, & Sparrowe, 2006). For instance, Liden and colleagues (2006) demonstrated that LMX, an exchange-based construct that focuses on one's leader instead of team, did not have an impact on performance when differentiation was not taken into account. Building off of this finding, researchers have concluded that LMX is inherently a team-based phenomena and therefore the team as a whole, including the level of differentiation, must be considered in order to fully understand the effect of these exchange relationships (Henderson, Liden, Glibkowski, & Chaudhry, 2009). Utilizing a similar perspective with regards to teams, I contend that it is vital to not only understand the absolute levels of TMX but to also examine the differentiation amongst team members' levels of TMX. This is because absolute levels of TMX only provide one

piece to the puzzle, as two teams could have the same level of TMX-team with vastly different levels of differentiation. As an example, consider a team where half of the team members have very low levels of TMX and half of the team members have very high levels of TMX, resulting in a universally average level of TMX-team. Now consider a second team where all of the team members have average levels of TMX, also resulting in a universally overall average level of TMX-team. Although both teams have the same level of TMX-team, the first team has a very high level of differentiation whereas the second team has little to no differentiation. Thus, solely focusing on absolute levels of TMX does not fully explain what is happening within these teams as interactions and exchanges amongst team members in the first team are likely to be vastly different than in the second team despite their similar levels of TMX-team.

Despite the importance of understanding differentiation, empirical studies that have examined dispersion-focused constructs in teams, such as TMX differentiation, have been sparse (Banks et al., 2013; Cronin, Weingart, & Todorova, 2011). I seek to begin to fill this gap in the literature through examining the role of TMX differentiation in my model. First, I contend that prosocial competency training will act to decrease levels of TMX differentiation through encouraging all team members to focus on the success of the group. Through doing so, TMX levels will stabilize within the team, lowering levels of differentiation. Furthermore, I seek to examine the impact of differentiation on the consequences of TMX and TMX-team. To do so, I utilize social comparison theory as a basis for my arguments (Festinger, 1954).

According to social comparison theory (Festinger, 1954), people have a natural tendency to compare themselves to others, especially when placed in a team-based setting

(Ang, Van Dyne, & Begley, 2003). Social comparisons are an "almost inevitable element of social interaction" (Brickman & Bulman, 1977; p. 50) such that employees look to others to understand their relative standing in the workplace through comparing themselves with others (Festinger, 1954; Goodman & Haisley, 2007). Further, social comparisons are commonplace amongst members of a team because of the easy accessibility and high relevance of team members to one another (Ang et al., 2003; Van Yperen & Snijder, 2000). Interactions amongst team members, even when they are short in duration, provide cues about the quality of relationships that others have within the team (Molleman, Nauta, & Buunk, 2007). Thus, TMX differentiation provides important insights into this social comparison process by providing cues on the strength of comparisons that can occur in teams.

To date, only one study by Liao and colleagues (2010) has examined TMX differentiation at the individual level. This study illustrates the moderating effect that differentiation has on the direct relationship between TMX and self-efficacy and the indirect relationship with employee creativity, such that these relationships were only significant when differentiation was high as opposed to low (Liao et al., 2010). In other words, high levels of differentiation enhanced the social comparison process and thus accentuated the positive effect of TMX on self-efficacy and creativity whereas low levels of differentiation inhibited this effect. Beyond this preliminary research, the importance of differentiation for understanding the motivating and empowering effect of TMX at both the individual and team levels remains unclear.

Utilizing social comparison theory (Festinger, 1954) as a conceptual underpinning, I examine the impact that TMX differentiation has on the relationship between TMX and

psychological empowerment. As levels of TMX differentiation increase, the salience of individual relationships is likely to become more pronounced because of the increased differentiation in TMX levels (Festinger, 1954; Liao et al., 2010). Conversely, in teams with minimal TMX differentiation, members' personal TMX relationships are increasingly similar which is likely to cause them to "attach less importance to the informational cues provided by these exchange relationships" (Liao et al., 2010, p. 1094). Therefore, I suggest that high TMX differentiation illuminates individuals' exchange relationships with their teammates, thus heightening the connection between TMX and individual psychological empowerment. Conversely, when TMX differentiation is low, teammates' own TMX levels are not distinct; therefore, the relationship between TMX and psychological empowerment will be attenuated. In making these arguments, I propose that TMX differentiation is an important boundary condition that can help reconcile the prior inconsistent findings regarding the relationship between TMX and psychological empowerment.

Turning now to the outcomes at the team level, I also seek to provide insights into the relationship between TMX-team and team empowerment. To date, few studies have examined the team-level effects of TMX-team, and the motivational implications are unclear. This is an important oversight because motivation, and more specifically team empowerment, has been shown to have a critical impact on team functioning and success (Seibert et al., 2011; Maynard et al., 2012). To fill this gap, I propose the TMX-team is a key driver of team empowerment. Team empowerment is defined as the "shared perceptions among team members regarding the team's collective level of empowerment" (Seibert et al., 2011, p. 986). Empowered teams believe that their work is meaningful,

believe that the team has a significant impact in the organization, are given discretion regarding their team tasks, and believe that they collectively can succeed (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). Initial research has shown that team characteristics such as team size and team experience impact the emergence of team empowerment (Maynard et al., 2012; Seibert et al., 2011). Additionally, although not empirically examined, researchers have proposed that relational problems within a team could negatively impact team empowerment (Maynard et al., 2012). Furthering this line of research, I seek to establish the connection between TMX-team and team empowerment.

Through the enhanced teamwork that occurs in teams with high quality TMX-team (Liu et al., 2011), the team will be able to better recognize and utilize its strengths and weaknesses. By effectively interacting with one another, team members should expect their team is able to successfully accomplish its goals (Shea & Guzzo, 1987). Further, through open communications, team members will be able collectively influence each other and help each other to understand the significance and impact of their work (Kirkman & Rosen, 1997). In summary, because TMX-team is associated with effective coordination and collaboration (Dierdorff & Ellington, 2012; Liu et al., 2011), I contend that it will be positively related to team empowerment. Nevertheless, I expect that TMX differentiation will act as an important boundary condition to this relationship through negatively moderating the connection between TMX-team and team empowerment.

Although I similarly proposed that differentiation moderates the relationship between TMX and psychological empowerment, I argue that this moderating effect is different at the team (where it negatively moderates) and individual (where it positively moderates) levels. Team empowerment is thought to largely exhibit homology with

psychological empowerment, however researchers have indicated that team interactions might interrupt the similarity in these relationships across levels (Kozlowski, Gully, Nason, & Smith, 1999; Seibert et al., 2011). In other words, team empowerment is based on a collection of team members and therefore is likely impacted by the processes within the team, however psychological empowerment is an individual level construct and therefore is not necessarily impacted by these same processes (Kirkman & Rosen, 1997; Seibert et al., 2011). Because differentiation is indicative of team interactions, I contend that it interrupts the homology of empowerment across levels. Accordingly, although I argue that TMX and TMX-team similarly exhibit positive relationships with psychological and team empowerment respectively, I propose that TMX differentiation impacts individual-and team-level motivational states in a different manner.

Whereas TMX differentiation enhances the relationship between TMX and psychological empowerment because it highlights employees' TMX levels relative to other members through a social comparison process, I propose that TMX differentiation simultaneously diminishes the positive relationship between TMX-team and team empowerment. Differentiation indicates that team members differently perceive the levels of reciprocity in the team (Seer, 1989; Liao et al., 2010). As a result, TMX differentiation negatively impacts team cohesion and harmony of a team (Liao et al., 2010) and is therefore indicative of a team that does not function together optimally. As such, differentiation should detract from the TMX quality to empowerment relationship such that it diminishes the faith that team members have in the ability of the *team as a whole* to succeed, will be associated with inconsistent beliefs about the meaning and impact of the team's work, and will therefore limit the team's ability to become empowered.

Accordingly, I propose that TMX differentiation has an opposing effect at the individual and team level such that differentiation enhances the impact of TMX on psychological empowerment while simultaneously diminishing the impact that TMX-team has on team empowerment.

For an example of the opposing effect of TMX differentiation at the individual and team levels, consider a scientist working in a research team to conduct a field study. If this scientist forms a high quality relationship with his/her team despite several other members holding lower quality relationships, I expect that this scientist would view himself/herself as having great relationships with other teammates, particularly when compared to other members. Therefore, high levels of differentiation will enhance this scientist's connection between TMX and psychological empowerment, because differentiation will illuminate the scientists' feelings of competency, meaning, impact, and determination when comparing his or her relationships to the others on the team. However, TMX differentiation also indicates that some teammates have low levels of TMX and therefore are not working together successfully (Liao et al., 2012). Therefore, differentiation should simultaneously attenuate the TMX-team to team empowerment relationship, because differentiation would negatively impact the team's belief in its ability to complete a significant, meaningful, and successful project. Conversely, low differentiation should enhance this relationship, because team members experience similar levels of support, advice, and have similar team member interactions. This consistency will enhance the positive relationship between TMX-team and team empowerment because of the unswerving message that TMX-team is providing to the team members regarding the team's ability, effect, and functioning. Therefore, I propose

that whereas high levels of TMX differentiation positively influence the effect of the scientist's TMX level on psychological empowerment, such high levels of differentiation concurrently reduce the impact of TMX-team level on team empowerment.

Finally, I propose that the effects of TMX and TMX-team on performance and viability through empowerment are conditional upon the level of TMX differentiation. At the individual level, a multitude of studies provide evidence that TMX is positively related to performance. However, much uncertainty remains regarding the mechanisms through which TMX impacts performance (Banks et al., 2013). At the team level, a few studies have proposed a positive relationship between TMX-team and performance (Cogliser et al., 2013; Jordan et al., 2002; Liu et al., 2011), however there have been inconsistencies regarding this relationship within and across studies. I argue that these prior findings at both the individual and team levels are incomplete for two reasons.

First, prior studies have tended to focus on the direct relationship between TMX and performance. However, I argue that these relationships can be most fully understood through motivation, particularly empowerment. Prior research has demonstrated that empowerment is a key driver of performance (Maynard et al., 2012; Seibert et al., 2011). I have thus far proposed that TMX and TMX-team are positively related to psychological and team empowerment contingent on differentiation. Extending these arguments, I further propose that psychological empowerment mediates the relationship between TMX and individual success, and team empowerment mediates the relationship between TMX-team and team success. In addition, I account for two types of success in this study, including task performance and viability. At the individual level, examining current performance and viability provides a well-rounded perspective on employees' team-

based success, such that these two components are indicative of individuals who are both successful in their current role and have the desire to remain with their teams in the future. At the team level, examining team performance and viability provides a well-rounded perspective on team success, such that these two components are indicative of a team that is currently functioning optimally and has the likelihood of continuing to perform optimally in the future (Kozlowski & Ilgen, 2006). Accordingly, examining these relationships will allow me to take a more nuanced perspective on the outcomes of employee and team success.

Second, few studies have taken into consideration the pattern of relationships within the team in examining the performance implication of the TMX constructs. However, those limited studies that have considered the pattern of relationships have demonstrated that they are crucial for understanding the outcomes of TMX. For example, Cogliser and colleagues (2013) indicated that team performance would be negatively impacted when some members of a team had incongruently low levels of TMX compared to their other team members. Similarly, Liu et al. (2011) found initial evidence that TMX differentiation acts as a moderator between TMX-team and performance. Extending this line of research I propose that the indirect effects of TMX on individual success and TMX-team on team success are conditional upon levels of TMX differentiation. Accordingly, I propose that the indirect effects of TMX on individual success through psychological empowerment are strengthened when TMX differentiation in high and weakened when TMX differentiation is low. Further, I propose that the indirect effects of TMX-team on team success through team empowerment are weakened when TMX differentiation is high and strengthened with TMX differentiation is low.

When taken together, this dissertation seeks to fundamentally expand TMX theory through adopting a multi-level motivational perspective to understanding relationships within teams. In doing so, this study seeks to make three primary contributions to TMX theory and research. First, through examining the prosocial motivational antecedents of team-based exchanges, I provide critical insights into the drivers of TMX, TMX-team, and TMX differentiation. Whereas TMX theory has assumed that TMX can differ from individual to individual within a team, research has yet to provide an explanation for what would cause these differences amongst teammates *within* a team; existing research has instead focused on examining factors that explain TMX differences *between* teams. Through investigating trait-based prosocial motivation as an antecedent of TMX, this study intends to fill this gap in the TMX theory through providing a motivational explanation for what causes TMX levels to differ between individuals within a team. Further, despite the importance of TMX-team and TMX differentiation in teams (e.g., Liao et al., 2010), we know little about the factors that contribute to these team-based relationship characteristics. Through proposing collectivism and prosocial competency training as motivational drivers of TMX-team and TMX differentiation, this study expands our knowledge of the motivational base of these exchange characteristics.

Second, I seek to reconcile previous inconsistencies regarding the relationships between TMX and psychological empowerment, and establish a relationship between TMX-team and team empowerment (Chen & Klimoski, 2003; Liden et al., 2000; Srivastava & Singh, 2008). To do so, I adopt a social comparison perspective (Festinger, 1954) to explain the different moderating influence that TMX differentiation (Liao et al.,

2012) has on the relationships at the individual and team levels. In doing so, I provide a more holistic perspective to individual level exchanges through considering not just the level of exchanges but also considering the general exchange structure in the team. Through examining the joint effect of the level of exchanges and TMX differentiation on empowerment, I am able to provide a more nuanced interpretation of team-based exchanges simultaneously at the individual and team levels along with providing insights into previous inconsistencies in TMX research.

Third, I seek to provide a comprehensive understanding of the linkages between TMX and TMX-team and effectiveness by focusing on both task performance and viability. Additionally, I seek to demonstrate that the effects of TMX and TMX-team are indirect through empowerment and conditional upon the level of differentiation. Although TMX has been shown to be an important determinant of success at the individual level (Banks et al., 2013), we are largely uncertain of the mechanisms that facilitate this connection along with the boundary conditions that may constrain this relationship. At the team level, previous empirical research has shown inconsistencies when examining the relationship between TMX-team and team performance (e.g., Jordan et al. 2012). To reconcile the inconsistent findings at the team level, I propose that the effects of TMX and TMX-team on performance and viability can be best understood when incorporating the mediator of empowerment and the boundary condition of TMX differentiation. A summary of the proposed relationships is provided in Figure 1.

CHAPTER 2: LITERATURE REVIEW

Social Exchange in Teams

Team IMOI Model

Teams are "collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity" (Kozlowski & Bell, 2003; p. 334). The IMOI model provides a framework for understanding why some teams are more effective than others (Ilgen et al., 2005; Mathieu et al., 2008). In this episodic model, team inputs are the drivers of team mediators (processes and emergent states), which lead to outcomes, which in turn influence the team's inputs and mediators. Additionally, team inputs can emanate from the organizational context (e.g., human resource systems), the team context (e.g., interdependence), and the characteristics that members bring with them to the team (e.g., personality traits). In this dissertation, I focus on both the team context (i.e., prosocial competency training; team mean collectivism) and the members of team (i.e., psychological collectivism) as inputs that impact TMX and TMX-team team process mediators.

Team process mediators have historically been characterized as focusing on the team's tasks, known as taskwork process mediators, or as focusing on the interactions amongst members of the teams, known as teamwork mediators (Mathieu et al., 2008; McIntyre & Salas, 1995). Marks and colleagues (2001) expanded upon this framework through breaking down team processes to: (1) those that occur during the transition and

planning phase, (2) those that occur during the action phase, and (3) those that are interpersonally oriented. My dissertation examines exchanges amongst team members, which can be considered to be a teamwork (McIntyre & Salas, 1995) or interpersonal (Marks et al., 2001) process mediator.

I consider the relationship that this teamwork/interpersonal process mediator has with empowerment, which is an emergent state mediator. Emergent states can be classified as cognitive, affective, or motivational (Marks et al., 2001). Empowerment is considered a motivational state such that it reflects a belief in an individual or a team's ability to succeed (Mathieu et al., 2008). Finally, I propose that these mediators provide a basis for understanding effectiveness (Mathieu et al., 2008). At the team level, I propose that team performance and team viability for future assignments are key outcomes that are impacted by TMX-team through team empowerment. At the individual level, I propose that task performance and individual viability are outcomes that are affected by TMX through psychological empowerment.

Team-Member Exchange

TMX examines the bidirectional exchange process through which an individual contributes to a team and the team concurrently contributes to the individual (Seers, 1989). In this exchange relationship, ideas, feedback, and assistance are provided to a team member and this team member simultaneously provides the same benefits to the team (Seers, 1989). An underlying assumption in the TMX literature is that employees conceptualize their team based on the identity of the team as a whole, and therefore treat the team as a cohesive psychological object (Jacobs, 1970; Seers, 1989). In other words,

TMX captures relational exchanges with the team as a collective unit rather than relational exchanges with single team members (Banks et al., 2013; Seers, 1989).

Two prominent theories—organizational role theory (Katz & Kahn, 1978) and social exchange theory (Blau, 1964)—provide the foundation for TMX theory. Whereas role theory establishes the need to examine team relationships, social exchange theory provides insights into the interactions among members within teams. More specifically, role theory provides one foundation for TMX theory through positioning team members as key role-senders within the work domain (Katz & Kahn, 1978; Seers, 1989). Role theory contends that employees in an ongoing team or workgroup do not solely develop perceptions of their individual role, but they also define themselves relative to their team as a whole (Jacobs, 1970). Social exchange theory provides the second foundation of TMX through ascertaining that interactions within teams have the ability to generate feelings of mutual commitment and obligation over time. In such relationships, the parties to the relationship negotiate their expectations and engage in certain norms, notably the norm of reciprocity (Blau, 1964; Cropanzano & Mitchell, 2005; Emerson, 1976; Homans, 1961; Jacobs, 1970). Accordingly, employees in a workgroup setting are thought to engage in exchange relationships with their team that contribute to the development of their roles. However, the strength and pattern of the reciprocity within these exchanges can fluctuate from person to person. As such, TMX was developed as a construct to capture the varying level of reciprocity in the exchanges between a team member and his or her work group (Seers, 1989).

TMX was originally developed as a team-based parallel to leader-member exchange (LMX) (Seers, 1989), which is a relational approach to leadership that

examines the unique dyadic exchange relationship between a leader and follower (Graen, 1976). However, there are three key differences amongst the two constructs. For one, an underlying assumption of TMX theory is that employees conceptualize their team as a psychological object (Seers, 1989). Therefore, unlike leader-member exchange (LMX; Graen, 1976) that focuses on dyadic relationships, TMX examines a perceived exchange between an employee and his or her team as a whole. Second, TMX and LMX differ with regards to the type of resources that are exchanged. Whereas both leaders and team members have the capacity to exchange ideas, advice, and support (Graen, 1976; Graen & Uhl-Bien, 1995; Seers, 1989), leaders additionally have the ability to provide employees with organizational resources such as promotions, raises, and bonuses (Liao et al., 2010). Because team members do not have access to such organizational resources, TMX is less likely to trigger emotional reactions and justice sensitivities than LMX (Liao et al., 2010). Finally, TMX has been shown to have a unique impact on some outcomes above and beyond the effect of LMX (Banks et al., 2013; Liao et al., 2010). For example, TMX has been shown to have a significant incremental effect above LMX on self-efficacy (Liao et al., 2010), creativity (Liao et al., 2010), organizational commitment (Banks et al., 2013), and job satisfaction (Banks et al., 2013). Accordingly, though both are exchange-based constructs that generate feelings of reciprocity among parties, it is critical to cultivate an independent understanding of TMX and LMX because each construct has unique meaning and a unique impact within the workplace.

TMX was originally conceptualized as an individual level construct such that each team member is thought to have a unique perception of his or her exchange relationships with teammates (Seers, 1989). However, as the literature on TMX has

progressed, it has become increasingly clear that TMX has important implications for not only individual functioning and success (Banks et al., 2013) but also for the functioning and success of the team as a whole (e.g., Jordan et al., 2002; Alge et al., 2013). Accordingly, a growing literature has focused on TMX-team to provide insights into the average quality of relationships within the team (e.g., Alge et al., 2003; Dierdorff & Ellington, 2012; Liu et al., 2011). This literature has demonstrated the TMX-team has important but nuanced implications for team effectiveness (Alge et al., 2003; Cogliser et al., 2013; Jordan et al., 2002; Liu et al., 2011; Seers et al., 1995).

Whereas TMX-team was introduced into the literature to represent the average level of TMX within the team, the initial theory on TMX emphasized that TMX levels can vary among team members (Seers, 1989). Accordingly, Liao and colleagues (2010) recently introduced TMX differentiation to capture the variation in TMX relationships within teams. For example, whereas one team can have team members that vary drastically with respect to their levels of TMX (high differentiation), another team can have team members that are practically identical with regards to their levels TMX (low differentiation). This level of differentiation has an important impact on how levels of TMX and TMX-team are translated into outcomes (Cogliser et al., 2013; Liao et al., 2010; Liu et al., 2011). Social comparison theory (Festinger, 1954) provides a basis for understanding the importance of TMX differentiation, because it offers insights into the comparison processes that occur amongst individuals. A high level of differentiation will make individual TMX levels more pronounced through highlighting the comparisons within the team (Liao et al., 2010), therefore enhancing the positive effect of TMX level on outcomes. On the other hand, a high level of differentiation also represents a team that

is not collaborating effectively and is not cohesive (Alge et al., 2003; Dierdorff & Ellington, 2012; Liao et al., 2010; Liu et al., 2011), therefore weakening the positive effect of TMX-team level on outcomes.

Teams are fundamentally multi-level as they are composed of individuals who jointly form the whole of the team. It is important to understand both the similarities and differences in the meaning of the TMX construct as it emerges across levels of analysis from the individual to the team (Klein, Dansereau, & Hall, 1994; Mathieu & Chen, 2011; Rousseau, 1985). Theory on TMX is couched in the assumption that individuals form unique and independent relationships with their team (Seers, 1989). Thus, TMX is believed to vary from team member to team member within one team (Seers, 1989). In this regard, as TMX is accumulated to the team level, it would be considered a configural team property, because it emerges from individual perceptions and experiences but is based in the fundamental assumption that there will be variability amongst team members (Klein & Kozlowski, 2000). Thus, configural team properties such as TMX are different from shared team properties, which also originate from individuals but instead mandate that there is commonality or consensus as these characteristics are aggregated to the team level (Klein & Kozlowski, 2000).

Chan (1998) introduced a typology on composition models that explains how lower-level data can be aggregated to the team level. The typology includes additive, direct consensus, referent-shift consensus, dispersion, and process composition models. The additive and consensus models are similar such that they are aggregations of lower-level variables. However, additive constructs are a summation regardless of the variance in the lower level construct whereas consensus models dictate that meaning in the higher-

level construct derives from agreement. Dispersion models focus on variance rather than aggregation, such that the meaning in the higher-level construct comes from the dispersion of the lower-level variable. Finally, process composition models focus on the process parameters as analogous representations across levels. Building from this framework and consistent with prior TMX research (e.g., Dierdorff & Ellington, 2012; Ford & Seers, 2006), I contend that TMX-team arises from individuals to the team through an additive composition process, such that the meaning in this construct is derived from the average level of TMX within the team (Chan, 1998). Further, to supplement the meaning of TMX-team, TMX differentiation represents the discontinuity in this emergence (Kozlowski & Klein, 2000), such that the meaning in the construct is derived from the within-team variance that occurs across individual TMX levels (Chan, 1998). Accordingly, to gain a full understanding of relational exchanges in teams, I incorporate TMX, TMX-team, and TMX differentiation into my model.

In what follows, I will begin by reviewing the literature on TMX, which was introduced by Seers (1989), and TMX-team, which was introduced by Seers, Petty, and Cashman (1995). I will start by reviewing the antecedents of team-based exchanges, first at the individual and then the team level. Subsequently, I will review the consequences of these exchanges, again first at the individual and then at the team level.

<div align="center">Antecedents of TMX and TMX-team</div>

Individual Within Team Relationships

Characteristics of the job, team, and member relations have been examined as antecedents to individual-level TMX. Beginning with the job, characteristics of the task itself have been shown as a determinant of TMX. Chae and colleagues (In Press)

theorized that task complexity would act as a precursor to TMX. Across a sample of 289 service employees, task complexity in one's job demonstrated a positive relationship with TMX. Telecommuting opportunities have also been examined as a job-related characteristic that spans an employee's work and home life, therefore influencing exchange relationships with family members and coworkers alike. In this study, Golden (2006) found that employees' extent of telecommuting was positively related to TMX for a sample of 294 employees.

Prior studies have also found that LMX is a facilitator of TMX. High quality relationship with one's leader is positively associated with having high quality relationships with one's team (Tse, Dasborough, & Ashkanasy, 2008; Banks et al., 2013). Tse and colleagues (2008) provided additional insight into the connection between LMX and TMX in a sample of 215 manager-employee dyads across 36 teams. These researchers found that workplace friendships mediated and affective climate moderated the relationship between LMX and TMX. Specifically, LMX had a positive indirect effect on TMX through workplace friendships, and the relationship between LMX and workplace friendships was only significant when there was an affective climate on the team.

Beyond workplace friendships, additional relational characteristics have been examined as antecedents to TMX. In one study, across a sample of 21 residence hall teams, Dose (1999) examined team members' similarity on several values in relation to TMX. This similarity was examined in two ways – perceptions of similarity in values and actual similarity in values. Dose found that team members who have objectively similar work ethics, objectively similar preferences for security and surroundings, and

objectively similar orientations towards teamwork have higher levels of TMX. Interestingly, perceived similarity on values did not demonstrate a significant relationship with TMX as proposed. In a second study, across 124 employees on 18 teams manufacturing teams, TMX was proposed to mediate the relationship between interactional justice and social loafing (Murphy et al., 2003). Although there was no evidence of a relationship between TMX and social loafing, the results demonstrated that perceptions of interactional justice were a significant determinant of TMX.

Taken together, existing empirical studies on the antecedents of individual-level TMX have demonstrated that the characteristics of one's job, team, and relationships are important for understanding differences in TMX levels amongst team members. However, because TMX levels can differ from individual to individual within a team (Seers, 1989), it is important to understand the factors that contribute to individual level TMX. Much of the existing research has examined characteristics that are the same across multiple members of a team, and therefore cannot fully explain this within-team variance. Accordingly, it is critical that we now examine the impact of personal characteristic on the formation of high quality TMX relationships, because individual characteristics such as personality traits and values are key determinants of team processes and performance (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Bell, 2007; Morgeson, Reider, & Campion, 2005). As such, in this dissertation, I seek to provide insight into the importance of individual traits for the formation of high quality TMX. Specifically, I propose that prosocial motivational traits in the form of psychological collectivism are an important driver of TMX. Although prosocial motivational traits have not yet been examined in relation to TMX, initial research has shown that psychological collectivism

is a particularly important individual difference that promoted effective working relationships in teams (Bell, 2007; Jackson et al., 2006; Randall et al., 2011). Thus, I seek to extend this research by establishing a relationship between prosocial motivation traits and TMX.

Team Relationships

Four published studies have examined the antecedents of TMX-team. In one of the intial empirical examinations of the TMX construct, Seers, Petty, and Cashman (1995) recognized that an aggregated level of TMX within a team provides insights into the overall level of exchanges on these teams. These researchers proposed that team structure influenced TMX-team levels. More specifically, they examined the impact of two different types of team structure on TMX-team, including teams that were self-managed and teams that were hierarchically structured. Using a small sample of 12 teams that consisted of 103 manufacturing and service hourly employees, Seers et al. (1995) found the self-managed teams had a higher level of TMX-team than those hierarchically structured teams.

Alge and colleagues (2003) utilized a sample of 198 undergraduate students on 66 lab-based teams to understand the impact of temporal scope and communication media on TMX-team. Temporal scope is defined as the extent to which teams have a history, expect a future together, or operate on a one-time ad-hoc basis. Communication media is defined as face-to-face versus computer-based teams. These researchers found that teams with a history and teams that expected a future together had higher levels of TMX-team than ad-hoc teams. They also found that face-to-face teams benefitted from higher levels of TMX-team than computer-based teams. Interestingly, this study also examined

temporal scope and communication media in conjunction, and found that temporal scope did *not* moderate the relationship between communication media and TMX-team. In other words, face-to-face teams had higher levels of TMX-team than computer-based teams irrespective of their temporal scope.

In another study, Dierdorff and Ellington (2012) examined behavior regulation as a driver of TMX-team in a sample of 338 students in 64 teams. Performing a simulation task, these researchers examined the consequences of the mean levels of self-regulation in teams, which was operationalized as average levels of self-efficacy and meta-cognition within the team. Results showed that, as expected, both the average level of self-efficacy on the team and the average meta-cognition on the team were positively related to TMX-team. Interestingly, They labeled TMX-team as cooperation quality, noting that aggregating TMX to the team level is indicative of the average level of reciprocity and therefore cooperation within the team.

Finally, Dasborough, Ashkanasy, Tee, and Tse (2009) examined the role of emotional contagion among team members from a theoretical perspective. Utilizing affective events theory, Dasborough and colleagues (2009) proposed that negative emotions that result from attributions of insincerity and negative interactions with one's leader can spread from team member to team member. These negative emotions will adversely impact the climate and exchanges of the team, including reducing the overall level of TMX within the team.

These articles provide initial evidence that the characteristics of the team (e.g., temporal scope) and the characteristics of individuals within the team (e.g., self-efficacy) both contribute to TMX-team. However the importance of motivation (e.g., team

prosocial motivation) and teamwork competencies remains unclear. First, with regards to motivation, Dierdorff & Ellington (2012) provide evidence that the average level of individual characteristics impact TMX-team levels. Building from this, I examine how team prosocial competency in the form of mean levels of team member psychological collectivism impact TMX-team. It is important to examine motivation, as motivation provides a basis for understanding individual's actions. Furthermore, researchers have demonstrated that psychological collectivism promotes effective working relationships in teams (Bell, 2007; Jackson, Colquitt, Wesson, & Zapata-Phelan, 2006; Randall, Resick, & DeChurch, 2011). Thus, extending this to the team level, I seek to examine the relationship between team prosocial motivation and TMX-team. Second, I contend that it is important to examine teamwork competencies, because research has demonstrated that both those within teams and for the team as a whole benefit from teamwork competencies (Barrick et al., 1998; Ellis et al., 2005; Leach, Wall, Rogelberg, & Jackson, 2005; Morgeson et al., 2005). However, competencies have not been examined in relation to exchanges within teams. I seek to address this gap in the literature through examining prosocial competencies as an antecedent of TMX-team. Prosocial competencies, or the knowledge and skills regarding collaborative problem solving and communication, focus on effective and cooperative interactions within teams and are indicative of the approach that individuals take to teamwork (Stevens & Campion, 1994). Further, prosocial competencies have been shown to be developable in teams (Ellis et al., 2005; Salas, Oser, Cannon-Bowers, & Daskarolis-Kring, 2002; Stevens & Campion, 1999). Building off of this research, I contend that training aimed to improve prosocial competencies within teams will be associated with higher levels of TMX-team.

Consequences of TMX and TMX-Team

Consequences of TMX for Individual Team Members

Performance is perhaps the most commonly studied outcome of TMX for team members, followed by attitudes (Banks et al., 2013). In a sample of 337 service industry employees on 60 teams, Liden and colleagues (2000) found that TMX had a positive relationship with job performance. Further, in a meta-analytic study that combined results from both published and unpublished papers on TMX, Banks and colleagues (2013) found that there was a moderately strong correlation (.25) between TMX and performance. Despite this research that provides support for a positive relationship between TMX and performance, a number of studies have provided evidence that the relationship between TMX and performance may be more nuanced and subject to important boundary conditions.

The positive relationship between TMX and performance was not supported in an examination of social exchanges, which differ from TMX such that they are operationalized as an additive measure of exchanges with one's leader and two co-workers. In their examination of 70 newcomers on 70 different teams, Chen and Klimoski (2003) did not find a significant relationship between social exchanges and role performance. More recent research has indicated that these differing findings may be the results of important boundary conditions. For example, researchers found that whereas TMX was not directly related to work engagement, personality characteristics significantly moderated this relationship (Liao, Yang, Wang, Drown, & Shi, 2013). Using a person-situation interaction framework, Liao and colleagues (2013) found that TMX was positively related to work engagement when extraversion was high,

neuroticism was low, or surprisingly – when conscientiousness was low (Liao et al., 2013).

Aside from task performance, TMX has also been examined in relation to the performance-related outcomes of creativity, citizenship behaviors, and social loafing. Three studies have found a positive relationship between TMX and employee creativity (Chae at al., In Press; Liao et al., 2010; Munoz-Doyague & Nieto, 2012) and two of these studies examined boundary conditions to this relationship. Chae and colleagues (In Press) proposed that the connection between TMX and creativity would be impacted by team type (R&D teams versus project task force teams), but did not find empirical support for this moderator. In another study of creativity, Liao and colleagues (2010) proposed that the relationship between TMX and creativity occurred through the mediator of self-efficacy and the moderator of TMX differentiation. These hypotheses were confirmed in a sample of 828 technicians on 116 teams; the indirect effect of TMX on creativity through self-efficacy was moderated by TMX differentiation such that this relationship was only significant when differentiation was high.

With regards to citizenship behaviors and social loafing, Erdogan, Sparrowe, Liden, and Dunegan (2004) proposed that TMX was related to these performance related behaviors in a theoretical examination of TMX and felt accountability (Erdogan et al., 2004). This research proposed that feelings of accountability to one's coworkers would mediate the positive relationship between TMX and organizational citizenship behaviors and mediate the negative relationship between TMX and social loafing. Erdogan and colleagues (2004) further proposed that the positive relationship between TMX and accountability to coworkers would dissipate if there were a high level of accountability to

the self (i.e., individuals prioritized their own goals and ambitions above others). In an empirical examination of social loafing, researchers proposed but failed to establish a relationship between TMX and social loafing in a sample of 124 employees on 18 manufacturing teams (Murphy et al., 2003). More specifically, Murphy and colleagues (2003) proposed that TMX would mediate the negative relationship between justice perceptions and social loafing. Although interactional justice was positively related to TMX, researchers did not find a significant relationship between TMX and social loafing.

With regards to job attitudes, researchers have examined TMX in relation to organizational commitment, job satisfaction, turnover intentions, and emotions. In one of the initial empirical examinations of TMX, Major et al. (1995) demonstrated that TMX had a positive effect on commitment and satisfaction and a negative effect on turnover intentions in a sample of 252 newcomers to organizations. Furthermore, in their meta-analytic study of published and unpublished papers, Banks and colleagues (2013) provided support for these relationships between TMX and commitment, satisfaction, and turnover intentions. The relationships were significant and in the expected direction, such that the correlation between TMX and satisfaction was 0.43, between TMX and commitment was 0.45, and between TMX and turnover intentions was -0.16.

Supporting this finding regarding organizational commitment, Liden et al. (2000) also demonstrated that TMX was positively related to organizational commitment. Interestingly, psychological empowerment was proposed to mediate this relationship, however support was found for a direct rather than mediated relationship. With regards to job satisfaction, Golden's (2006) findings were counter to those of Major and colleagues (1995) and Banks and colleagues (2013). Golden found that TMX mediated the

curvilinear relationship between telecommuting and job satisfaction; job satisfaction increased as a function of telecommuting through TMX quality but then dropped at higher levels of TMX. Finally, Tse and Dasborough (2008) examined the relationship between TMX and emotions. Although their study was largely a qualitative study, they examined a small quantitative sample of 25 employees on five teams and determined that TMX is related to positive emotions.

Beyond performance and attitudes, TMX has also been examined relative to a number of relational and team based outcomes. Among a sample of 375 employees from 48 workgroups, Bakar and Sheer (2013) found that TMX levels were positively related to perceptions of cooperative communication and cohesion within the team. Additionally, across a number of studies, TMX has consistently been related to an employees' willingness to assist team members. For example, in a sample of 230 engineers on 30 teams, Kamdar & Van Dyne (2007) found that TMX was positively associated with helping coworkers. Additionally, Chae and colleagues (In Press) found that TMX was related to knowledge sharing, and further found that this relationship was stronger for R&D teams where knowledge sharing is more crucial to team success than for project task force teams.

Furthermore, a number of studies have examined the relationship that TMX and LMX have with critical outcomes. Researchers have proposed that both TMX and LMX are critical within teams and that each represents unique relationships that should demonstrate incremental variance over the other exchange-based construct (Banks et al., 2013; Liao et al., 2010). Liao and colleagues (2010) examined the incremental effects of TMX through controlling for LMX in their analyses. These researchers found that TMX

accounted for unique variance in self-efficacy and creativity above the variance attributable to LMX. Additionally, in their meta-analysis, Banks and colleagues (2013) similarly examined the incremental validity of TMX above LMX in explaining the outcomes of organizational commitment, satisfaction, performance, and commitment. Although TMX was proposed to explain unique variance in all four outcomes, only organizational commitment ($\Delta R^2 = 0.08$, $p < .01$) and job satisfaction ($\Delta R^2 = 0.07$, $p < .01$) demonstrated incremental validity over LMX, whereas this was not true for performance ($\Delta R^2 = 0.01$, ns) or turnover intentions ($\Delta R^2 = 0.002$, ns). However, these authors caution that when interpreting these results, it is important to consider that their analyses do not take into account potentially critical moderators and contextual factors (e.g., tenure on the team, autonomy from the leader, interdependence) that could explain these null findings. Furthermore, these authors propose that TMX may be more important in teams when cohesiveness and collaboration are critical to team success. Because of such, Banks et al. (2013) conclude that TMX does "bring something to the party" and should be further analyzed in the future (Banks et al., 2013).

Lastly, TMX has demonstrated an inconsistent relationship with motivational characteristics such as psychological empowerment and self-efficacy. With regards to empowerment, TMX has been theorized to have a positive relationship with psychological empowerment across three studies (two empirical studies—Chen & Klimoski, 2003; Liden et al., 2000; one theoretical study—Srivastava & Singh, 2008). Chen and Klimoski (2003) examined the relationship between a composite measure of social exchanges and psychological empowerment and found a positive relationship. This composite measure included exchange relationships with one's coworkers and one's

supervisor (Chen & Klimoski, 2003), therefore these results do not necessarily establish a link between TMX and psychological empowerment. Contrary to these results, a second study examined the connection between TMX and psychological empowerment, and the relationship was not supported in a sample of 337 service-industry employees on 60 teams (Liden et al., 2000). Specifically, Liden and colleagues (2000) proposed that the dimensions of psychological empowerment (meaning, impact, competence, self-determination) mediated the relationship between TMX and work outcomes. However, their results did not support the proposed connection between TMX and these dimensions.

However, TMX demonstrated a positive relationship with self-efficacy (Liao et al., 2010), which is a motivational component of psychological empowerment (Conger & Kanugo, 1988; Spreitzer, 1995). Importantly, in this research, Liao and colleagues (2010) also theorized and empirically demonstrated that TMX differentiation is a moderator of this relationship such that TMX is only related to self-efficacy under high-levels of differentiation. This study offers initial evidence that the relationship between TMX and motivational outcomes may be contingent on the differentiation within the team. Therefore, because of the prior inconsistencies regarding the relationship between TMX and motivational outcomes and because of this initial evidence that the motivational outcomes of TMX may be subject to important boundary conditions, I seek to clarify the relationship between TMX and psychological empowerment through introducing TMX differentiation as a moderator. To make these arguments, I draw on social comparison theory (Festinger, 1954) and Liao and colleagues (2010) findings that differentiation is important in understanding the motivational outcomes of TMX.

Consequences of TMX-team for Teams

Despite an extensive amount of research that has explored the consequences of TMX, far less research has been dedicated to examining the outcomes of TMX-team (Banks et al., 2013). The majority of the studies that have examined the consequences of TMX-team have focused on its impact on team performance or effectiveness. These studies have consistently proposed a positive relationship with team performance and effectiveness, yet the intricacies of this relationship have varied between and within studies. In an initial empirical examination of TMX-team, Seers and colleagues (1995) used a small sample of 12 teams consisting of manufacturing and service hourly employees and found that a team's positive change in TMX over time is related to team efficiency. In a more comprehensive examination of the performance effects of TMX-team, Jordan and colleagues (2002) used a sample of Airforce students on 56 teams and found that TMX-team is positively related to supervisor's evaluations of team performance. However, in this same study, the researchers found that TMX-team was not related to objective levels of performance. Accordingly, other researchers have proposed that the relationship between TMX-team and performance may be subject to critical boundary conditions.

Alge and colleagues (2003) studied undergraduate student teams and found that TMX-team is positively related to decision-making effectiveness within these teams only when task interdependence on the team was high. Teams that had high levels of TMX made better decisions than those with low TMX-team when task interdependence was high, however TMX-team did not significantly affect the quality of decisions when task interdependence is low (Alge et al., 2013). Additionally, two studies have proposed that the composition of TMX levels within a team are important for understanding the

relationship between TMX-team and performance. Utilizing a qualitative method to examine communications amongst team members, Cogliser and colleagues (2013) found that team-performance was negatively impacted when the majority of the team had high levels of TMX but some isolated individuals existed with low levels of TMX. Along the same lines, Liu and colleagues (2011) found that the relationship between TMX-team and performance was influenced by the structure of relationships within the team. Utilizing a sample of 301 employees on 52 teams, Liu et al. (2011) found that the relationship between TMX-team and team performance was positive when TMX differentiation was low, however there was not a relationship when differentiation was high. These studies provide initial evidence that the relationship between TMX-team and performance outcomes need to be examined in conjunction with contextual factors.

A few studies have addressed outcomes beyond the performance related consequences of TMX-team. In a cross-level examination of the consequences of TMX-team, Liu and colleagues (2011) found that TMX-team was indirectly related to an individual team members' intention to share knowledge through individual commitment to the team. Other researchers have proposed a relationship between TMX-team and climate strength, or the within-group agreement among team members (Ford & Seers, 2006). These researchers found that TMX-team supported agreement regarding senior management effectiveness climate, but was not supported for other climate measures such as recognition climate and challenge climate (Ford & Seers, 2006). Finally, Cogliser and colleagues (2013) found that the mean level of job satisfaction within a team is negatively impacted when there are some isolates on the team. More specifically, job

satisfaction was negatively impacted when there was a generally high level of exchanges on the team, however there were a few isolated members with low quality exchanges.

Despite these advances in the literature, there is still much uncertainty regarding the performance and empowerment consequences of TMX-team. Whereas researchers have demonstrated that team empowerment is a critical emergent state that facilitates effective team interactions and performance (Maynard et al., 2012; Seibert et al., 2011), researchers have not established a connection between TMX-team and team empowerment. Accordingly, I propose that TMX-team is an antecedent of team empowerment and further propose that TMX differentiation moderates this relationship. Furthermore, to provide insights into the connection between TMX-team and performance and clarify previous inconsistencies, I contend that TMX-team has a conditional indirect relationship on team success (i.e., performance and viability) through team empowerment that is dependent on the level of differentiation within the team. In other words, team empowerment provides a motivational mechanism connecting TMX-team and success contingent on the level of differentiation on the team.

Proposed Antecedents of TMX & TMX-Team

TMX is defined as the exchange of ideas, advice, and support (Seers, 1989). Individuals who are high on TMX disburse relevant information to their fellow team members, encourage the success of others within the team, and feel as though the team reciprocally supports them. Individuals who are low on TMX fail to distribute important information to their teammates, do not provide support for others within the team, and do not feel as though their team is invested in their individual success. Teams that exhibit consistently high levels of TMX-team are composed of team members who effectively

communicate with one another, who support the needs of their team, and who exchange relevant information. Teams that exhibit consistently low levels of TMX-team are composed of team members who do not efficiently communicate, who do not offer support to assist their fellow team members, and who fail to successfully exchange information with one another. Accordingly, inherent in the constructs of TMX and TMX-team are the information exchange and communication processes of team members. Social motivation is thought to be a key factor motivating team members to engage in deep-level collective information processing (De Dreu et al., 2008). As such, I propose that prosocial motivation is a core driver of team-based exchanges.

Motivation has been a core topic of interest among organizational researchers because it provides insight in where people focus their energy and attention and directs their actions (Latham & Pinder, 2005). Motivation has been formally defined as "a set of energetic forces the originate both within as well as beyond an individual's being, to initiate work related behavior, and to determine its form, direction, intensity, and direction" (Pinder, 1998; p. 71). I explore psychological collectivism as a prosocial motivational energetic force that originates within an individual and influences team-based exchanges. Further, I explore prosocial competencies as developed through competency-based training as an energetic force that originates outside an individual and influences team-based exchanges.

Psychological Collectivism

Prosocially motivated individuals seek to engage in activities that are consistent with their core values in order to protect their self-view and avoid feeling guilty (Gagne & Deci, 2005; Grant 2008). Prosocially motivated individuals see their work and

interactions as instrumental to obtaining meaningful outcomes such as fairness and cooperation (Grant, 2007; 2008) and see their work as a means to an end of achieving prosocially oriented outcomes (Grant, 2008). In teams, prosocial individuals are more likely to seek out and retrieve information that is consistent with the needs of the group rather than the needs of themselves (Bechtold, De Dreu, Nijstad, & Choi, 2010; De Dreu et al., 2008; Nijstad & De Dreu, 2012; Randall et al., 2011). Conversely, individuals who are low in trait-based prosocial motivation are less likely to take group needs into account when searching for and encoding information. In addition to seeking information that is consistent with the group's needs, prosocial individuals are more likely to reveal important information to others than those who have a proself motivation (Steinel, Utz, & Konig, 2010). Further, social motivation is indicative of an individual's desire to take actions to benefit others (Grant, 2008; Staub, 1978). Individuals with a prosocial orientation focus on fairness amongst individuals and are more concerned with joint or group outcomes than their individual outcomes (De Dreu et al., 2008). Additionally, prosocial motivation is associated with engaging in caring, cooperative, and helpful relationships (De Dreu et al., 2008; Grant, 2007).

Teams researchers have used prosocial motivation and psychological collectivism synonymously, indicating that collectivistic values provide the basis for understanding trait-based prosocial motivation (Jackson et al., 2006; Randall et al., 2011; Resick et al., 2014). Because "values motivate actions" (Locke, 1991, p. 291), psychological collectivism provides a value-based driver of individual prosocial actions within teams. Psychological collectivism has been defined analogously to prosocial motivation such that collectivistic individuals focus on the needs of their group and its members, are

motivated by the norms of their group, and emphasize connections within this group

(Jackson et al., 2006). More specifically, "highly collective individuals see themselves as

members of one or more in-groups, are primarily motivated by the norms of those in-

groups, prioritize the goals and well-being of those in-groups, and emphasize their

connectedness to other in-group members" (Jackson et al., 2006; p. 884).

Psychological collectivism has its roots in the cultural construct of collectivism

(Hofstede, 1980), yet it is notably distinct from this broader society-based construct.

Whereas the cultural value of collectivism focuses on general differences in collectivistic

beliefs and tendencies between cultures and societies (Hofstede, 1980), psychological

collectivism examines individual-level values. Although research has historically

recognized that some cultures are generally more collectivistic than others, researchers

have demonstrated that only about 60% of people in individualistic (collectivistic)

cultures will identify as individualistic (collectivistic) themselves (Triandis & Suh, 2002).

Thus, to capture individual differences in levels of individualism/collectivism,

researchers introduced the idea of psychological collectivism (Jackson et al., 2006;

Traindis, Leung, Villareal, & Clack, 1985; Wagner 1995).

The most modern conceptualization and measure of psychological collectivism,

which has been used extensively in the organizational literature, is specific to the work

domain such that it instructs participants to reflect on their work groups (Jackson et al.,

2006). This is consistent with recent calls that researchers should consider the "intended

beneficiary" of behaviors and actions in their research (Spitzmuller, Van Dyne, & Ilies,

2007; p. 115), such that there may be different relationships when examining constructs

that are specific to the organizational domain. Further, recent research offers evidence

that effect sizes do indeed differ when examining constructs that focus on the work domain rather than constructs that are more generalized or focus on an alternative domain (e.g., Chiaburu, Oh, Berry, Li, & Gardner, 2011). Despite the operationalization of psychological collectivism as specific to the work domain, it is important to note that collectivism is not specific to one team or group, but rather is an individual's general perceptions about working with others (Jackson et al., 2006; Wagner, 1995). Thus, the construct of psychological collectivism is related to other constructs such as cohesiveness and commitment (e.g., Chen, Chen, & Meindl, 1998), however there are critical differences between these constructs. More specifically, constructs such as cohesiveness and commitment are based on a person-group relationship that is often temporary whereas collectivism is a more permanent orientation toward relationships in general (Wagner, 1995).

The psychological collectivism construct consists of five facets that form the basis of an individual's prosocial motivation (Jackson et al., 2006; Ramamoorthy & Carroll, 1998; Wagner, 1995). The first facet, *preference*, represents the affiliative nature of prosocial individuals such that they have a preference for working with other people. The second facet, *reliance,* represents collectivists' beliefs that the responsibility of any one group-member is actually the responsibility of the entire group. Conversely, those who are low in collectivism are likely to focus on themselves, their individual responsibility, and their individual success. The third fact, *concern,* reflects the degree to which one is concerned for the well being of the entire group rather than for themselves as individuals. The fourth facet, *norm acceptance,* captures the extent to which one is willing to accept

and adhere to the standards of the group. Lastly, *goal priority*, examines the degree to which one prioritizes group goals over personal goals.

These five facets of psychological collectivism provide a nuanced and value-based approach to understanding prosocial motivation in teams. Thus, collectivism differs from the broader construct of prosocial motivation, which captures one's general "desire to benefit other people" (Grant, 2008; p. 48), but focusing on prosocial motivation as it relates to teams within the workplace. Additionally, the five facets detailed by Jackson and colleagues (2006) differentiate collectivism from related constructs such as team orientation. Team orientation is defined as "an individual's propensity for functioning as part of a team and the degree to which individuals prefer to work in group settings for task accomplishment" (Mohammed & Angell, 2004; p. 1018). Thus, whereas team orientation similarly encompasses the dimensions of preference, goal priority, and reliance, psychological collectivism is different because it additionally includes the facets of norm acceptance and concern (Cotton, 2011).

Extensive research has been dedicated to collectivism over the years (Ramamoorthy & Carroll, 1998; Triandis, 1995; Wagner, 1995), however modern conceptualizations and measurements of psychological collectivism have largely been based on the work by Jackson and colleagues (2006). Using a sample of 128 full-time employees from a computer software firm, these researchers demonstrated that psychological collectivism is critical for performance—explaining 10% of the variance in task performance, 4% of citizenship behavior, 10% of counterproductive behaviors, and 5% of withdrawal behaviors (Jackson et al., 2006). Supporting this relationship in a meta-analytic study, Bell (2007) found that collectivism had a medium to large impact on team

performance (ρ =.40). Furthermore, of particular applicability to this dissertation, individual prosocial motivation has been related to employees engaging in helping behaviors (Grant, 2007), and psychological collectivism has been related to team information sharing (Randall et al., 2011). Further, the self-reliance component of collectivism has been related to information elaboration through the mediator of collective leadership (Resick et al., 2014). Building off of this research that has highlighted the influence of psychological collectivism on how individuals interact with one another and how teams exchange information, I propose that psychological collectivism is a key antecedent of TMX. Furthermore, I propose that the average level of psychological collectivism in a team, or team mean collectivism, is a key antecedent of TMX-team.

Prosocial Competencies and KSAs

KSAs can be developed within teams to influence how individuals approach teamwork (Stevens & Campion, 1994). Five competencies have been examined within the literature—three of which are interpersonal KSAs (collaborative problem solving, communication, conflict resolution) and two of which are self-management KSAs (goal setting and performance management, planning and task coordination) (Stevens & Campion, 1994). Ellis and colleagues (2005) further broke down this classification through identifying three KSAs that are applicable to cross-functional or action teams— collaborative problem solving, communication, and planning and task coordination. These three competencies are increasingly important in the modern workforce, because they focus on KSAs that are transferrable across teams rather than skills that are specific to a single team (Ellis et al., 2005). Workplaces are progressively replacing the norm of

stagnant teams with teams in which individual participation is for a shorter duration of time contingent on their expertise and the needs of the team and organization (Mathieu & Chen, 2011). Accordingly, the three competencies identified by Ellis and colleagues (2005) are of particular importance in the current workplace.

Two of these competencies, collaborative problem solving and collaboration, focus on the interpersonal relationships that facilitate cooperation, teamwork, and effective communication within teams (Stevens & Campion, 1994) and are particularly applicable in the modern workplace (Ellis et al., 2005). These competencies focus on actions that encourage team members to work together, encourage team members to put the needs of the group ahead of their own, and encourage the flow of knowledge within the team (Stevens & Campion, 1994). Thus, these competencies are consistent with a prosocial orientation (De Dreu et al., 2008; Grant, 2007), and I will jointly be referred to these two competencies as prosocial competencies.

Collaborative problem solving competencies refers to "team members' capacity to effectively use collective induction and deduction to resolve challenges and difficulties" (Ellis et al., 2005; p. 644) and involves "the ability to match the proper degree of participation to the problem; and to recognize obstacles to collaborative problem solving and implement appropriate corrective action" (Stevens & Campion, 1999; p. 209). Team member participation in problem solving may increase the pool of knowledge that can be utilized to make decisions (Glassop, 2002; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000), however it can also increase time requirements and can diminish individual responsibilities (Karau & Williams, 1993; Yukl, 1981). Accordingly, competencies regarding collaborative problem solving include understanding when others'

should be involved in decision making and when decision making is best accomplished alone (Stevens & Campion, 1994). Decisions that are complex such that they mandate the combination of knowledge held by multiple team members should be made through collaboration, whereas simple and straightforward decisions should be made alone (Stevens & Campion, 1994). Further, decisions that have large consequences such that the wrong decision can be devastating to the team should be made through collaboration, whereas smaller or trivial decisions should be made alone (Stevens & Campion, 1994). Finally, decisions that require buy-in from team members in order for success should be made as a team, because individuals are more likely to feel committed to a decision if they were involved in making it (Forsyth, 1990; McGrath, 1984; Stevens & Campion, 1994).

When collaboration is optimal for decision making, collaborative problem solving competencies involve understanding how to effectively and efficiently communicate information, feedback, and advice amongst the team. To exchange knowledge and determine to the optimal decision, teams should encourage all team members to voice their opinion and should ensure that all team member viewpoints have been adequately incorporated into the final decision (Stevens & Campion, 1994). To do so, the team should work together to develop a solution that incorporates each of the team members' unique perspectives (Rogelberg, Barnes-Farrell, & Lowe, 1992; Stevens & Campion, 1994; Van de Ven & Delbecq, 1974).

Communication competencies involves (1) understanding communication networks, (2) utilizing effective communication techniques, (3) actively listening to others, (4) remaining consistent with verbal and nonverbal communications, and (5)

recognizing that small talk is important to group success (Stevens & Campion, 1994). Starting with the first, communication networks can be either centralized or decentralized. Decentralized communication channels are associated with faster and more accurate information dispersion (Shaw, 1981; Stevens & Campion, 1994). Accordingly, to facilitate the efficient flow of information, team members should be free to communicate with one another rather than just the leader or a subset of the team. Second, team communication is highest when individuals feel that they are supported and psychologically safe within their team (Kahn, 1990). To facilitate this environment, communications should focus on behaviors and events (not people), work to validate individuals such that no one expresses superiority or an inability and unwillingness to change one's viewpoint, be conjunctive as to show that everyone is equally involved in the discussion, and owned such that individuals acknowledge their own statements and take ownership of them (Stevens & Campion, 1994). Third, team members should be aware of how they interpret others' communications and engage in active listening (Cole, Carter, & Zhang, 2013). People tend to hastily judge what others say (Fiske & Neuberg, 1990). Instead team members should engage in active listening such as to be completely focused on the communications, convey interest in the communication, and ensure a mutual understanding through acknowledging and summarizing others' statements (Moss & Sanchez, 2004). Fourth, individuals should be aware of their nonverbal communications and attempt to remain consistent between their verbal and nonverbal messages through becoming aware of their nonverbal cues (Stevens & Campion, 1994). For instance, nodding one's head during conversations would communicate that he or she understands and supports the teammate's viewpoint. Fifth, a mindset of "let's get down to

business" lessens the likelihood of effective communications; thus, team members must recognize the value of small talk (Cialdini, 2009; Stevens & Campion, 1994). Through small talk, individuals are able to find common ground and increase affective feelings towards one another, corresponding to increased communication and collaboration (Cialdini & Goldstein, 2004).

In this dissertation, I will implement an intervention aimed at improving prosocial competencies in teams. I contend that prosocial competency training will promote TMX-team. This competency training will direct the way team members interact with one another such that interactions focus on providing support and encouragement for one another and further encourage the sharing of feedback and information within the team. Further, I contend that these competencies will provide a trait-activating cue (Tett & Burnett, 2003) that will direct the norms of interaction and communication within the team, stimulating internal prosocial motivation and thus positively moderating the relationship between collectivism and TMX at the individual level and TMX-team at the team level. Furthermore, I contend that prosocial competency training will lower the dispersion of TMX levels within the, thus lessening the level of TMX-differentiation.

<div align="center">Motivational Outcomes of TMX and TMX-Team</div>

Psychological Empowerment

Although empowerment has been studied for multiple decades, researchers have called it "the fad that doesn't disappear" (Maynard et al., 2012; p. 1272) because of its explanatory value in understanding behavior, action, and performance in the workplace (Maynard et al., 2012; Seibert et al., 2011). Psychological empowerment is an individual level construct that is defined as "intrinsic task motivation reflecting a sense of control in

relation to one's work and an active orientation to one's work role" (Seibert et al., 2011; p. 981). Psychological empowerment has been conceptualized as manifesting in response to four separate cognitions—meaning, competence, self-determination, and impact (Spreitzer, 1995; Thomas & Velthouse, 1990). The first, meaning, refers to the value that the employee sees in the work that he or she is doing (Spreitzer, 1995). Competence, the second dimension, is similar to self-efficacy (Bandura, 1989), or a person's belief in his or her ability to successfully complete the given work (Gist, 1987; Spreitzer, 1995). Third, self-determination is the ability to have autonomous choice in directing one's own work (Spector, 1986). This self-determination can emanate from many aspects of the job, including the methods used to accomplish work, the pace at which work is completed, and the effort required for each task (Spreitzer, 1995). Lastly, impact is the degree to which a person feels that he or she can influence outcomes within the work context (Ashforth, 1989; Spreitzer, 1995). Together, meaning, competence, self-determination, and impact form the higher-order psychological empowerment construct (Spreitzer, 1995; Thomas & Velthouse, 1990). While each component is important to one's overall sense of psychological empowerment, an absence of any single component will not automatically negate one's sense of empowerment (Spreitzer, 1995).

Psychological empowerment is a set of cognitions that are formed as employees examine and form an understanding of themselves in relation to their work context (Spreitzer, 1995; Thomas & Velthouse, 1990). Accordingly, the characteristics of an employee and his or her work environment shape the cognitions associated with empowerment, which subsequently determine an individual's motivated behavior (Seibert et al., 2011; Thomas & Velthouse, 1990). An extensive amount of research has

been dedicated to understanding the antecedents and consequences of psychological empowerment, and recent reviews have summarized these studies (Maynard et al., 2012; Seibert et al., 2011). Of particular applicability to this dissertation, accessibility of information and perceived support, which are key components of TMX, have been examined as characteristics that influence psychological empowerment. Research has indicated that the accessibility of information is a key antecedent of psychological empowerment (Spreitzer, 1995). When employees understand the direction of where their team and organization are going and have the resources that they need, they feel empowered (Kanter, 1983; 1989). Having the ability to readily attain this information will allow employees to see the meaning in their work (Conger & Kanungo, 1988) and will enrich employees' ability to make pertinent and successful decisions (Spreitzer, 1995). Furthermore, a multitude of studies have examined support as a key antecedent of psychological empowerment (Seibert et al., 2011). Across 49 studies, social-political support demonstrated a positive relationship with psychological empowerment ($r_c = .48$; Seibert et al., 2011). Although often examined as the more distant characteristic of organizational support than team member support (Maynard et al., 2012), research has consistently verified that employees' perceptions regarding support in the workplace are key for understanding psychological empowerment (Maynard et al., 2012; Seibert et al., 2011).

With regards to the outcomes of psychological empowerment, Seibert and colleagues (2011) meta-analysis found that there is a significant and positive relationship between psychological empowerment and employee performance ($r_c = .26$). Specifically, empowered individuals demonstrate initiative and resilience, thereby increasing their

effectiveness (Thomas & Velthouse, 1990). Further, because they believe in their ability to succeed and are able to see the purpose in their work, empowered individuals take a proactive approach to work that results in improved performance (Speitzer, 1995). Further, the underlying dimensions of psychological empowerment have demonstrated important relationships that contribute to employee performance (Spreitzer, 1995). When employees see meaning in their job, they are more likely to commit their efforts and energy to being effective (Kanter, 1983; Spreitzer, 1995). Competence has been related to the establishment of challenging goals (Ozer & Bandura, 1990) that direct performance (Locke, Frederick, Lee, & Bobko, 1984). Self-determination is associated with a desire to learn and consequently is associated with performance (Deci & Ryan, 1987). Finally, employees that see the impact of their work are less likely to withdrawal from their job and more likely to be high performers (Ashforth, 1990; Spreitzer, 1995).

Team Empowerment

Similar to the individual level construct, team empowerment consists of four dimensions that are largely isomorphic to the four dimensions of psychological empowerment: potency, meaningfulness, autonomy, and impact (Kirkman & Rosen, 1997). Potency is a team-based parallel to individual level competence or self-efficacy reflecting members' shared belief in the team's ability to achieve its goals effectively (Conger & Kanungo, 1988; Shea & Guzzo, 1987; Kirkman & Rosen, 1997). Meaningfulness corresponds to the same named construct at the individual level, such that teams who experience meaningfulness hold a shared believe that their work is important and worthwhile (Hackman & Oldham, 1980; Kirkman & Rosen, 1997). Autonomy corresponds to self-determination, and it is indicative of the degree of

discretion and control afforded to the team (Kirkman & Rosen, 1997). Finally, impact is similar to individual level impact such that it reflects the team members' shared beliefs about the importance of the team's work (Thomas & Velthouse, 1990).

Seibert and colleagues (2011) meta-analysis found that the contextual characteristics of structural empowerment (r_c = .52), work-design (r_c = .49), and leadership (r_c = .61) were positively related to team empowerment. Parallel to the individual level findings and of particular interest to this dissertation, studies have further demonstrated that support is an important antecedent of team empowerment (Maynard et al., 2012). For instance, cooperation (Mathieu et al., 2006) and sociopolitical support (Kirkman & Rosen, 1999) have been linked to team empowerment. Further, although not yet empirically examined, researchers have suggested that relational problems within the team (such as the development of team faultiness) can have a negative impact on team empowerment (Maynard et al., 2012). Because support, cooperation, and team interactions are key components of TMX-team, this research provides initial insights that TMX-team may be related to team empowerment. However, TMX-team goes beyond these previous antecedents such that having high quality relationships also includes the exchange of advice and information within teams. Thus, examining TMX-team in relation to team empowerment will enhance our understanding of how team processes impact empowerment.

With regards to outcomes, many researchers have established that team empowerment is a crucial antecedent to team success (Maynard et al., 2012). Across a performance category that included team effectiveness, productivity, innovation, decision making, and customer satisfaction, Seibert and colleagues' (2011) meta-analysis

demonstrated that there is a positive relationship between team empowerment and performance (r_c = .51). This literature suggests that empowered teams feel motivated to engage in effective and active work behaviors that propel the team into becoming innovative and productive, resulting in high levels of performance (Seibert et al., 2011). Accordingly, a review of the team empowerment literature concludes that, "the vast majority of empirical evidence suggests that empowerment is in fact a salient 'lever' that can be utilized to increase overall team performance" (Maynard et al., 2012; p. 1256).

Finally, because this dissertation examines the opposing moderating effect of TMX differentiation at the individual and team levels, it is important to understand the relationship between psychological and team empowerment. Psychological empowerment is generally viewed as being isomorphic to the team level, however the referent is different such that psychological empowerment refers to personal or individualized empowerment whereas team empowerment refers to the team or collective empowerment. Accordingly, people can hold opposing beliefs regarding psychological and team empowerment, such that an individual can individually be empowered without the team being empowered and vice versa. I contend that the relationship between team-based exchanges and empowerment are isomorphic from the individual to team level such that TMX and TMX-team positively impact psychological and team empowerment respectively, however I further contend that TMX differentiation differently moderates these relationships.

Social Comparison Theory

In this dissertation, I propose that TMX differentiation is an important boundary condition that impacts the effects of TMX and TMX-team on empowerment and success

outcomes. TMX differentiation can be understood through a social comparison perspective, such that the level of differentiation provides insights into the comparison processes within the team. Individuals undertake comparison processes to make sense of their relative standing in the environment surrounding them (Festinger, 1954). To make these comparisons, individuals seek to find people (i.e., comparison others) who are similar to themselves with regards to important factors such as context and environment to make accurate assessments (Festinger, 1954). As a result, two people who have the same objective performance could have vastly different self-perceptions based on their comparison others (Festinger, 1954). For instance, extensive research by Marsh and colleagues (Marsh, 1987; Marsh & Hau, 2003; Marsh, Kong, & Hau, 2000) has shown that two students who have objectively similar performance are likely to evaluate themselves differently based on the academic superiority or inferiority of their schools. A universally average student at an academically inferior performing school is going to compare himself or herself to the other students within this school, and because these students are generally below average performers, believe that he or she is above average. However, a universally average student at an academically superior school is going to similarly compare himself or herself to the other students within this school, and because these students are generally above average performers, believe that he or she is below average. This is because people have the tendency to pay attention to the most local and easily accessible information (e.g., the performance of other students in the school) and ignore more global information (e.g., the performance of students in general across schools) (Alicke, Zell, & Bloom, 2010; Buckingham & Alicke, 2002; Zell & Alicke, 2009).

Team settings are unique because they provide a set of similar, proximal, salient, and highly relevant comparison others (Ang et al., 2003; Nisbett & Ross, 1980; Zell & Alicke, 2009). Therefore, teammates provide a readily accessible and highly relevant basis for employees' social comparisons (Ang et al., 2003; Zell & Alicke, 2009). Further, team members are likely to work under similar conditions (e.g., same structure, same overall goals), making teammates attractive for use as comparison others. In fact, previous research has indicated that interactions amongst team members are associated with frequently engaging in social comparisons (Crosby, 1984). Additionally, the extent of communications among members is likely to amplify the intensity and prominence of these social comparisons (Ang et al., 2003; Kiggundu, 1983).

Furthering the understanding of social comparison processes in teams, Zell and Alicke (2009) proposed that individuals within groups could compare themselves to others within this group (local comparison) or compare themselves to the general population (intergroup or general comparison). Zell and Alicke (2009) found that individuals tend to engage in contextual neglect, such that individuals have a strong tendency to utilize local information (e.g., their other team members) for comparisons and neglect to incorporate more general information (e.g., others in the organization). Alicke and colleagues (2010) found that people only refer to general information if local information is unavailable, which is unlikely in a team setting. Specifically, Alicke et al. (2010) found that the bottom individual performer in the highest performing group had a lower self-evaluation than the top individual performer in the worst performing group. In other words, individuals tend to pay attention to their relative standing within their group and neglect information outside this immediate group.

Despite the prominence of research on social comparison theory (Buunk & Gibbons, 2007; Goodman & Haisley, 2007; Greenberg, Ashton-James, & Ashkanasy, 2007) and initial research indicating that group membership is key for understanding social comparisons (Alicke et al., 2010), there has been a limited amount of research that has examined social comparisons within organizational teams (Goodman & Haisley, 2007). In one of the only empirical examinations related to the impact of organizational team membership on social comparisons, Ang and colleagues (2003) examined the importance of task interdependence in understanding the relationships between foreign and local workers in a sample of 466 employees. These researchers argued that the interdependence of coworkers causes natural social comparisons that illuminate the similarities or differences between team members. As such, Ang et al. (2003) found that the impact of employment status (foreign or local employee) on the outcomes of distributive justice, procedural justice, and job satisfaction was more pronounced when employees had high levels of task interdependence. This provides empirical evidence that employees who rely on one another to complete their work, which is the basis for teamwork (Mohammed & Angell, 2004; Nahavandi & Aranda, 1994; O'Leary & Pangemanan, 2007), will have a strong likelihood of making social comparisons with one another.

Finally, thus far I have largely focused on the traditional model of social comparisons in which one contrasts himself or herself with comparison others such that comparing oneself to a worse off individual would improve one's self-perception whereas comparing oneself to a better off individual would worsen one's self-perception (Festinger, 1954; Morse & Gergen, 1970; Rosenberg, 1979; Wood, 1989). However, a

contrasting perspective on social comparisons suggests that under some circumstances individuals assimilate themselves with comparison others rather than contrast themselves against these others. Assimilation occurs when an individual concentrates on similarities rather than differences between him/herself and a comparison other (Pelham & Wachsmuth, 1995). For example, when an individual assimilates with someone who is better off, this would enhance the individual's self-perception because the individual will begin to associate him/herself with this better-off individual. In other words, people who assimilate believe that *birds of a feather flock together* and therefore the success of their comparison other positively reflects on themselves (Pelham & Wachsmuth, 1995). According to the selective accessibility model, individuals are more likely to assimilate if there is initial evidence that they are similar to others, whereas they are more likely to contrast themselves if there is initial evidence that they are different from these others (Mussweiler, 2001; Mussweiler, Ruter, & Epstude, 2004). Lending further support to this model, Brown, Novick, Lord, and Richards (1992) found that when individuals perceived that they were similar to each other, they were likely to assimilate themselves with, rather than contrast themselves against, one another.

In relation to this dissertation, I examine the social comparisons that occur within teams with regards to the quality of exchange relationships. I examine TMX differentiation as an indicator of the value that both the team members and the team as a whole gain from these comparison processes. When TMX differentiation is high, individuals will perceive their relationships within the team as unique and gain information from these comparisons. However, when TMX differentiation is low,

individuals may fail to see their TMX levels as individual characteristics and instead may begin to assimilate others' TMX levels to themselves.

TMX Differentiation at the Individual Level

TMX differentiation is defined as the degree to which a team has variation with regards to the quality of a team member's exchange relationships (Liao et al., 2010, p. 1092). For example, teams where some team members have low quality TMX relationships whereas others have high quality TMX relationships would have a high degree of TMX differentiation. Conversely, teams where all members have similar quality TMX relationships would have a low degree of TMX differentiation. Although differentiation has always been integral in the definition of TMX such that TMX levels vary between team members within a team (Seers, 1989), Liao and colleagues (2010) only recently introduced the notion of TMX differentiation into TMX theory and research.

TMX differentiation is based in social comparison theory. Specifically, because team members are based in a group setting, the members are likely to engage in contextual neglect such that they determine their relative standing through making comparisons within this group (Ang et al., 2003; Zell & Alicke, 2009). If there is differentiation amongst team members' TMX levels, team members are likely to contrast themselves against their teammates (Festinger, 1954). As a result, team members with comparatively high levels of TMX will perceive themselves positively. Conversely, team members with comparatively low levels of TMX will negatively reflect on themselves and their work. However, if there is a low level of TMX differentiation, the team members may assimilate themselves with one another (Brown et al., 1992; Mussweiler, 2001; Mussweiler et al., 2004) and will therefore attach less significance to the

informational signals provided from TMX (Liao et al., 2010). Therefore, under low levels of differentiation, the effect of TMX on outcomes will become weakened, because teammates will fail to see their TMX relationships as unique.

In the only empirical examination of the moderating effect of TMX differentiation at the individual level, Liao and colleagues (2010) examined a moderated mediation model such that TMX quality was proposed to have a conditional indirect effect on employee creativity through employee self-efficacy with TMX differentiation moderating the first stage of this relationship. These researchers found that the relationship between TMX and self-efficacy was significant and positive under high levels of differentiation, however the relationship was insignificant under low levels of differentiation. Further, the indirect effects of TMX on employee creativity through self-efficacy followed the same pattern of results such that the relationship was significant and positive under high differentiation but insignificant under low differentiation. This provides initial empirical evidence that TMX differentiation is indicative of the social comparison process, or lack there-of, that occurs within teams.

Using a social comparison perspective and drawing on Liao and colleagues (2010) initial findings, I propose that TMX differentiation moderates the positive relationship between TMX and psychological empowerment. Under high levels of differentiation, team members will compare themselves to others within the team (Ang et al., 2003; Zell & Alicke, 2009), thereby highlighting the salience of their TMX levels and enhancing the relationship with psychological empowerment. Conversely, under low levels of differentiation, team members' own TMX levels are similar to others' level and not unique making them less salient (Liao et al., 2010). In these situations, individual

team members may assimilate themselves with one another (Brown et al., 1992;

Mussweiler, 2001; Mussweiler et al., 2004), diminishing the positive relationship

between TMX and psychological empowerment.

TMX Differentiation at the Team Level

High levels of TMX differentiation allows for contrasts between individuals

within a team (Festinger, 1954). This differentiation can reduce the cohesion of the team

as a whole, because team members contrast themselves against one another rather than

viewing their team as a unified group (Liao et al., 2010). Such contrasts will be

associated with team members perceiving that the team is not operating as efficiently as

possible, team members will communicate less efficiently and be less likely to share

knowledge, and team members will doubt the ability of the group to work together

effectively (Kirkman & Rosen, 1997).

Initial research has demonstrated that TMX differentiation negatively impacts the

functioning of teams. In a sample of R&D project teams, Liu and colleagues (2011)

demonstrated that TMX-team is positively related to team performance when

differentiation is low as opposed to high. Similarly, Cogliser and colleagues (2013)

demonstrated that team performance and the average level of satisfaction on the team

were negatively impacted when there was a high level of differentiation (i.e., the majority

of the team had a high level of TMX but some isolates had a low level of TMX).

Expanding these findings to the current research, I contend that TMX differentiation

negatively impacts the relationship between TMX-team and team empowerment.

Effectiveness Outcomes of TMX and TMX-Team

In a team setting, success can be measured at the individual level to reflect the performance and viability of individuals within teams (Thacker & Wayne, 1995), or it can be measured at the team level to reflect the performance and viability of the team as a whole (Marrone, Tesluk, & Carson, 2007). It is important to examine success at both the individual and the team level, because the causes of individual level success are not necessarily the same factors that cause success at the team level (e.g., Nadler, 1979). For example, researchers have demonstrated that cognitive ability is more influential on individual performance whereas emotional ability is more influential on team performance (Offerman, Bailey, Vasilopoulos, Seal, & Sass, 2004). Because individuals within teams have limited resources that they must allocate between individual and team goals, there is an inherent need to efficiently manage one's resources while recognizing the potential trade-off that might result from one's actions (DeShon, Kozlowski, Schmidt, Milner, & Weichmann, 2004). Therefore, it is important to understand both individual and team performance outcomes as there is a potential disconnect between the success of individuals and the success of teams.

Understanding the motivational basis of performance within and of teams has been of key interest to researchers, because it provides insights into the energetic forces that direct individuals and teams to be high performers (Guzzo & Dickson, 1996). Consistent with this line of research, I examine how TMX has a conditional indirect effect on individual success through the motivational state of psychological empowerment that is contingent on the level of differentiation on the team. Additionally, I examine how TMX-team has a conditional indirect effect on team success through the motivational state of team empowerment that is contingent on the level of differentiation

on the team. Below I provide insights into two critical indicators of individual success,

task performance and viability, and two indicators of team success, team performance

and viability.

Effectiveness Outcomes at the Individual Level

I have thus far contended that TMX level is positively related to psychological

empowerment and that this relationship is moderated by differentiation. I further propose

that empowerment is a critical motivational mechanism linking TMX and success.

Success can be conceptualized as the ability of employees to meet the demands of their

current positions and the likelihood that these employees will be able to meet the future

demands through remaining a member of the team. Task performance is indicative of an

employee's effectiveness in his or her current role (De Dreu & Weingart, 2003). Task

performance is a critical indicator of employee success, because it represents the aptitude

of employees with regards to their current position in their organization (Carette, Anseel,

& Lievens, 2013). In addition to task performance, individual viability is an indicator of

an individual's satisfaction with their team and their desire to remain a part of the team in

the future (Peeters, Rutte, van Tuijl, & Reymen, 2006). This desire can be the result of

satisfaction with the composition of the team and/or satisfaction with the manner in

which the team interacts and takes on tasks (Peeters et al., 2006). When taken together,

viability is a sign that the individual has the desire to remain a participant on the teams

(Peeters et al., 2006) whereas task performance indicates that the individual has the

ability and capability to perform in his or her current role (Carette et al., 2013). These

elements of success provide a holistic perspective on an individual's performance in a

team through incorporating both current task performance and likelihood for remaining in the team in the future.

Effectiveness Outcomes at the Team Level

Two principal types of team outcomes are team task performance and team viability (Kozlowski & Ilgen, 2006). Whereas performance refers to the job-related tasks that are performed by the team and the members of the team, team viability is focused on the social aspect of the team with regards to its potential of remaining intact or reconvening successfully in the future (Guzzo & Shea, 1992). Task performance is focused on the present such that it concentrates on whether or not the team is fulfilling the present expectations of management (Balkundi & Harrison, 2006). Viability is focused on the future such that it examines potential for the team to work together in the future. Reviews of teams research have concluded that both elements, performance and viability, are critical for overall team effectiveness (Balkundi & Harrison, 2006; Kozlowski & Bell, 2003). Researchers have generally concluded that team empowerment is beneficial for team effectiveness (Maynard et al., 2012; Seibert et al., 2011). In combination with my prior arguments that TMX-team is positively related to team empowerment and this relationship is negatively moderated by TMX differentiation, I contend that TMX-team has a conditional indirect effect on team task performance and team viability. I argue that TMX-team has a positive impact on team success, both current task performance and team viability, though team empowerment and that this subject to the TMX differentiation within the team such that TMX-team has a stronger impact on team success when differentiation is low.

CHAPTER 3: HYPOTHESES DEVELOPMENT

Chapter 3 presents my hypotheses and specifies my proposed model concerning the multi-level antecedents and consequences of team-member exchanges. I ground my arguments in theories of TMX (Seers, 1989), prosocial motivation (Grant, 2007; Jackson et al., 2006; Nijstad & De Dreu, 2012; Stevens & Campion, 1994), psychological empowerment (Spreitzer, 1995; Thomas & Velthouse, 1990), and social comparison theory (Festinger, 1954). I begin by providing hypotheses regarding the motivational antecedents of TMX. I then examine the empowering and success outcomes of TMX and TMX-team and the role that TMX differentiation plays in these relationships.

Prosocial Motivation, Training, and TMX

Individuals with a prosocial motivation are likely to engage in helping and courteous extrarole behaviors (Batson, 1998; Grant, 2007). These prosocial individuals hold a desire to benefit others and thus seek to establish cooperative and supportive relationships (Grant, 2007, 2008). Conversely, individuals with a low prosocial motivation, or a proself motivation, engage in selfish and self-directed behavior. Proself individuals possess a desire to benefit themselves and focus on individual success (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Whereas prosocial individuals make concessions to better serve the whole, proself individuals look to benefit themselves even if it is at the expense of others (Aaledering et al., 2013; Grant, 2007, 2008). Individuals with a prosocial motivation have a greater internal drive to benefit those around themselves than individuals with a proself motivation (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Therefore, an individual's prosocial motivation will influence the support that this individual provides to his or her teammates (De Dreu et al., 2008; Grant, 2007).

Furthermore, individuals with a prosocial motivation are likely to search for and encode information that is consistent with the needs of the group, whereas proself individuals are more likely to process information that is consistent with their own needs (Bechtold et al., 2010; De Dreu et al., 2008; Nijstad & De Dreu, 2012). Even if multiple individuals are party to the same information, prosocial individuals are more likely to retain information that is in-line with the needs of those around themselves than individuals with a proself motivation. Further, once obtaining information, prosocial individuals are more likely to share significant information with others than proself individuals along with encouraging others to make similar contributions to the team (Steinel et al., 2010). Accordingly, prosocial individuals are more likely to seek out, encode, and share information with their teammates than proself individuals (Bechtold et al., 2010; De Dreu et al., 2008; Nijstad & De Dreu, 2012; Steinel et al., 2010). Thus, in addition to influencing the support that team members are likely to give one another, social motivation biases the type of information individuals seek to exchange with others (Bechtold et al., 2010; De Dreu et al., 2008; Nijstad & De Dreu, 2012), both of which are key components of TMX (Anand, Vidyarthi, Liden, & Rousseau, 2010; Liden et al., 2000; Seers, 1989).

Prior studies provide insights in the relational impact of prosocial motivation. Individuals who care about others are likely to engage in altruistic and helping behavior (Batson, 1990, 1991, 1998) without focusing on the personal costs to themselves (Grant, 2007; Koorsgard, Meglino, & Lester, 1997). Additionally, prosocial motivation has demonstrated a positive relationship with affiliative citizenship behaviors (Grant & Mayer, 2009), which are citizenship behaviors that focus on maintaining current

processes and relationships by helping coworkers, acting courteously, and taking initiative (Grant & Mayer, 2009; Van Dyne, Cummings, & Parks, 1995). Although afilliative citizenship behaviors include taking initiative which may or may not manifest in engaging in quality relationships with one's teammates, they also include helping and courteous interactions, which are crucial aspects of TMX (Seers, 1989). Taken together, researchers have proposed that prosocial motivation should be positively related to helping behavior, or the "voluntary, extrarole actions that individuals undertake to benefit other individuals or groups" (Grant, 2007; p. 404).

Psychological collectivism is value-based approach to prosocial motivation that provides insight into the information processing which directs judgments and decision-making within the team (Bechtold et al., 2010; De dreu et al., 2008). Collectivistic values motivate prosocial actions and decisions such that individuals prioritize the needs of the group (Cox, Lobel, & McLeod, 1991; Wagner, 1995) and engage in information sharing to direct the team towards success (Randall et al., 2011). Conversely, individuals who are motivated by more individualistic values are likely to focus on their individual success and limit the exchange of information within teams (Tjosvold, Law, & Sun, 2003).

Collectivistic individuals prefer working with others and feel that the responsibility of any individual team member is the responsibility of the entire group (Jackson et al., 2006; Ramamoorthy & Carroll, 1998; Wagner, 1995). This feeling of responsibility within a team will encourage team members to advocate for the success of their teammates through assuming their problems and challenges as their own (Jackson et al., 2006). This desire to support their teammates will correspond to exchanging relevant feedback and advice that can help team members' succeed along with supporting and

standing up for one another when facing problems, which are components of TMX (Liden et al., 2000). Furthermore, collectivistic individuals are concerned with the well-being of the group and prioritize group goals over personal goals (Jackson et al., 2006; Ramamoorthy & Carroll, 1998; Wagner, 1995). This concern for the group will make team members feel as through they are valued and will encourage team members to develop friendly relationships with one another. Additionally, individuals within the team will assist and help one another to ensure that important tasks are complete so the group can succeed (Jackson et al., 2006). Assisting one another towards success and establishing affective interpersonal relationships with one another are actions associated with TMX (Liden et al., 2000).

Because of reliance on and concern for the team, collectivistic individuals will advocate for the team's success and work to support its goals (Jackson et al., 2006). In doing so, collectivistic team members will not only rely on and support their teammates, but they will also elicit contributions from these members for the benefit of the team. In other words, social motivation biases both the contribution that one makes the team along with the information and support that an individual elicits from his or her teammates (Bechtold et al., 2010; De Dreu et al., 2008; Nijstad & De Dreu, 2012; Steinel et al., 2010). Collectivistic individuals will focus on obtaining information and support from other team members that can support the team's goals, whereas individualistic individuals will focus on obtaining information and support that will support their individual goals (Jackson et al., 2006).

In summary, prosocially motivated individuals are likely to engage in helping and supportive behaviors that benefit their teammates (Batson, 1998; Grant, 2007).

Furthermore, individuals with a prosocial motivation possess a drive to exchange information with one another in a manner that supports the team and leads it towards success (De Dreu et al., 2008; Nijstad & De Dreu, 2012). Additionally, collectivistic individuals are likely to put the needs of the group in the forefront of their attention and prioritize the team over their own success (Jackson et al., 2006; Ramamoorthy & Carroll, 1998; Wagner, 1995). Furthermore, collectivistic individuals are likely to elicit information and support from their teammates that will facilitate team success (Bechtold et al., 2010; De Dreu et al., 2008; Jackson et al., 2006). For example, collectivistic individuals emphasize the needs of the group (Jackson et al., 2006), and therefore may seek information from the individual who has the most relevant expertise in order to help the group succeed. Therefore, psychological collectivism will be positively related to an individual's exchange quality.

H1: Psychological collectivism is positively related to TMX quality.

Although psychological collectivism captures individual differences regarding prosocial preferences (Jackson et al., 2006), a large literature has examined collectivism at the cultural level rather than the individual level in a desire to provide insights into the norms or preferences of societies (Hofstede, 2001). Bringing this idea to a team level, researchers have indicated that elevated or team-levels of psychological collectivism are critical for understanding the functioning of teams (e.g., Dierdorff et al., 2011; Randall et al., 2011). This compositional approach to psychological collectivism examines the extent to which the team members on average exhibit collectivistic tendencies (e.g., Dierdorff et al., 2011; Drach-Zahavy, 2004; Jackson et al., 2006; Kirkman & Shapiro, 2001; Randall et al., 2011). This existing research on team-level psychological

collectivism has posited that, "teams composed of more collectivistic individuals should engage in behaviors that promote the effective functioning of the team" (Dierdorff et al., 2011; p. 248), thus providing an initial indication that team-level collectivism influences exchanges within teams.

Highly collective teams are composed of members who prefer to work together within the team, are concerned with the well-being and success of the team as a whole, are comfortable relying on one-another, are willing to accept and act on the norms of the group, and prioritize the goals of the group over their own (Jackson et al., 2006). Teams with high mean levels of psychological collectivism have members who identify with the group and place an emphasis on interdependence and jointly working together (Dierdorff et al., 2011; Jackson et al., 2006). Because of the general emphasis on the good of the team and a desire to help one another, teams high on psychological collectivism are likely to support one another, be willing to exchange ideas and advice, and emphasize high quality relationships. Thus, teams with a generally high level of psychological collectivism will have higher levels of TMX-team as compared to teams who are less collectivistic.

This proposed relationship between collectivism and TMX-team is supported by the existing research on team-level psychological collectivism. For example, researchers have demonstrated that teams high on collectivism are more likely to provide emotional, appraisal, and informational support within their team (Drach-Zahavy, 2004) and are more likely to engage in citizenship behaviors (Jackson et al., 2006) as compared to teams with low levels of collectivism. Further, teams with a high proportion of members who are collectivistic are more likely to be cooperative (Eby & Dobbins, 1997). Taken

together, this empirical literature concludes that collectivistic teams are likely to be cooperative and support one another, which are critical components of TMX-team. Furthermore, one study has examined team-level psychological collectivism and TMX-team in the same study. Although this study did not propose a connection between collectivism and TMX-team, there is initial evidence that a strong, positive correlation exists between the two constructs (Dierdorff et al., 2011). As a culmination of this theoretical and empirical evidence, I contend team mean collectivism will motivate high quality exchanges within teams.

H2: Team mean collectivism is positively related to TMX-Team Quality.

Trait activation theory suggests that the presentation and display of traits is not stable across all situations and times; rather environments provide cues that either activate or suppress the manifestation of an individual's traits (Tett & Burnett, 2003). Using trait activation as a theoretical lens, I examine the influence of prosocial knowledge and skills via competency training on the relationship between psychological collectivism and TMX. Whereas psychological collectivism and team mean collectivism represents the *internal* values that motivate actions within the team, prosocial competencies are *external* knowledge and skill characteristics that influence prosocial motivation within the team. I concentrate on knowledge and skills, because they are developable characteristics that can be learned through training to enhance cooperation and teamwork amongst members of a team (Stevens & Campion, 1994). Prosocial competencies are directed towards improving team members' communication and collaborative problem solving knowledge and skill characteristics (Ellis et al., 2005; Stevens & Campion, 1994, 1999).

The knowledge and skills associated with collaborative problem solving emphasize that teams should efficiently exchange information in an active and open manner, should achieve consensus and buy-in from team members, and should ensure that all valuable viewpoints are incorporated into decisions (Stevens & Campion, 1994). Training regarding collaborative problem solving will provide the knowledge and skills which emphasize that cooperation and collaboration is critical to the success of the team (Stevens & Campion, 1994), and the tendencies of collectivistic individuals will become activated because of their desire to follow the customs of the group (Jackson et al., 2006). These cues regarding collaboration will activate the preference of team members to support one another and jointly work together towards the teams' goals (Jackson et al., 2006). Furthermore, the knowledge and skills regarding collaboration will influence the interactions within the team such that team members will understand the importance of working together to solve problems (Stevens & Campion, 1994); this will provide signs that team members should focus on the effectiveness and success of the group as a whole. These cues should activate individuals' prosocial values such that learning these competencies will provide validation to their collectivistic beliefs by encouraging them to focus on the goals and ultimate success of the group rather than of themselves as individuals (Jackson et al., 2006).

Training for communication competencies emphasize exchanging information with team members in a manner that is supportive, accepting, consistent over time, and takes place through both formal and informal channels (Stevens & Campion, 1994). Collectivistic individuals seek to engage in settings in which individuals possess a preference for teamwork and feel comfortable working together (Jackson et al., 2006).

Communication competencies provide a base of knowledge and skills for effective

communication that establish cues indicating that engaging one another is important for

the success of the team. These cues provide credence to collectivistic individuals' desire

to rely on their teammates and concentrate on the well being of the group as a whole

(Jackson et al. 2006), thereby activating the tendencies associated with psychological

collectivism. Further, communication competencies encourage team members to work

together and support one another towards success (Stevens & Campion, 1994). These

lessons from the competency training should activate the preference of collectivist

individuals to focus on the goals and success of the group (Jackson et al., 2006).

Conversely, teams without training regarding collaborative problem solving and

communication will not automatically be focused on the importance of collaborative

problem solving and effective communication within the team. Without the enhanced

knowledge and skills regarding collaborative problem solving and communication

provided by the training, it is less likely that the cues encouraging individuals to act in a

prosocial manner will be present to activate psychological collectivism. The prevalence

of psychological collectivistic trait activating cues is likely to be smaller in teams not

receiving prosocial competency training. Therefore, I contend that prosocial competency

training provides cues that strengthen the relationship between an individual's

psychological collectivism and their TMX level.

> H3: Prosocial competency training moderates the positive relationship between
> psychological collectivism and TMX quality such that this relationship is
> strengthened when teams receive prosocial competency training.

Expanding these arguments to the team-level, prosocial competency training

similarly should provide trait-activating cues that influence the relationship between team

mean collectivism and TMX-team quality. Those teams undergoing competency training will receive trait-activating cues regarding the importance of collaborative problem solving and communication, thus activating the average team member's collectivistic beliefs and emphasizing team members' desire to work together towards team goals (Jackson et al., 2006). These cues will provide credibility to team members' desires to focus on the team as a whole, thus encouraging members within the team to act on their collectivistic beliefs. As this activation occurs, the effect of the average level of collectivism on TMX-team will become more pronounced as team members in general will feel comfortable acting on their collectivistic beliefs, thus positively influencing the overall quality of exchanges within the team.

Conversely, when training does not occur within teams, the average team member will not be focused on the standards of communication and collaborative problem solving within the team. Without these cues, members will not necessarily be encouraged to act on their prosocial beliefs, thus lessoning the likelihood that collectivistic tendencies will be activated. Therefore, the team as a whole will be less likely to have their collectivistic tendencies activated in the absence of competency training than in those teams that are cued to focus on communication and collaborative problem solving. Accordingly, I contend that prosocial competency training provides cues that strengthen the relationship between team mean collectivism and TMX-team level.

> *H4: Prosocial competency training moderates the positive relationship between team mean collectivism and TMX-team quality such that this relationship is strengthened when teams receive prosocial competency training.*

In addition to the moderating effect of prosocial competency training on the relationship between team-level collectivism and TMX-team, I further contend that

prosocial competency training has a direct relationship with TMX-team. Teams trained on collaborative problem solving and communication have knowledge regarding effective ways to make decisions and have exposure to the techniques that can best be used to address team problems and facilitate communication and decisions (Stevens & Campion, 1994). With working knowledge regarding collaborative problem solving, teams should be able to effectively and efficiently exchange information, advice, and feedback within the team. For example, using efficacious brainstorming and knowledge-sharing techniques that are learned through the prosocial competency training, teams are able to successfully share their perspectives internally (Orpen, 1997; Rogelberg et al., 1992; Rogelberg & O'Connor, 1998; Van de Ven & Delbecq, 1974). Because collaborative problem solving focuses on incorporating all relevant viewpoints into decisions, a breadth of pertinent perspectives are accounted for in making choices (Stevens & Campion, 1994). Through engaging in exchanges that focus on the give-and-take of relevant information within a team, teams should become supportive and cooperative. This cooperation corresponds to high levels of TMX-team such that information, advice, and feedback are efficiently exchanged within the team (Anand et al., 2010; Dierforff & Ellington, 2012; Liden et al., 2000; Seers, 1989). Thus, the knowledge and skills associated with collaborative problem solving should prompt the behaviors associated with TMX-team, such as providing support and encouraging the exchange of knowledge within the team.

Furthermore, training on prosocial competencies teaches successful communication techniques (Stevens & Campion, 1994). Communication competencies include understanding how to facilitate the flow of information and knowledge within a

team (Ellis et al., 2005). Successful communication occurs through using active

discussion formats that are validating, supportive, and build on prior dialogues (Stevens

& Campion, 1994, 1999). Teams with effective communication competencies will

recognize the importance of sharing feedback and advice within the team in order to

promote beneficial discussions within the team. Furthermore, communication knowledge

and skills involve recognizing that active listening is critical to ensure team cooperation

(Stevens & Campion, 1994, 1999). This active listening will correspond to a team that

thoughtfully acknowledges all perspectives and provides an open and safe forum for

discussion (Kahn, 1990; Stevens & Campion, 1994). This safety within the team will

correspond to a supportive team that feels free to share feedback and advice internally,

thus exhibiting high quality exchanges within the team (Kahn, 1990). Finally,

communication competencies involve recognizing that it is important to engage in both

small talk and formal-communication within teams, because more effective and open

communication occurs when teams are friendly and sociable (Ellis et al., 2005; Stevens &

Campion, 1994). This increased small-talk will corresponds to teams that possess a

welcoming and likeable atmosphere, which are components of TMX-team (Anand et al.,

2010; Liden et al., 2000). Therefore, I propose that prosocial competency training should

facilitate the formation of high quality TMX-team.

> *H5: TMX-team quality is higher in teams receiving prosocial competency training*
> *than in teams not receiving prosocial competency training.*

Finally, in addition to influencing the absolute level of TMX, prosocial

competency training should also influence the dispersion of TMX levels, or the TMX

differentiation, within a team. Collaborative problem solving involves understanding who

should be included in decision-making and how to effectively collaborate when making

these decisions (Stevens & Campion, 1994). Collaborative problem solving training will

help team members to identify situations that mandate collaboration and those which are

better accomplished individually (Stevens & Campion, 1994). Through this training, all

team members will be able to recognize situations that could benefit from the exchange

of information, advice, and ideas. Further, those trained in collaborative problem solving

will be able to recognize obstacles that hinder the efficient flow of information within the

team, and they will encourage their teammates to share their perspectives and relevant

knowledge when it is needed (Stevens & Campion, 1994). Through establishing these

lessons regarding collaboration, the quality of exchanges within the team will become

more standardized, such that their will be clear expectations amongst all team members

regarding the extent of information and advice that should be exchanged with one another.

Furthermore, communication competencies include understanding effective

techniques for exchanging information and respectfully interacting with team members in

a manner that facilitates the flow of information (Stevens & Campion, 1994). TMX is

based on the idea that there is give-and-take between team members with regards to

advice, feedback, and support (Seers, 1989), and communication is inherent to these

exchanges. Training on communication emphasizes the active exchange of knowledge

and information such that communication is based on facts, consistent over time, and

involves a commitment to not exclude any pertinent perspectives (Stevens & Campion,

1994). Through training the entire team on these skills, expectations for supporting one

another through communication will become clear amongst all team members. As all

team members partake in the same training, communication will become consistent

within the team, thus emphasizing steady levels of exchanges within teams. This

consistency will be associated with lowered variability in the advice, information, and support that is communicated within the team.

Additionally, training on communication encourages team members to get to know one another on a personal level; communication competencies explain that information is not only shared through formal channels, but through informal channels such as small-talk and personal relationships (Stevens & Campion, 1994). Further, these competencies establish that effective communication networks are decentralized such that everyone is comfortable and open in communicating with all other members of the team (Stevens & Campion, 1994). These competencies emphasize the importance of interacting with all team members in both a formal and informal manner to best facilitate the flow of information (Stevens & Campion, 1994). Thus, this training emphasizes the importance of establishing relationships with all members of the teams and therefore lowers the likelihood that only subsets of the team will engage in high quality relationships. Through establishing these expectations of communicating with everyone on the team, TMX levels within the team will stabilize and there will be lowered levels of differentiation. More specifically, the communication competencies of actively and openly exchanging information in an efficient manner with the entire team will promote the actions associated with high quality TMX relationships amongst all team members. Therefore, there will be team-wide standards and expectations in how members interact with one another and exchange information, advice, and support.

Taken as a whole, I contend that training regarding collaborative problem solving and communication will work to level the playing field with regards to exchanges in the team. Through doing so, the dispersion of TMX levels will be minimized as there will be

less variability with regards to the exchanges of team members. Thus, I hypothesize that

prosocial competency training will be associated with lower levels of TMX

differentiation within teams.

> *H6: TMX differentiation is lower among teams receiving prosocial competency*
> *training than those not receiving prosocial competency training*

Team-Member Exchanges and Empowerment

Relationships with team members influence how individuals perceive themselves

and their connection to the workplace (Liao et al., 2010; Major et al., 1995).

Psychological empowerment contains four underlying dimensions: competence, meaning,

impact, and self-determination impact. Competence, or self-efficacy, is a person's belief

in his or her ability to successfully complete job-related tasks (Bandura, 1989; Spreitzer,

1995) and is influenced by social persuasion, physiological states, and mastery

experience (Bandura, 1982). High quality relationships allow for team members to

effectively interact with their teammates and learn about their teammates' viewpoints and

experiences. These interactions allow team members to grow and develop through

learning from others (Bandura, 1982; Liao et al., 2010). Additionally, high quality

relationships with teammates are associated with feelings of supportiveness and safety

(Seers, 1989), thereby reducing the anxiousness and fear associated with negative

physiological states (Liao et al., 2010; Tse et al., 2008). Further, with supportive and

helpful teammates, individuals are able to accumulate experiences and see situations from

multiple perspectives through the exchange of feedback and advice (Seers, 1989). This

wide range of experience will allow team members to feel mastery over their work (Liao

et al., 2008).

Meaning, the second component of empowerment, is the personal importance and value that an individual sees in his or her work (Spreitzer, 1995). High quality relationships with teammates allow individuals to have greater insights into their job through increased communications (Seers, 1989), which allows for a greater recognition of the multiple facets that pertain to one's job. For instance, low quality exchanges focus on minimal interactions that are concentrated on task work (Liden et al., 2000), whereas higher quality exchanges focus on interpersonal relationships and a view of the bigger picture that results from the completion of one's tasks (Liden et al., 2000). Through this enhanced perspective of one's jobs, individuals should be able to see that there is value and meaning in their work beyond their required tasks. Further, high quality relationships shape employees' views and encourage them to adapt the norms of the organizations as their own (Major et al., 1995; Kozlowski & Douherty, 1989). Accordingly, research has found that individuals with high quality TMX relationships are likely to align their values with the organization, thus finding meaning in their work because of its consistency with their values (Major et al., 1995).

Third, impact is the degree to which an individual believes that he or she has an effect on work related outcomes (Spreitzer, 1995). The increased communications and exchanges that accompany high quality relationships (Seers, 1989) will allow individuals to more readily see the impact of their work (Kirkman & Rosen, 1999). More specifically, whereas an individual may or may not be able to see the influence of what he or she does, teammates jointly have a broader viewpoint of the work that is being accomplished and can more readily see the big picture of the team's work (Kirkman & Rosen, 1999). Because of their joint viewpoint, team members will be able to get a more holistic

viewpoint of the impact of their individual tasks (Kirkman & Rosen, 1999). Further, because of their high quality relationships, team members will be able to see that their impact within the workplace extends beyond their tasks such that they positively influence others within their team through supporting them with the exchange of feedback and advice (Liden et al., 2000).

The final component of psychological empowerment, self-determination, is the ability to act autonomously and to have choice in how to complete tasks (Speitzer, 1995). Researchers have suggested that high quality exchanges are likely associated with increased distribution of power (Liden et al., 2000); high quality TMXs include the exchange of resources beyond task-focused resources, and these resources include allowing others to establish authority within the team when they possess relevant expertise (Liden et al., 2000; Seers, 1989). Furthermore, TMX is associated with the exchange of pertinent information and advice (Seers, 1989). The increased access to information that is associated with high quality exchanges (Seers, 1989) will allow individuals to feel more capable of, and determined to, make their own decisions.

Despite these arguments for the empowering effect of TMX, initial empirical support for the connection between TMX and psychological empowerment has been mixed (Chen & Klimoski, 2003; Liden et al., 2007). However, these empirical examinations did not consider critical boundary conditions that may restrict the relationship between TMX and empowerment. Initial research has demonstrated that TMX differentiation is a crucial boundary condition to the relationship between TMX and self-efficacy, one of the components of psychological empowerment (Liao et al., 2010). In this dissertation, I extend this finding to the overarching construct of

psychological empowerment and argue that TMX differentiation moderates the relationship between TMX and psychological empowerment.

Individuals in a team based setting have a strong tendency to compare themselves to others within their team to evaluate their relative standing (Alicke et al., 2010; Ang et al., 2003; Buckingham & Alicke, 2002; Zell & Alicke, 2009). When there is a high degree of differentiation within a team, individuals are likely to contrast themselves against their teammates such that comparing oneself to a worse off individual would improve one's self-perception whereas comparing oneself to a better off individual would worsen one's self-perception (Morse & Gergen, 1970; Rosenberg, 1979; Wood, 1989). Applied to TMX differentiation, this means that high levels of differentiation prompts social comparison processes such that individual members actively contrast the quality of their relationships within the team to that of other members. On the other hand, low levels of differentiation should diminish comparison processes such that individual TMX levels will not differ substantially from other team members. Thus, under low levels of differentiation, there will be a weaker connection between TMX quality and individual outcomes (Liao et al., 2010).

When differentiation is high such that there is high variability within the team with regards to TMX levels, individuals with comparatively high levels of TMX are likely to contrast themselves against others on their team and believe that they are more esteemed and superior to their teammates, thereby enhancing their general psychological empowerment. In the same situation, individuals with comparatively low levels of TMX will view their relationships as unfavorable compared to others, further weakening their sense of psychological empowerment. Comparatively high levels of TMX will be

associated with others encouraging one to assume additional authority and responsibility within the team (Liden et al., 2000), thereby boosting empowerment. Conversely, individuals with low levels of TMX will receive limited exchanges that solely focus on task work (Liden et al., 2000), and therefore limiting their ability to take on more responsibility and feel empowered. Furthermore, high levels of differentiation will highlight the exchanges and relationships that the individual has within the team. Individuals with comparatively high levels of TMX may see that their contributions are highly valued on the team beyond the contributions of others, thus enhancing empowerment. Conversely, those with comparatively low levels of TMX are likely to perceive that their contributions to the team are not valued by their teammates, thus exacerbating the effect of their low quality TMX on their sense of psychological empowerment. Accordingly, differentiation will illuminate the effect of TMX levels and significantly influence its impact on psychological empowerment.

Conversely, in teams with low TMX differentiation, all members have a similar level of TMX quality. Because low differentiation means that there is reduced distinctiveness of individual TMX levels, team members are less likely to see differences in their comparisons within teams and therefore there will be fewer cues about the distinctiveness of any member's TMX quality (Liao et al., 2010). This is because low levels of differentiation reduce the usefulness of information drawn from contrasting oneself against others within the team and therefore removes the assessment value that is obtained through social comparisons (Festinger, 1954). Thus, teammates may begin to assimilate themselves with rather than contrast themselves against their fellow team members under low levels of TMX differentiation (Pelham & Wachsmuth, 1995).

Accordingly, low differentiation should dampen the effect of TMX levels, weakening the relationship with psychological empowerment.

> *H7: TMX differentiation moderates the relationship between TMX quality and psychological empowerment such that the relationship becomes increasing positive and strong as differentiation increases.*

Team empowerment consists of four underlying components: potency, meaningfulness, autonomy, and impact (Kirkman & Rosen, 1997). Teams that successfully work together through exchanging information, feedback, and support are likely to be effective and efficient (Alge et al., 2003; Jordan et al., 2002; Liu et al., 2011; Seers et al., 1995). This effectiveness of working together will promote the team's belief in its potential to succeed, corresponding to team potency (Kirkman & Rosen, 1997). Further, when teams effectively share information and support one another, they are able to collectively gather more information than if they did not have quality relationships that supported these exchanges. This will allow for a more comprehensive and well-rounded viewpoint, such that the team will have a more holistic picture of how each team member's piece of the puzzle complements others within the team to effect outcomes (Kirkman & Rosen, 1997). This will correspond to the team having a greater understanding of the meaning and impact of their joint actions (Ancona, 1990; Kirkman & Rosen, 1999). In addition to perceiving greater meaning and impact from the tasks they complete, teams also gain social-emotional benefits from their work together. High quality TMX-team is associated with a friendly and supportive team atmosphere that is associated with feelings of belongingness (Allen & Hecht, 2004; Liden et al., 2000; Tse et al., 2008). This atmosphere reinforces that the team's work is meaningful and has an impact through affecting the well being of the group and its members (Allen & Hecht,

2004). Finally, because of the high quality exchanges that encourage the effective flow of feedback, information, and advice (Liden et al., 2000; Seers, 1989), teams that are high in TMX-team will likely believe that they are capable of acting autonomously. Furthermore, as others recognize that the general level of exchanges within the team are such that information and encouragement are efficiently transmitted across members of the team (Liden et al., 2000; Seers, 1989), others will perceive the team as being effective and allow the team to assume more independence and autonomy.

The relationship between TMX-team and team empowerment rests on the assumption that the composition of TMX levels within the team are representative of the overall level of relationship quality in the team. However, some teams may experience high levels of differentiation such that there is variability within the team with regards to TMX levels, and this differentiation will undermine the empowering effect of TMX-team. For example, two teams could both have moderate levels of TMX-team but each could have a differing composition of individual TMX levels as represented by TMX differentiation. In one of these teams, there could be low differentiation such that all members of the team similarly possess moderate levels of TMX. In the other team, there could be high levels of differentiation such that some team members have high levels of TMX while others have low levels of TMX. Although these teams have the same level of TMX-team, they have different types of exchanges because of the differentiation within the team such that one team has consistent TMX levels whereas the other has varying TMX levels. Therefore, as with the relationship between TMX and psychological empowerment, I propose that the relationship between TMX-team and team empowerment is bounded by TMX differentiation, but in a different manner.

TMX differentiation corresponds to the variation in TMX levels within a team that allows for team members to compare themselves against one another. High differentiation allows for contrasts between individuals (Festinger, 1954) such that the team will recognize that the exchanges in the team are disjointed and not as efficient as possible, which will be associated with the team questioning the effectiveness of the communications and collaborations (Liao et al., 2010). This recognition likely weakens the team's sense of empowerment that derives from TMX-team levels. Further, differentiation is indicative of a team where feedback, advice, and information are only shared by a limited subset of the team members (Liao et al., 2010). Thus, because not all team members will be engaging in the same level of exchanges, the team will not have a complete view of the "big picture" with regards to the team's work. Therefore, the team will have a disjointed perspective on the meaning of their work and impact of their actions (Kirkman & Rosen, 1999), thus detracting from the empowering benefits of TMX-team. Additionally, teams with high differentiation will not be consistent in the value and affect displayed within the team, thus the belongingness benefits that stem from TMX-team will be limited (Allen & Hecht, 2004; Tse et al., 2008). Furthermore, because TMX levels vary amongst the members of the team, there is room for improvement with regards to the team members consistently and effectively exchanging support, feedback, and advice with one another. Accordingly, the organization will question the level of autonomy that should be afforded to the team, curtailing the empowering benefits that are attained from TMX-team.

Conversely, teams that are low on differentiation don't readily engage in comparison processes (Festinger, 1954) and are more likely to view the team holistically

rather than as a compilation of individuals (Pelham & Wachsmuth, 1995). This is because team members will feel akin to one another because of the likeness they display with regards to their interpersonal exchanges, and this similarity will be associated with team members attributing the actions of their teammates to themselves and the team as a whole (Brown et al., 1992; Mussweiler, 2001; Mussweiler et al., 2004). Through this assimilation process, individuals within the team will see themselves as similar to their teammates and part of a greater whole and will begin to feel that the strengths and weaknesses of the others within their group are a direct reflection of themselves (Pelham & Wachsmuth, 1995). Therefore, TMX-team will be indicative of the general level of exchanges within the team and therefore will provide an accurate perspective on the empowering effect that can be attained from the relationship quality of the team.

In summary, when there are low levels of differentiation, team members will perceive that the TMX-team level is indicative of the general exchanges within the team such that team members will not be able to engage in contrasting social comparison processes but will rather feel akin to one another. However, when there are higher levels of differentiation, team members will perceive that there is discontinuity in the TMX levels within the team and that the team is not operating as cohesively or efficiently as possible. Because TMX differentiation provides cues regarding the distinctiveness of team members' TMX levels and provide insights into the team's overall functioning, TMX-team levels will be more strongly related to empowerment when differentiation is low rather than high. In summary, TMX differentiation will impact the manner in which TMX-team translates into team members' perceptions of potency, meaningfulness, autonomy, and impact and thus team empowerment.

H8: TMX differentiation moderates the relationship between TMX-team quality and team empowerment such that the relationship becomes increasingly positive and strong as differentiation decreases.

Team-Member Exchanges and Individual & Team Success

Individuals with high quality relationships within their teams have access to relevant and important feedback and information; further, these individuals interact with others in a supportive and cooperative manner (Seers, 1989). These quality relationships buoy team members to individual success through intrinsically motivating them to adapt an active approach to work (Seibert et al., 2011). Employees with high quality TMX feel as though they are valued by their team, feel loyal and dedicated to their teammates, and find their relationships conducive to effectively accomplishing work (Anand et al., 2010; Liden et al., 2000). When TMX differentiation is high, these employees perceive a sense of psychological empowerment and an intrinsic motivation to succeed. This sense of empowerment motivates people to approach their work proactively, helping them to succeed in their current role (Spreitzer, 1995). Further, this sense of empowerment is associated with feelings of resilience and an optimistic approach towards the future (Spreitzer, 1995; Thomas & Velthouse, 1990). Motivated individuals establish challenging goals and possess a desire to learn and continue to develop themselves (Deci & Ryan, 1987; Ozer & Bandura, 1990). Combined with increased performance in their current role, their loyalty to their teammates (Anand et al., 2010; Liden et al., 2000) and this desire for continuous improvement (Deci & Ryan, 1987; Ozer & Bandura, 1990) will additionally establish their satisfaction with the team, their desire to remain a part of the team in the future, and thus their high levels of viability (Peeters et al., 2006).

However, these indirect effects are contingent upon the value that one gains as a result of comparing his or her individual levels of TMX against his or her teammates. TMX differentiation represents the variability that exists within a team with regards to team-based exchanges (Liao et al., 2010). Teams with high differentiation have team members that can readily engage in social comparisons, accentuating individual TMX levels and therefore making these comparisons meaningful and consequential to team members. When TMX differentiation is high such that TMX levels provide meaningful cues to individuals regarding the value of their relationships (Liao et al., 2010), individuals with high levels of TMX will readily recognize their individual exchanges within the team. This will provide these individuals with the confidence and determination to succeed in their current role along with establishing their beneficial position within the team. Conversely, individuals with low levels of TMX will recognize that they are not as impactful as others within the team, realize that they are not as determined as other team members, and begin to lose feelings of empowerment; thus, these individuals will lack the motivation needed to succeed in their current role and will not possess a desire to stay in the team in the future. On the other hand, when differentiation is low, variance with regards to TMX will be minimal, and individuals' will not feel as though their exchanges are unique (Liao et al., 2010). This lack of differentiation is associated with assimilation between team members, which will remove the empowering value that can be attained from comparing unique TMX levels (Pelham & Wachsmuth, 1995). Therefore, the motivated success outcomes that can be attained from TMX will be limited. Correspondingly, psychological empowerment provides a

motivational mechanism linking TMX to both task performance and viability, but this

relationship is dependent on the level of TMX differentiation within the team.

> *H9: The positive indirect effects of TMX on task performance (a) and individual*
> *viability (b) through psychological empowerment are conditional upon TMX*
> *differentiation such that the effects are strengthened as differentiation increases.*

Teams that have generally high quality relationships amongst members exchange

relevant feedback and advice, focus on the success of the team, and feel loyal towards

their teammates (Liden et al., 2000; Seers, 1989). High levels of TMX-team are

associated with individuals who on average possess a commitment to their team and a

desire to drive it towards success (Liden et al., 2000). Under low levels of differentiation,

high quality team exchanges push the team towards success through encouraging feelings

of potency, meaning, impact, and giving the team the credibility to act autonomously.

These feelings of team empowerment motivate the team to adopt an active and engaged

approach to work that drives the team to become innovative, efficient, and productive

(Seibert et al., 2011). This efficiency and productivity corresponds to high levels of team

performance, such that team will be more effective in completing its current task work

(Seibert et al., 2011). Further, the support and knowledge sharing that occurs through

these motivated exchanges will allow individuals to learn a great deal and possess

affective feelings of satisfaction towards the team (Liden et al., 2000). This satisfaction

within the team and a desire to continue to grow will correspond to a team that will be

optimistic about working together again in the future, corresponding to team viability

(Marrone et al., 2007). Additionally, the team will be motivated to continue to learn and

develop (Ozer & Bandura, 1990). Accordingly, consistent with prior research (Maynard

et al., 2012; Seibert et al., 2011), I contend that "empowerment is in fact a salient 'lever' that can be utilized to increase overall team performance" (Maynard et al., 2011; p. 1256).

Despite my arguments thus far that TMX-team is related to team empowerment and the extensive literature that has linked team empowerment to team success (Seibert et al., 2011), empirical examinations regarding the direct relationship between TMX-team and team success have been mixed (Alge et al., 2003; Cogliser et al., 2013; Jordan et al., 2002; Liu et al., 2011; Seers et al., 1995). Therefore, in the current research, I provide a more nuanced perspective on the relationship between TMX-team and performance to account for these previous discrepancies through incorporating the moderator of TMX differentiation and mediator of team empowerment. The relationship between team empowerment and team success through team empowerment is grounded in the assumption that TMX-team represents the average level of TMX within the team. However, teams with high differentiation have variation with regards to individual TMX levels, therefore TMX levels fluctuate between team members such that some team members have higher quality exchanges than others (Liao et al., 2010). Teams with high differentiation have a discontinuity in the relationship quality amongst members, thus corresponding to lower cohesion and teamwork amongst the team as a whole (Cogliser et al., 2013; Liao et al., 2010). These teams are not as efficient as they could be in their communication and collaboration, because only a subset of the team are engaging in similar quality relationships. Given these varying relationships, team members may come to doubt the team's ability to succeed, may be less determined to try, and may see the team's efforts as less likely to impact their success. This lowered belief in the team limits the empowering and performance effects that can be gained from TMX-team. Therefore,

under high differentiation, I expect that TMX-team does not translate into team success,

because teams are less likely to be motivated through their exchanges. Teams will

recognize that TMX-team is not indicative of all exchanges within the team, which will

weaken the empowering benefits that can be attained from TMX-team. Conversely, when

TMX differentiation is low, TMX-team is a consistent representation of the underlying

TMX levels in the team. This consistency in TMX-team levels accentuates the level of

support and feedback that is exchanged amongst teammates. Through emphasizing the

robustness of the TMX-team level, the team will become empowered by the quality of

relationships that exist within the team, translating into performance and viability

(Maynard et al., 2011; Seibert et al., 2012).

> *H10: The positive indirect effects of TMX-team on team task performance (a) and team viability (b) through team empowerment are conditional upon TMX differentiation such that the effects are strengthened as differentiation decreases.*

CHAPTER 4: METHOD

Sample

Participants were students enrolled in undergraduate Organizational Behavior

courses in a large university in the northeastern United States. Students were required to

participate in a simulated teamwork activity and completed and a series of surveys as part

of their class. The simulation was completed with eleven different sections of the course

during the Fall and Winter terms in the 2014/5 school year. In addition to the simulation

being a required part of class, participants were informed that the top three performing

teams during each term would receive gift cards to Starbucks. Each member of the top

performing team received a $15 gift card, each member of the second highest performing

team received a $10 gift card, and each member of the third highest performing team

received a $5 gift card. Upon arriving for the simulation, students were randomly

assigned to teams containing 5 members.

Teams were included in the final sample if they met the following criteria: (1) The

team consisted of five team members, and (2) None of the members of the team had

completed the simulation before. I only included complete teams with five team members,

because each team member is randomly assigned a unique role and unique information

during the simulation. Therefore, the absence of any role in the simulation has the

potential to impact results because not all of the relevant information is available to the

team. Furthermore, because a few students had completed the simulation in another class,

this prior experience gave them unique knowledge about how to succeed in the

simulation that other students did not possess. This knowledge could confound the

performance results in the simulation, and therefore teams that included students who had

previously completed the simulation were excluded from the final sample (N_{teams} = 45 excluded; $N_{individual}$ = 171 excluded).

After excluding teams that did not meet these criteria, the final sample consisted of 60 teams with 300 individual team members. The majority of participants (92.3%) were between 20 and 23 years old. More specifically, 20.3% of participants were 20 years old, 35.9% of participants were 21 years old, and 26.1% of participants were 22 years old. Most participants (53.6%) had less than one year of work experience whereas 32.0% of participants had between one and two years of work experience and 14.5% of participants had more than two years of work experience. Participants in the simulation were 59.3% male and 40.7% female. The majority of participants (74.2%) spoke English as a first language whereas 12.3% spoke Chinese as a first language and 13.5% spoke another language as their first language. Finally, the majority of participants did not know any of their teammates prior to participating in the simulation (63.7%) or would classify one or more of their teammates as acquaintances (18.0%).

The random assignment worked as planned as there were no significant differences between team roles with regards to sex (F = .33; p = .86; 55.0% of leaders, 61.7% of photographers, 63.3% of environmentalists, 56.7% of physicians, and 60.0% of marathoners were male), age (F = .47; p = .76; 90.0% of leaders, 98.3% of photographers, 96.7% of environmentalists, 88.3% of physicians, and 88.3% of marathoners were between 20 and 23 years old), work experience (F = .67; p = .61; 81.6% of leaders, 87.9% of photographers, 91.7% of environmentalists, 86.4% of physicians, and 80.0% of marathoners had worked between 0 and 2 years full time), first language (F = 1.31; p = .27; 85.0% of leaders, 70.0% of photographers, 65.0% of

environmentalists, 71.7% of physicians, and 79.7% of marathoners spoke English as their first language), and familiarity ($F = .41$; $p = .80$; 58.3% of leaders, 68.3% of photographers, 60.0% of environmentalists, 63.3% of physicians, and 68.3% of marathoners did not know their teammates prior to beginning the simulation).

Power Analysis

Of the existing empirical studies that have looked at TMX at the individual level, the sample sizes have ranged from 53 individuals (Munoz-Doyague & Nieto, 2012) to 828 individuals (Liao et al., 2010) with an average of 281.73 individuals and a median of 235 individuals. Of the existing empirical studies that have looked at TMX at the team level, the sample sizes have ranged from 12 teams (Seers et al., 1995) to 66 teams (Alge et al., 2013; Dierdorff, Bell, & Belohav, 2011) with an average of 53.33 teams and a median of 56 teams.

I conducted a power analyses to determine the size of a viable sample. A recent meta-analysis demonstrated that TMX explains 16% the variance in performance-related constructs (Banks et al., 2013). Additionally, the most predictors involved in one hypothesis are four variables (moderated mediation hypotheses which incorporate an independent variable, moderator, interaction term, and mediator). Combining the anticipated effect size of .16, the maximum number of predictors as 4, a desired power level of .70, and a probability of .05, my desired sample size is 65 individuals or teams. My sample size at the individual level greatly exceeds this number. My sample size at the team level is slightly less than this desired size, yet is consistent with the mean (53.55) and median (56) team sample size in prior TMX research.

Outlier Analysis

To examine outliers, I utilized a series of tests. First, I utilized univariate tests on all of the key variables through examining z-scores. Using a cut-off of $\pm$ 3 standard deviations, a number of variables were identified as univariate outliers (see Table 1). However, because this is a multivariate study, I next moved to multivariate outlier tests. The first test utilized was Mahalnobis D^2, which is the multidimensional version of a z-score such that it examines the distance from the multidimensional mean through utilizing the variance of the distribution. Researchers have suggested that a case is an outlier if the probability of the Mahalanobis D^2 is 0.001 or less (Rovai, Baker, & Ponton, 2013). Using the key independent variables at each level in the study per recommendations of researchers (Team level: TMX team, TMX differentiation, team mean collectivism, training condition, and team empowerment; Individual level: TMX, psychological collectivism, and psychological empowerment), one case was identified as an outlier at the team level and three cases were identified at the individual level (see Table 1).

Next, I utilized a number of additional outlier tests recommended by Cohen et al. (2013) and commonly used by management researchers—studentized residuals, Cook's D, DFFIT, and centered leverage (e.g., Ziegert & Hanges, 2009). Studentized residuals identifies extreme deviations in dependent variables based on regression analyses (Ziegert & Hanges, 2009). Utilizing a recommended cut-off of $\pm$ 2 t (Cohen et al., 2013), a large number of potential outliers were identified at both the team and individual level (see Table 1). Next, I utilized Cook's D, which is similarly regression based, but examines the influence that one case has on the results through examining the effect of removing each case (Cohen et al., 2013). Using the suggested cut-off of 1.0 (Cohen et al.,

2013), there were no cases at the individual or team level that were identified as an outlier. DFFIT was used next, which similar to Cook's D, examines the influence of any single case on outcomes. Using the suggest cut-off of $\pm$ 1.0 (Cohen et al., 2013), only one case was identified at the individual level and no cases were identified at the team level (see Table 1). Finally, I utilized centered leverage, which identifies independent variables that are extreme (Cohen et al., 2013). Cohen and colleagues (2013) proposed that the cutoff should be equal to 3k/n, where k is the number of predictors in the regression and n is the sample size. The cutoff value for each regression along with the potential outliers identified through this test are detailed in Table 1.

Although multiple cases were identified as potential outliers using these tests, only one team was removed from the analyses. This team (162) was removed over the others for a number of reasons. First, the team was identified as an outlier through the majority of the tests used (z-score on two variables, Mahalanobis D^2, studentized residuals, and centered leverage). Further, it was the only team identified as an outlier through the Mahalanobis D^2 test. Management researchers have indicated that this test is important because "the underlying assumption of this technique is that extreme deviation from the normative response pattern may be indicative of insufficient effort" (Desimone, Harms, & Desimone, 2015; p. 176). Furthermore, the outlier tests used identified both individuals within the team (roles 1 and 5) along with the team as a whole as an outlier. Lastly, the values for the outlier statistics were some of the most extreme statistics that were identified from the outlier analysis. As a result, this team was identified as an extreme outlier and removed from analysis. A summary of the outlier statistics for this team is provided in Table 2.

Simulation

Students participated in a Harvard Business Publishing simulation titled "Everest V2" (Roberto & Edmondson, 2011). This simulation consists of a team of five hikers that are attempting to summit Mount Everest. The team has the goal of ascending Everest over six simulated "days"; each day corresponds to a decision-making round within the simulation. The team must travel from base camp through four camps along the mountain until they reach the fifth camp, which is the summit of Everest. Because there are five camps that the team must pass through in order to reach the summit and because the simulation consists of 6 simulated "days", team members can spend two simulated "days" at any single camp and still reach the summit. Team members can ascend the mountain at different speeds, such that members of the team may be at different camps at any one time during the simulation.

The team of hikers consists of five unique roles that individuals were randomly assigned when entering the simulation: leader, physician, photographer, marathoner, and environmentalist. The leader is an experienced mountaineer who has summited Everest five times and has a sponsorship deal worth $1 million if he or she takes pictures in the company's gear at the summit of Everest. It is important to note that although this individual is labeled a "leader," this team member is not given any incremental power or status beyond the other roles in the simulation. The physician is an experienced medical professor who has summited mountains significantly smaller than Everest before. The physician would like to reach the summit, however is more interested in seeing if a day of rest impacts cognitive and heart functioning as people climb higher than 15000 feet. The photographer has summited Everest twice and is focused on capturing photos of the

Khumbu Ice Fall near camps 1 and 2. The marathoner has asthma however is in top physical condition and has summited the tallest mountain in North America. Because of the marathoner's career in running, he or she needs to avoid frostbite injuring his or her limbs. Additionally, the marathoner will attain a multi-million dollar endorsement deal if he or she reaches the summit. Finally, the Environmentalist has summited Everest twice, however recently experienced Acute Mountain Sickness in the Himalayas and is keeping this information from the team. The environmentalist is concentrated on environmental damage on Everest and wants to spend an extra day at the fourth camp to control/remove garbage (e.g., abandoned tents, gear). A summary of each role is provided in Table 3.

As a team, the climbers are given the goal of avoiding rescue as they climb up the mountain, however each member also has individual goals that often conflict with one another. For example, the leader has the goal of keeping the team together throughout the hike such that the team reaches the summit together without the need for anyone to be rescued. The physician and the marathoner both have a goal of not getting frostbite. Additionally, the team can spend any single day at an additional camp and still reach the summit, however team members have incompatible goals of where this extra day should be spent. The physician wants to spend an extra day at *any* camp for his or her research, the environmentalist wants to spend an extra day at camp 4 to clean up the camp, whereas the photographer wants to spend an extra day at both camps 1 and 2 to take photographs. The team does not need to ascend the mountain at the same time (e.g., the environmentalist could spend an extra day at camp 4 alone), however this would conflict with the leader's goal of keeping the team together.

The simulation itself is broken into a "prepare" and "analyze" section, each of which has a number of sub-elements (Roberto & Edmondson, 2011). The prepare section provides an introduction, information on how to play, and the individual's profile. The "introduction" section is very brief such that it includes the name of the simulation and instructs participants that they will be working with team members. The "how to play" section explains to the participant that they will have 6 days to reach the summit, explains that decisions are made and submitted individually, and instructs the participants on the steps for entering their decisions. The simulation includes a "your profile" section that provides background on the individual's role and an overview of the goals and weights the importance of each goal. The analyze section addresses multiple issues. Because team members are not required to summit the mountain at the same speed, the "Mountain View" indicates where each member of the team is on the mountain. This is a pictorial representation that visually shows progress on the mountain. Next, the "Dashboard" contains important information about the status of the team, including weather conditions, food and medical supplies, and the hiking speed of each member of the team. The weather conditions include the weather forecast for the current and next round camp, the oxygen level for the selected camp, and the current wind levels at all of the camps. The supplies include a pictorial representation of which medical supplies are available, a daily graph of the individual's remaining food supply, and a list of the supplies available in the current round. The hiking speed screen shows the hiking speed for each member of the team, the individual's personal health and backpack weight, and a list of his or her past hiking speed and health levels. Lastly, the "Round" section contains an overview of the last round and information for the current round. This includes the round that the

individual is currently going through and information on teammates that may have been rescued.

After reviewing the information for the round (such as weather and health levels), each individual must make a decision. Some of these decisions are role specific, such as the physician deciding on the distribution of medical supplies. Other decisions are more general and must be made by every team member, such as whether or not to ascend to the next camp. Each individual inputs his or her own decision, so it is possible that team members could ascend the mountain at different rates. Teams can communicate their goals and needs through verbal discussion. Each round was conducted under a set amount of time during which team members must submit their decisions. The earlier rounds (zero and one) contain fewer choices by the team members because team members do not typically face severe health issues or have multiple individual decisions, so they were completed in 8 minutes each. The middle rounds (two, three, and four) contain more choices by the team members such that they must decide how to best handle team members with failing health or conflicting goals. Furthermore, team members must complete additional challenges such as deciding the number of oxygen canisters to take on the remainder of the trip. So, these rounds were completed in 12-14 minutes each. The final round of decisions is relatively simple because of the proximity to the summit and the lack of additional challenges, so it was completed in 6 minutes. The researcher advanced the simulation to the next round after the allotted time. Finally, if team members faced failing health at any point during the assent, they may have required individual rescue, in which case they were "helicoptered" down to base camp without the

ability to re-climb. Upon rescue, individuals were still able to share their knowledge with the team.

Manipulation

Half of the teams (N_{Team} = 29; $N_{Individual}$ = 145) received prosocial competency training. A similar approach to training teams on teamwork knowledge and skill competencies was used by Ellis and colleagues (2005) with groups of students completing a simulation. Following the work of Ellis and colleagues (2005), half of the students and teams received the training. The other half of the students and teams were placed in a control condition (N_{Team} = 30; $N_{Individual}$ = 150). Those receiving the competency training watched a 16-minute training video followed by a 6-minute video introduction to the procedural aspects of the simulation. Those in the control condition watched a video that has face-validity to the simulation but does not address teamwork competencies. Specifically, the video describes the journey that you must take to get to the base camp of Everest. This video is similar in length to the training video (18 minutes). Following the control video, those in the control condition also watched the 6-minute video introduction to the procedural aspects of the simulation. The video on the procedural aspects of the simulation is a pre-made video that is provided by Harvard Business Publication in conjunction with the simulation.

Following a similar procedure to Ellis et al. (2005), the training video was instructional and covered a number of different scenarios that are representative of the key concepts regarding collaborative problem solving and communication. This instructional lecture method has been shown to be effective in prior training studies (Ellis et al., 2005; Kraiger, Ford, & Salas, 1993). To ensure consistency across training sessions,

a video training was used instead of in-person teaching instruction. More specifically, I

adopted their case-based instruction method to a video format; Ellis and colleagues

(2005) presented a number of case scenarios that contained lessons regarding the

knowledge and skills associated with the teamwork competencies. Following each

scenario, participants were asked to choose how they would respond from a set of options.

After doing so, they were provided with which response would be most beneficial along

with an explanation of why. This similar procedure was adapted to a video format.

The video began by introducing the goals of the simulation, which were: 1.

Understand who should be involved in decisions, 2. Create an effective atmosphere on

the team, 3. Communicate efficiently within the team, 4. Generate the best ideas possible.

Following this brief introduction, the video presented four case scenarios that included

the core lessons on the competencies. These core lessons include: identifying who should

be involved in a decision, identifying methods for sharing information, understanding

communication networks and how to effectively use them, active listening techniques,

the importance of small talk (Stevens & Campion, 1994). Each scenario took

approximately 2 to 3 minutes to complete. The brief scenarios were presented visually on

the screen and read out loud by the video instructor. Following the scenario, three options

for potential responses were presented to participants. Participants were asked to think

about how they would respond to the scenario and select their choice on a hand-out sheet.

After a few seconds, the correct option was highlighted on the screen, and the instructor

on the video verbally provided an explanation for why this was the correct course of

action. Next, the instructor on the video verbally explained why the other two options

were not the most optimal choices. This is consistent with Ellis and colleagues (2005)

approach to teaching competencies and additionally is consistent with the suggestions of past researchers that combining positive and negative explanations is an effective manner of training (Baldwin, 1992). The scenarios are provided in Appendix B.

At the end of the video, the key lessons from the training video were reviewed. This involved reviewing the four goals of the simulation and reiterating how the training accomplished these goals. To emphasize the goal of understanding who should be involved in making decisions, the video re-emphasized that decisions should be made alone when the individual is the expert or the decision is trivial whereas decisions should be made with others when the decision is complicated, others have the expertise, or you need to attain buy-in. To emphasize the goal of creating an effective atmosphere on the team, the video re-emphasized that team members should be receptive and open to others' ideas and should focus on behaviors or events in communication and not people. To emphasize the goal of communicating efficiently within the team, the video restated that team members should avoid bottlenecks in communication, should actively listen to others, should maintain consistency between verbal and nonverbal communication, and should recognize the importance of small-talk. Finally, to emphasize the goal of generating the best ideas possible, the video restated that the team should encourage brainstorming and should separate idea generation from evaluation when time allows.

After watching the training or control video, participants in both sessions completed a manipulation check. Participants were asked to answer two questions regarding the extent to which the video(s) they watched covered the prosocial KSAs of collaboration and communication: "The video I watched explained effective ways to

communicate in teams"; "The video I watched explained effective ways to collaborate in teams".

Measures

Psychological collectivism. Psychological collectivism was measured with a 15-item scale developed by Jackson, et al. (2006) using a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). There was an acceptable internal consistency reliability for this measure (α = .90). Copies of all measures used in this study are provided in Appendix C.

Team mean collectivism. Because psychological collectivism is an individual-level trait that can differ across team members, we would not necessarily expect within-group agreement as we compile psychological collectivism to the team level. Chan (1998) introduced a typology on composition models that explains how lower-level data can be aggregated to the team level, which includes additive, direct consensus, referent-shift consensus, dispersion, and process composition models. The additive and consensus models are similar such that they are aggregations of lower-level variables. However, additive constructs are a summation regardless of the variance in the lower level construct whereas consensus models dictate that meaning in the higher-level construct derives from agreement.

Because we would not expect consensus across team members with regards to psychological collectivism levels, team mean collectivism was operationalized using an additive composition model. This composition model was used, because the meaning in the team mean collectivism construct is derived from the average level of TMX within the team (Chan, 1998). Put otherwise, team mean collectivism would be classified as a

configural team property due to the fact that it emerges from the unique traits of team members and the amount of variability is not relevant to the validity of the team level construct (Klein & Kozlowski, 2000). This operationalization is consistent with prior collectivism research (Dierdorff et al., 2011).

TMX. Participants evaluated TMX using the 9-item scale developed by Liden and colleagues (2000) with a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). This measure is based on Seers' (1989) conceptualization of TMX. There was an acceptable internal consistency reliability for this measure (α = .89). Liden and colleagues' (2000) measure includes questions about "my coworkers" and "in my line of work". Because these phrases are not consistent with participation in the simulation, the questions were adapted to say "my teammates" and "in the simulation" respectively.

TMX-Team. TMX levels can differ across team members (Liao et al., 2010; Seers, 1989). As such, we would not necessarily expect within-group agreement as we compile TMX to the team level because TMX levels are unique to each individual (Seers, 1989). Because we would not expect consensus across team members with regards to TMX levels (Liao et al., 2010; Seers, 1989), TMX-team is operationalized using an additive composition model (Chan, 1998). This model is appropriate because the meaning in TMX-team is derived from the averaging of individual TMX levels within the team and not from consensus (Chan, 1998). TMX would be classified as a configural team property, because it emerges from individual perceptions and experiences but is based in the fundamental assumption that there will be variability amongst team members (Klein & Kozlowski, 2000). Thus, configural team properties such as TMX are different from shared team properties, which also originate from individuals but instead mandate that

there is commonality or consensus as these characteristics are aggregated to the team level (Klein & Kozlowski, 2000). Operationalizing TMX-team as a configural and additive measure is consistent with prior research on TMX-team (e.g., Dierdorff & Ellington, 2012; Ford & Seers, 2006).

TMX Differentiation. TMX-differentiation was constructed as the within-team variance across individual TMX levels. The dispersion composition model is appropriate for measuring TMX differentiation, because the meaning in the TMX differentiation construct is derived from the variability of individual TMX levels within the team (Chan, 1998). This operationalization of TMX differentiation is consistent with prior research (Liao et al., 2010),

Psychological empowerment. Participants evaluated their psychological empowerment through an adapted version of the 12-item scale developed by Spreitzer (1995) using a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). Spreitzer's (1995) original measure includes questions about "my job", "my work activities", and "my department". Because these phrases are not consistent with participation in the simulation, the questions were adapted to say "my role", "my role activities", and "my team" respectively. Additionally, the stem to the introduction was framed to explain to participants that they should reflect on their experiences in the simulation; "Think about your experience in the Everest Simulation. The items below ask you to reflect on your individual role in the simulation team. Respond to the following questions, as honestly as possible, using the response scales provided." There was an acceptable internal consistency reliability for this measure ($\alpha = .90$).

Team empowerment. Participants evaluated team empowerment through an adapted version of the scale developed by Kirkman, Rosen, Tesluk, and Gibson (2004) with a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). This measure is conceptualized as a referent-shift consensus model (Chan, 1998).

Kirkman and colleagues' (2004) original team empowerment measure included questions that ask individuals to reflect on their experiences within the company or organization, so these questions have been rephrased to be consistent with the simulation. For instance, the original item of "My team performs tasks that matter to this company" will be changed, "My team performs tasks that matter". Two items were removed from the measure because they do not apply to the simulation ("My team makes its own choices without being told by management" from the autonomy dimension; "My team has a positive impact on this company's customers" from the impact dimension), resulting in a 10-item scale. Finally, the stem to the introduction will be framed to explain to participants that they should reflect on their experiences in the simulation; "Think about your experience working with your team in the Everest Simulation. The items below ask you to reflect on your team from the simulation. Respond to the following questions, as honestly as possible, using the response scales provided." There was an acceptable internal consistency reliability for this measure at the individual level ($\alpha = .94$) and the team level ($\alpha = .96$).

Individual viability. Individual viability was assessed using a 3-item measure developed by Peeters, Rutte, van Tuijl, & Reymen (2006) with a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree). There was an acceptable internal consistency reliability for this measure ($\alpha = .90$).

Team viability. Team viability was assessed using a 3-item measure developed by Marrone et al. (2007) with a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). There was an acceptable internal consistency reliability for this measure at the individual level (α = .78) and the team level (α = .85).

Individual Performance. Performance was measured two different ways. First, an objective measure of performance was captured using performance scores provided by the simulation. Individual objective performance is measured by through a percentage of goals met for the following accomplishments: points for each individual goal that is achieved; points for avoiding the need for rescue; points for passing through additional challenges dependent on ones' role (medical challenge for the physician, weather challenge for the physician, oxygen challenge for all team members). On average participants in the leader role attained 59.64% of their goals (*SD* = 14.72, *min* = 22.00%, *max* = 96.00%), participants in the physician role attained 57.17% of their goals (*SD* = 15.66, *min* = 22.00%, *max* = 96.00%), participants in the environmentalist role attained 45.53% of their goals (*SD* = 24.21, *min* = 0.00%, *max* = 96.00%), participants in the physician role attained 55.85% of their goals (*SD* = 23.64, *min* = 0.00%, *max* = 96.00%), and participants in the marathoner role attained 49.90% of their goals (*SD* = 24.51, *min* = 11.00%, *max* = 96.00%).

Second, each team member was asked to evaluate the performance of each of his or her teammates. This assessment captured a peer-rated subjective measure of performance. Peer-rated performance was assessed using a 4-item measured developed by Walumbwa, Avolio, and Zhu (2008) with a 5-point response scale (1 = "consistently performs way below expectations", 2 = "consistently performs below expectations", 3 =

"consistently performs at expectations", 4 = "consistently performs above expectations", and 5 = "consistently performs way beyond expectations") that was slightly adopted for the simulation context. Each individual on the team evaluated the other 4-team members, resulting in 16 evaluations for each employee. Amongst these sixteen ratings, there was an acceptable internal consistency reliability for this measure ($\alpha = .93$).

Team Performance. Team objective performance is measured based on the percentage of goals that the team as a whole accomplished, or a summation of the individual number of goals achieved. On average teams attained 55.30% of their goals ($SD = 14.39\%$, $min = 22.22\%$, $max = 96.30\%$). Subjective team-evaluated performance was measured using a 4-item measure developed by Jehn, Northcraft, and Neale (1999) with a 7-point response scale (1 = "strongly disagree" to 7 = "strongly agree"). This measure is conceptualized as a referent-shift consensus model (Chan, 1998). There was an acceptable internal consistency reliability for this measure ($\alpha = .95$). Whereas the first measure of performance captured goal accomplishment, the second measure captured team-evaluations of perceived effectiveness during the simulation.

Control Variables. Prior research has shown that communication and collaboration within a team are significantly impacted by how well team members know one another (Gruenfeld, Mannix, Williams, & Neal, 1996; Lewis, 2004). As such, I controlled for familiarity in all of my analyses. Consistent with prior research (Gruenfeld et al., 1996; Lewis, 2004), participants were asked to respond to the following question for each of their team members, "How well do you know this member of your team?" with a 4-point response scale (1 = "do not know", 2 = "acquaintance", 3 = "know well", 4 = "know very well"). Similar to prior researchers (Gruenfeld et al., 1996; Lewis, 2004), I

formed a composite familiarity measure through averaging the responses together such that a high score indicates that team members know each other very well whereas a low score indicates that team members did not know each other prior to the simulation.

I also controlled for sex and first-language in all of my analyses. Prior research has shown that gender and cultural composition within groups can influence interactions (e.g., Apesteguia, Azmat, & Iriberri, 2012; Dufwenberg & Muren, 2006; Stahl, Maznevski, Voigt, & Jonsen, 2010). Furthermore, different compositions of genders or nationalities (as represented by the first language individuals speak) have been shown to cause faultlines within teams (e.g., Jiang, Jackson, Shaw, & Chung, 2012; Lau & Murnighan, 1998; Pearsall, Ellis, & Evans, 2008). Therefore, all of my analyses controlled for both sex and first-language.

Procedure

Students were required to sign up for the simulation through Sign Up Genius (signupgenius.com), an online sign-up service. When signing up, students picked one of 16 available time slots in the Fall term and 12 available time slots in the Winter term. In the process of signing up, students were required to answer a question that asks if they have previously participated in a simulation with Quinn Cunningham (the instructor who ran the Everest simulation the prior year). Students who select "Yes" were placed at a separate table and their results were not included in my study. Because of concerns that students could seek out information about the simulation prior to the simulation beginning, participants were not told the name of the simulation prior to entering the simulation.

Upon arrival for the simulation, students were randomly assigned to a team. Once at their assigned seat, students were given paper instructions that include information on their role. Utilizing Qualtrics, students were asked to fill out a survey regarding their psychological collectivism and demographic traits. These Qualtrics surveys were linked to the team number (each team was assigned a two digit number) and role number (where 1 = Leader, 2 = Photographer, 3 = Environmentalist, 4 = Physician, 5 = Marathoner), however I did not retain any identifying information that connects the individual person to the team and role number. Therefore, responses were compiled by the team and role number, but are not be linkable to the individual to promote anonymity.

Once all of the students were seated and had completed the initial survey, they were presented with either the control or training video. This video was played from the television in the Behavioral Lab, which is approximately 60 inches. Following the video, students completed the manipulation check. After completing this check, students watched the video regarding the procedural aspects of the simulation. Following the video, I began the simulation by advancing the participants to round zero. Upon advancement, students gained access to the "Analyze" screen and were able to make and submit their first set of decisions. More specifically, this round allowed participants to read instructions for the round, discuss their personal and team goals with their teammates, review the dashboard for the team, and decide if the are going to proceed to the next camp or remain at base camp.

After 8 minutes, I ensured that all decisions were submitted and advanced the simulation to round 1. Upon advancement, participants were informed that they would have 8 minutes to complete this round. This process continued through round 2 (12

minutes) and round 3 (12 minutes). Upon completion of round 3, each team member was prompted to continue with the Qualtrics survey. This survey asked questions regarding TMX. Following completion of these questions, teams were advanced to the round 4 of the simulation and were given 14 minutes to submit their decisions. After round 4, participants were prompted to continue with the Qualtrics survey and were asked to answer questions regarding psychological empowerment and team empowerment. Finally, the simulation was advanced to round 5 and participants were given 6 minutes to make their final decisions. After all decisions were submitted, participants completed the final portion of the Qualtrics survey and answered questions regarding performance and viability. Following the completion of the surveys, I advanced the teams to the final round where team members could see if they reached the summit of Everest. No decisions are made in the final round.

Following completion of the simulation, teams were briefly debriefed on their performance. Following the completion of all of the simulations for each term, instructors debriefed their individual classes on lessons from the simulation. This included a debrief video from me that could be played in class and/or posted on BBLearn and supplemental reading materials. This video was based on the copyrighted teaching note that accompanies the simulation.

Analytical Approach

I controlled for familiarity, sex, and first language in all of my analyses. At the individual level, familiarity was operationalized as the average rating the individual provided for his or her teammates, sex was operationalized as a dichotomous variable representing male (1) or female (2), and first language was operationalized as a

dichotomous variable between English (1) and all other languages (2). At the team level, familiarity was operationalized as the mean across all members of the team, sex was operationalized as percentage of the team that was female, and first language was operationalized as the percentage of the team that did not speak English as a first language.

Because of the nested nature of my data such that I am examining individuals within teams, I used random coefficient modeling through the hierarchical linear modeling (HLM) software to examine the direct and moderation hypotheses that have a dependent variable at the individual level. To do so, I conducted multiple sets of analyses. The first set of analyses examined the impact of psychological collectivism and the interaction of psychological collectivism and prosocial competency training on the outcome variable of TMX. The second set of analyses examined the interaction of TMX level and TMX differentiation on the outcome variable of psychological empowerment. The final sets of analyses examined the relationships between psychological empowerment and the ultimate outcome variables of peer-rated performance, objective performance, and individual viability.

In these analyses, I first ran the null model to determine if there are differences in the outcome variable at the group level; this is an initial step to ensure that significant differences exist between groups and that correspondingly random coefficient modeling is the appropriate technique for examining the proposed relationships (Woltman, Feldstain, MacKay, & Rocchi, 2012). To do so, I inputted my outcome variables one at a time (TMX; psychological empowerment; peer-rated performance; objective performance; individual viability) without any predictors. The results of the chi-square

test are reported in Table 4. Four out of the five null models were significant, indicating that random coefficient modeling should be used as there are significant differences between teams with regards to the dependent variables. This provides evidence that HLM is an appropriate statistical approach. Supplemental analyses will be conducted using regression for the null model that was insignificant (where psychological empowerment is the dependent variable).

For the first set of analysis, I used a random intercepts model and entered TMX as the outcome variable and psychological collectivism as the level 1 variable. Consistent with prior research and recommendations from researchers (Hofman & Gavin, 1998), psychological collectivism was entered as a group mean centered variable. Next, I used a random intercepts and slopes model where prosocial competency training was entered as a level 2 predictor variable to examine the joint effect of psychological collectivism and prosocial competency training on TMX. Consistent with previous research and recommendations from researchers, the level 2 variable was grand mean centered, however the model was also run with group mean centering to check for robustness (Hofman & Gavin, 1998; Woltman et al., 2012). As no significant differences were detected in any of the analyses, the grand mean centered analyses were reported. Following these analyses, I used a similar approach to examine the remaining hypotheses that have a dependent variable at the individual level. Psychological empowerment was entered as the outcome variable, TMX as the level 1 predictor, and TMX differentiation as the level 2 predictor. Next, I examined the effect of psychological empowerment on the outcome variables through utilizing a series of tests in which psychological empowerment was the level 1 predictor and the outcome variables were inputted one at a

time as the dependent variables—peer-rated performance, than objective performance, than individual viability.

The next set of hypotheses examined relationships at the team level. Accordingly, these hypotheses were examined using hierarchical regression. To conduct these analyses, I entered my independent variable as mean centered terms using the average from the sample. SPSS was used to conduct the hierarchical regression analyses. For the direct relationships examined, the control variables were entered in step 1 of the regression and the hypothesized variables were entered in step 2 of the regression. For example, to examine the relationship between team mean collectivism and TMX-team, the control variables were entered in step 1 of the regression, team mean collectivism was added in step 2, and TMX-team was entered as the dependent variable. Similarly, to examine the proposed relationship between prosocial competency training and TMX-team, the control variables were entered in step 1 of the regression, prosocial competency training was added in step 2, and TMX-team was entered as the dependent variable. The same format was used to examine the proposed a negative relationship between prosocial competency training and TMX differentiation such that the control variables were entered in step 1 of the regression, prosocial competency training was added in step 2, and TMX differentiation was entered as the dependent variable.

For the hypotheses that included moderation, an interaction term was created and entered in the last step of the regression. To examine the hypothesized moderation effect of prosocial competency training, which proposed that training would moderate the positive relationship between team mean collectivism and TMX-team, an interaction term was created by multiplying together the mean-centered variables of collectivism and

competency training. To test this hypothesis, the control variables were entered in step 1 of the regression, team mean collectivism was entered in step 2, competency training was added in step 3, and the interaction term was added in step 4. A similar approach was taken to examine the moderating effect of TMX differentiation on the relationship between TMX-team and team empowerment. An interaction term was created by multiplying the mean-centered variables of TMX-team and TMX differentiation. To test this hypothesis, the control variables were entered in step 1 of the regression, TMX-team and TMX differentiation were added in step 2, and the interaction term was added in step 3.

Finally, to examine the moderated mediation hypotheses (H9, H10), I utilized Hayes (2012) approach to moderated mediation using the PROCESS SPSS macro. This macro is based on procedures that were proposed by Shrout & Bolger (2002) and have since been further developed by Preacher and colleagues (Preacher & Hayes, 2008; Preacher, Rucker, & Hayes, 2007). This use of this bootstrapping approach is consistent with prior TMX differentiation research (Liao et al., 2010). The independent variables, moderator variables, and mediator variables were mean centered using the average from the sample prior to input in the macro. Model 8 of the PROCESS macro was used to examine the conditional indirect effects; this model examines moderation in the first stage of the mediated model. In addition to examining the interaction term to determine the effect of TMX differentiation, the PROCESS macro examines conditional indirect effects through OLS regression to determine the impact that the independent variable has on the dependent variable. The results provide coefficients for both stages of the model along with point estimates, standard errors, and confidence intervals. Additionally,

PROCESS uses a bootstrapping re-sampling technique with 5000 iterations to calculate estimates of the conditional indirect effects through the mediator at low levels of the moderator (i.e., -1 standard deviation of TMX differentiation), at the average of the moderator (i.e., mean of TMX differentiation), and at high levels of the moderator (i.e., +1 standard deviation of TMX differentiation).

In conjunction with calls from researchers, the exact *p-values* will be reported in the results section for clear interpretability (Aguinis, Werner, Abbott, Angert, Park, & Kohlhausen, 2010). At the individual level, regression and HLM results that have a *p-value* of less than .05 (two-tail) will be discussed as significant. However, at the team level, regression results that have a *p-value* of less than .10 (two-tail) will be discussed as significant. This distinction is made because the sample size at the individual level is substantially larger than at the team level. Researchers have argued that research should be conducted such that an alpha level is set that balances both type I and type II error (Aguinis et al., 2010). This concern of balancing type I and II errors is especially prominent in smaller sample sizes where statistical power is limited (Aguinis et al., 2010), such as at the team level of analysis in the current study. Thus, in an attempt to balance concerns for Type I and Type II errors, a *p-value* of *p* < .10 will be used at the team level of analysis.

CHAPTER 5: RESULTS

Justification for Aggregation

Team empowerment, team viability, and subjective team performance were measured through a referent-shift model such that each individual from the team provided ratings on a 7-point rating scale and then these ratings were aggregated to the team level. To justify aggregation, the within-group agreement and reliability statistics were run. Within-group agreement assesses consensus in the team such that a high level indicates that ratings from individuals within the team are in agreement and are interchangeable (Bliese, 2000). To assess within-group agreement, the r_{wg}, statistics using both the uniform null distribution (7 point scale; $\sigma^2_{EMS} = 4$) and the moderately skewed distribution (7 point scale; $\sigma^2_{EMS} = 2.14$) were used (LeBreton & Senter, 2008). Whereas the uniform null distribution assumes that there are no systematic biases from the respondents, the moderately skewed distribution takes into account that there may be some systematic biases from respondents (LeBreton & Senter, 2008). For team empowerment, the average item-level r_{wg} was .94 and the median item-level r_{wg} was .97 for the uniform null distribution, whereas the average item-level r_{wg} was .87 and the median item-level r_{wg} was .94 for the moderately skewed distribution. For peer-rated team performance, the average item-level r_{wg} was .90 and the median item-level r_{wg} was .95 for the uniform null distribution, whereas the average item-level r_{wg} was .87 and the median item-level r_{wg} was .90 for the moderately skewed distribution. Finally, for team viability, the average item-level r_{wg} was .83 and the median item-level r_{wg} was .89 for the uniform null distribution, whereas the average item-level r_{wg} was .64 and the median item-level r_{wg} was .77 for the moderately skewed distribution. Thus, there was

agreement from team members with regards to their evaluations of team empowerment, peer-rated performance, and team viability.

Next, I examined the reliability of these measures to determine the consistency of responses within the team. Both ICC_1 and ICC_2 measures were used. ICC_1 explains the proportion of total variance that can be explained by group measurement whereas ICC_2 is an estimate of reliability of the mean that is a function of the group size (Bliese, 2000). For team empowerment, the within group reliability statistics were $ICC_1 = .14$ and $ICC_2 = .44$ ($MSB = 1.21$, $MSW = .68$, $F = 1.78$, $p = .00$). For team viability, the within group reliability statistics were $ICC_1 = .18$ and $ICC_2 = .52$ ($MSB = 1.87$, $MSW = .90$, $F = 2.09$, $p = .00$). For team-rated performance, the reliability statistics were $ICC_1 = .26$ and $ICC_2 = .64$ ($MSB = 2.01$, $MSW = .73$, $F = 2.76$, $p = .00$). These values provided evidence that there was sufficient reliability within these measures. Thus, combined with the agreement results, team empowerment, team viability, and subjective team performance were examined at the team level as there was justification for aggregation.

Furthermore, each team member provided performance ratings for every other team member. To justify combining these ratings and using the average performance rating for each team member, I sought to make sure there was agreement and reliability amongst team members' ratings. To assess within-raters agreement, the $r_{wg,}$ statistics using both the uniform null distribution (5 point scale; $\sigma^2_{EMS} = 2.00$) and the moderately skewed distribution (5 point scale; $\sigma^2_{EMS} = 0.90$) were used (LeBreton & Senter, 2008). The average item-level r_{wg} was .89 and the median item-level r_{wg} was .93 for the uniform null distribution. The average item-level r_{wg} was .69 and the median item-level r_{wg} was .84 for the moderately skewed distribution. Further, the inter-rater reliability

statistics were $ICC_1 = .15$ and $ICC_2 = .42$ ($MSB = .78$, $MSW = .45$, $F = 1.71$, $p = .00$).
Thus, there was evidence to support combining the ratings.

Manipulation Check Results

To examine whether participants in the two conditions perceived a difference with regards to the video they watched, I examined the results of the manipulation check. Participants answered two questions on their perceptions regarding the extent to which the video they watched provided information on how to effectively communicate and collaborate in teams on a 5-point scale ranging from strongly disagree to strongly agree. As expected, the results indicated that the training video was perceived as explaining effective ways to communicate and collaborate more strongly than the video in the control condition. Specifically, ANOVA analyses confirmed that the mean values across conditions were significantly different from one another in both the first question regarding communication ("The videos I watched explained effective ways to communicate in teams," $M_{training} = 4.24$, $M_{control} = 2.19$, $F = 360.02$, $p = .00$) and in the second question regarding collaboration ("The videos I watched explained effective ways to collaborate in teams," $M_{training} = 4.26$, $M_{control} = 2.18$, $F = 393.18$, $p = .00$).

Descriptive Statistics and Correlations

Tables 5 (individual level variables) and 6 (team level variables) display the means, standard deviations, internal consistency reliabilities, and zero-order correlations amongst the control and focal variables used in this study. The correlations indicate that, of the control variables, familiarity and first language were significantly related to one or more of the focal variables whereas sex did not have a significant relationship with any of the focal variables in the study. Familiarity at the individual level was significantly

related to psychological collectivism ($r = .17$, $p = .00$), TMX ($r = .15$, $p = .01$), and psychological empowerment ($r = .16$, $p = .01$). Familiarity at the team level was related to team mean collectivism ($r = .24$, $p = .07$). Further, first language at the individual level was related to psychological collectivism ($r = .12$, $p = .03$).

At the individual level, the correlations between the focal variables indicate that psychological collectivism was positively related to TMX ($r = .25$, $p = .00$) and psychological empowerment ($r = .15$, $p = .01$), but prosocial competency training was not significantly related to any of the focal variables. TMX was further significantly related to psychological empowerment ($r = .38$, $p = .00$), peer-rated performance ($r = .44$, $p = .00$), and individual viability ($r = .55$, $p = .00$). Additionally, the correlations between psychological empowerment and both peer-rated performance ($r = .33$, $p = .00$) and individual viability ($r = .36$, $p = .00$) were significant. The outcome variables of peer-rated performance and individual viability ($r = .44$, $p = .00$) were strongly correlated whereas the relationship between peer-rated and objective performance was not as strong ($r = .14$, $p = .02$) and the relationship between objective performance and individual viability was not significant ($r = .09$, *ns*).

At the team level, team mean collectivism was correlated with TMX-team ($r = .24$, $p = .07$). Team mean collectivism was also significantly correlated with objective and peer-rated performance, surprisingly in a negative direction (objective performance: $r = -.27$, $p = .04$, peer-rated performance: $r = -.22$, $p = .10$). Additionally, prosocial competency training was correlated with TMX differentiation ($r = .24$, $p = .07$). TMX-team was significantly correlated with many of the study variables—TMX differentiation ($r = -.28$, $p = .03$), team empowerment ($r = .53$, $p = .00$), peer-rated performance ($r = .50$,

p = .00), and team viability (r = .59, p = .00). Team empowerment was significantly

related to all of the ultimate outcome variables—peer-rated performance ratings (r = .78,

p < .01), objective performance (r = .32, p = .01), and team viability (r = .66, p = .00).

Finally, the outcome variables of subjective and objective performance (r = .38, p = .00)

and peer-rated performance and team viability (r = .70, p = .00) were significantly

correlated, however objective performance and team viability did not have a significant

relationship (r = .15, *ns*).

Tests of Relationships

All analyses controlled for sex, first language, and familiarity. Hypothesis 1

proposed a positive relationship between psychological collectivism and TMX.

Supporting this hypothesis, the HLM analyses showed psychological collectivism was

significantly and positively related to TMX (Table 7, γ = .20, p =.00). Moving to the

antecedents of TMX-team, Hypothesis 2 proposed a positive relationship between team

mean collectivism and TMX-Team. Using hierarchical regression, results indicated that

this relationship was significant (Table 8, b = .25, p = .08), supporting H2.

Although not explicitly predicted, I next utilized a means as outcomes model in

HLM to look at the direct cross-level relationship between prosocial competency training

and TMX. The analyses indicated that competency training was not significantly related

to TMX (Table 7, γ = .11, p = .31). Next, using a random intercepts and slopes model in

HLM, the results indicated that the interaction between psychological collectivism and

prosocial competency training was not significantly related to TMX (Table 7, γ = .07, p

= .53). Thus, Hypothesis 3, which proposed that prosocial competency training would

positively moderate the relationship between psychological collectivism and TMX, was not supported.

Hypotheses 4 and 5 contended that prosocial competency training influenced TMX-team directly (H5) and further influenced the relationship between team mean collectivism and TMX-team such that this relationship was strongest for teams receiving prosocial competency training (H4). Using hierarchical regression, these hypotheses were not supported as neither prosocial competency training (Table 8, $b = .13$, $p = .21$) nor the interaction term (Table 8, $b = -.00$, $p = 1.00$) were related to TMX-team.

Hypothesis 6 proposed that prosocial competency training would reduce TMX differentiation. Although there was a significant relationship between the two constructs (Table 9, $b = .21$, $p = .08$), it was in the opposite direction as expected. Therefore, Hypothesis 6 was not supported as prosocial competency training increased rather than decreased TMX differentiation.

Moving to the consequences of TMX, Hypothesis 7 proposed that the positive relationship between TMX and psychological empowerment would be moderated by TMX differentiation such that the relationship would be strongest when differentiation was high. Providing initial support for this hypothesis, the HLM results indicated that TMX was positively related to psychological empowerment (Table 10, $\gamma = .46$, $p = .00$). However, neither TMX differentiation (Table 10, $\gamma = .00$, $p = .97$) nor the interaction between TMX and TMX differentiation (Table 10, $\gamma = .15$, $p = .36$) were related to psychological empowerment. Additionally, because the null model in HLM indicated that there were not significant differences between groups with regards to psychological empowerment ($\chi^2 = 61.12$, $p = .36$), I supplemented this analysis for Hypothesis 7

through using hierarchical regression. The regression analyses indicated the same pattern of relationships existed—TMX was positively related to psychological empowerment (Table 11, $b = .44$, $p = .00$) but neither TMX differentiation (Table 11, $b = .12$, $p = .28$) nor the interaction between TMX and TMX differentiation (Table 11, $b = .12$, $p = .28$) were significantly related to psychological empowerment. Therefore, Hypothesis 7 was not supported; although TMX was significantly related to psychological empowerment, TMX differentiation did not moderate this relationship.

Regarding to the outcomes of TMX-team, Hypothesis 8 proposed that the positive relationship between TMX-team and team empowerment would be negatively moderated by TMX differentiation such that this relationship would be strongest when differentiation was low. Providing initial support for this hypothesis, the regression results demonstrate that TMX-team was significantly related to team empowerment (Table 12, $b = .67$, $p = .00$). Moving to the interaction term, the results indicated that the interaction of TMX-team and TMX differentiation was significantly related to team empowerment (Table 12, $b = .98$, $p = .02$), however the coefficient was in the opposite direction as predicted. To gain more insights into these results, the simple slopes were graphed at ± 1 standard deviation of the moderator, TMX differentiation. The resulting graph (see Figure 2) illustrated that there was a positive relationship between TMX-team and team empowerment when differentiation was high ($b = 1.18$, $t = 4.61$, $p = .00$), however this relationship was not statistically significant when TMX differentiation was low ($b = .30$, $t = 1.48$, $p = .16$). Therefore, Hypothesis 8 was not supported; although there was indeed a positive relationship between TMX-team and team empowerment, TMX differentiation positively rather than negatively moderated this relationship.

Hypothesis 9 proposed that the relationship between TMX and the outcome variables of performance and viability through psychological empowerment would be conditional upon the level of TMX differentiation. To examine this hypothesis, I first examined the direct relationships between psychological empowerment and the ultimate outcome variables using HLM. Psychological empowerment was positively and significantly related to peer-rated performance (Table 13, $\gamma = .19$, $p = .00$) and individual viability (Table 13, $\gamma = .39$, $p = .00$) but was not related to objective performance (Table 13, $\gamma = .15$, $p = .91$). Next, I utilized model 4 of the PROCESS macro to examine the indirect effects of TMX on the outcome variables through psychological empowerment. Consistent with the HLM analyses, results demonstrate that TMX was significantly related to psychological empowerment (Table 14, $b = .43$, $p = .00$) and psychological empowerment was subsequently related to peer-rated performance (Table 14, $b = .12$, $p = .00$) and viability (Table 14, $b = .21$, $p = .00$) but not objective performance (Table 14, $b = 1.66$, $p = .28$). Further supporting these findings, the PROCESS results indicated that TMX had a significant and positive direct effect (Table 19, $b = .29$, $SE = .04$, 95% CI [.21, .38]) and indirect effect through psychological empowerment (Table 19, $b = .05$, $SE = .02$, 95% CI [.02, .09]) on peer-rated performance. Similarly, TMX had a significant and positive direct effect (Table 19, $b = .63$, $SE = .07$, 95% CI [.50, .76]) and indirect effect through psychological empowerment (Table 19, $b = .09$, $SE = .04$, 95% CI [.03, .18]) on team viability. Finally, there were no significant direct (Table 19, $b = -1.93$, $SE = 1.79$, 95% CI [-5.46, 1.60]) or indirect effects (Table 19, $b = .71$, $SE = .69$, 95% CI [-.46, 2.09]) with regards to the relationship between TMX and objective performance. Thus, Hypothesis 9 was not supported as TMX had a significant indirect effect on the

outcome variables of peer-rated performance and team viability through psychological empowerment, however this relationship was not conditional upon levels of TMX differentiation as predicted nor was there a significant relationship with objective performance.

Finally, Hypothesis 10 predicted that there would be a conditional indirect effect of TMX-team on the outcome variables of team performance and team viability through team empowerment that would be contingent upon levels of TMX differentiation such that these relationships would be strongest when differentiation was low. To begin examining this hypothesis, I first examined the relationship between team empowerment and the outcome variables using hierarchical regression. Team empowerment was positively related to team peer-rated performance (Table 15, $b = .91$, $p = .00$), team objective performance (Table 16, $b = .13$, $p = .00$), and team viability (Table 17, $b = .85$, $p = .00$). Based on this initial evidence, model 8 of the PROCESS macro was used to examine the conditional indirect effects. The results from these analyses were consistent with the prior hierarchical regression such that TMX-team (Table 18, $b = .74$, $p = .00$) and the interaction between TMX-team and TMX differentiation (Table 18, $b = .98$, $p = .02$) were positively related to team empowerment, and team empowerment was subsequently positively related to peer-rated performance (Table 18, $b = .89$, $p = .00$), objective performance (Table 18, $b = .15$, $p = .00$), and viability (Table 18, $b = .58$, $p = .00$). Providing further support to these analyses, the conditional indirect effects demonstrated that TMX-team was positively related to subjective team performance through team empowerment when TMX differentiation was average (Mean, Table 19, $b = .67$, $SE = .23$, [.27, 1.17]) or high (+1 SD, Table 19, $b = 1.07$, $SE = .41$, [.37, 1.94]) but

not when differentiation was low (-1 SD, Table 19, $b = .28$, $SE = .30$, [-.20, 1.06]). Objective performance and team viability followed the same pattern of results such that these relationships were significant and positive when differentiation was average (Mean, Table 19; For objective performance: $b = .10$, $SE = .04$, [.03, .19]; For team viability: $b = .44$, $SE = .17$, [.19, .87]) or high (+1 SD, Table 19; For objective performance: $b = .16$, $SE = .08$, [.04, .33]; For team viability: $b = .70$, $SE = .27$, [.27, 1.31]) but not when differentiation was low (-1 SD, Table 19; For objective performance: $b = .04$, $SE = .05$, [-.03, .18]; For team viability: $b = .18$, $SE = .21$, [-.11, .84]). Therefore, Hypothesis 10 was not supported as the conditional indirect effects between TMX-team and the ultimate outcome variables were in the opposite direction as predicted such that TMX differentiation increased rather than weakened these relationships.

Supplemental Analyses

To supplement these findings, I conducted a series of additional analyses to provide further insights into the results. These analyses focused on the bi-directional nature of TMX along with the counterintuitive results regarding TMD differentiation.

First, due to the bi-directional nature of TMX such that it captures contributions that a team member makes to his or her team in addition to the support, advice, and feedback that he or she receives in return (Seers, 1989), I conducted supplemental analyses to determine if the relationship between psychological collectivism and TMX held for both directions of exchanges. To do so, I split the TMX scale into 2 subscales. One subscale included items that focused on the receipt of exchanges (scale provided in Appendix C; items 1, 5, 6, 7) and one subscale included items that focused on the giving of exchanges (scale provided in Appendix C; items 2, 3, 4, 8, 9). The HLM analyses

indicated that that psychological collectivism was significantly and positively related to both the giving of support, advice, and feedback (Table 20, $\gamma = .17$, $p = .01$) along with the receipt of such exchanges (Table 20, $\gamma = .25$, $p = .00$). Interestingly, the effect was slightly stronger for receiving than for giving. This indicates that not only is collectivism related to the contributions that one provides, but it is additionally and more strongly related to the support, feedback, and advice that one receives from his or her teammates.

Next, to examine the nature of the counterintuitive role of differentiation in the opposite direction as hypothesized, I conducted an additional series of supplemental analyses. First, I sought to determine whether differentiation was unique from other team-based constructs that could likewise influence interactions within the team, including familiarity of team members (Gruenfeld et al., 1996; Lewis, 2004) and the cultural composition of the team (Jiang et al., 2012; Lau & Murninghan, 1998; Pearsall et al., 2008). Demonstrating support for the distinctiveness of the TMX differentiation construct, TMX differentiation was not related to average familiarity of team members (Table 6; $r_c = -.13$, ns) or the percentage of team members who spoke English as a first language (Table 6; $r_c = -.11$, ns).

Next, I sought to determine if the role-based structure of the teams in the simulation could help to explain the counterintuitive findings. To do so, I first looked to see if any TMX quality in any of the roles was a particularly stronger drive of TMX differentiation across all teams in this study. To do so, I regressed TMX differentiation on TMX quality by role. The results demonstrate that the photographers' TMX quality (Table 21; $b = -.19$, $p = .00$), the environmentalists' TMX quality (Table 21; $b = .21$, $p = .01$), and the physicians' TMX quality (Table 21; $b = -.21$, $p = .00$) were significant

predictors of TMX differentiation whereas the leaders' TMX quality (Table 21; $b = .04$, $p = .59$) and the marathoners' TMX quality (Table 21; $b = -.10$, $p = .19$) were not significantly related to differentiation. Furthering this line of inquiry, I next regressed team goal accomplishment on individual goal accomplishment to further determine if any roles contributed more or less strongly to team performance across this sample of teams. The results indicate that all roles contributed to team goal accomplishment at a statistically significant level, however the effects were stronger for the leader role than for any of the other roles in the simulation (see Table 22).

Finally, I examined the pattern of relationships between TMX and objective performance via PE for each role across this sample of teams. Similar to the results across all roles, the results indicated that neither the direct or indirect effects are significant across roles. The results are summarized in Table 23.

Based on these supplemental analyses, I conclude that each role contributes to the team is a slightly different manner. More specifically, the leader is the most influential on overall team goal accomplishment, whereas the photographer, physician, and environmentalist are consistently influential on differentiation. The lack of significant findings for the leader and marathoner with regards to differentiation indicates that the pattern of relationships deriving from these roles likely differed from team to team. Additionally, an interesting finding emerged regarding the role of the environmentalist, such that the contribution of this role to team goal accomplishment was the lowest amongst the roles and high levels of TMX quality for this role increased differentiation. This indicates that the environmentalist role may have been less central to the team, whereas other roles were more influential. In conclusion, these supplemental analyses

lend support to the conclusion that each role had a unique influence on team relationships

and success.

CHAPTER 6: DISCUSSION

This study sought to expand our knowledge regarding TMX through examining the multi-level antecedents and outcomes of TMX, TMX-team, and TMX differentiation. Through adopting a motivational perspective, I sought to demonstrate the prosocial motivational antecedents of team-based exchanges and to examine the empowerment and performance-based outcomes of these exchanges. In what follows, I provide an overview of the findings and discuss how these findings contribute to TMX theory and research. Further I detail the managerial implications of these findings and discuss the limitations of my study.

Summary of Findings

At the individual level, the results demonstrated that psychological collectivism is an important trait-based driver of of TMX. Prosocial competency training was not shown to significantly influence this relationship. TMX differentiation did not significantly influence the relationship between TMX and psychological empowerment as predicted, instead TMX was shown to have a strong direct relationships with psychological empowerment. The results further demonstrated that TMX had a direct and indirect effect on peer-rated performance and individual viability via psychological empowerment but not on objective performance.

At the team level, the results demonstrated that team mean collectivism is a determinant of TMX-team, however prosocial competency training did not significantly impact this relationship nor did it have a direct relationship with TMX-team. Nonetheless, prosocial competency training did influence TMX differentiation. Although predicted to reduce the amount of differentiation, prosocial competency training was shown to

increase the level of differentiation within the teams. With regards to the outcomes, TMX-team had strong direct relationships with team empowerment, and TMX differentiation significantly influenced this relationship. Surprisingly, this relationship was positive, such that the relationship between TMX-team and team empowerment was stronger when there was a high degree of differentiation on the team. Building on these findings, the results further demonstrated that TMX-team had a conditional indirect effect on the outcomes of peer-rated performance, objective performance, and team viability through team empowerment such that these relationships were significant when TMX differentiation was average or high but not when differentiation was low. The results of this study are summarized in Table 24.

Theoretical Implications

Although TMX was introduced over 25 years ago (Seers, 1989), this study sought to advance our understanding of TMX across levels of analysis by addressing important, unanswered questions. To further our understanding of TMX theory, I began by exploring prosocial motivation as an antecedent to high quality exchanges to address my first research question of, *Is trait-based prosocial motivation in the form of collectivism a driver of TMX and TMX-team quality?* At the individual level, one primary contribution of this dissertation is to establish psychological collectivism as a personal trait that contributes to the formation of high quality TMX relationships. A basic tenet of TMX theory is that the quality of exchanges can differ from team member to team member within a team. Yet, our existing knowledge of the factors that promote TMX have largely been focused on concepts that are similar across multiple members of a team—such as contextual characteristics (e.g., task characteristics; Chae et al., 2013) and relational

characteristics (e.g., interactional justice; Murphy et al., 2003). Because existed studies have focused on factors that are likely to explain differences in TMX levels *between* teams rather than *within* teams, this study fills a critical gap in the literature through examining the relationship between an individual level characteristic, psychological collectivism, and individual TMX quality. Thus, the current study contributes to TMX theory through providing evidence that individual traits such as psychological collectivism can explain how individuals within teams form high quality exchanges with team members. By highlighting psychological collectivism as an antecedent of TMX, this research moves beyond simply acknowledging that TMX can differ from individual to individual within a team to explaining a critical driver of this individuality, trait-based prosocial motivation in the form of psychological collectivism.

Aside from the contribution at the individual level, this study also contributes to nascent literature at the team-level through demonstrating that mean levels of collectivism positively relates to TMX-team. The current study complements the limited research on the antecedents of TMX-team through examining a team composition characteristic as an antecedent of TMX-team. Whereas the existing literature has focused on antecedents of TMX-team that are not stable when individuals move across teams or as time passes within teams—including characteristics that are likely to change from team to team (i.e., team structure—Seers et al., 1995; communication media and temporal scope—Alge et al., 2003) and characteristics that are likely to vary over the life-cycle of the team (mean levels of self-efficacy and metacognition on the team—Dierdorff & Ellington, 2012)—the current research goes beyond these findings through demonstrating that team composition particularly team mean collectivism is also an important

antecedent to TMX-team. These findings are important for TMX theory, because they illuminate that TMX-team is not only a function of the team context as the limited literature in this area has demonstrated, but TMX-team is also dependent on the relatively stable personal traits that team members bring to the team. Thus, TMX-team is not just determined by reactions to team-specific stimuli but is also the result of characteristics of team members such as team mean collectivism.

My second research question, *How does prosocial competency training effect relationships with TMX, TMX-team, and TMX differentiation?*, sought to extend theory through examining how training to enhance prosocial competencies impacted team-based exchanges and relationship quality. Interestingly, prosocial competency training did not affect TMX or TMX-team but it did increase the level of TMX differentiation within the team. My original hypotheses proposed a negative relationship between training and TMX differentiation based on the assumption that all team members would react similarly to the intervention and there would be clear expectations amongst all team members regarding how to collaborate and communicate with one another, thus reducing the dispersion of TMX levels on the team. However, the results indicate that rather than encouraging all team members to engage in similar level exchanges, the prosocial competency training increased differentiation. Perhaps the implications of these results are that the training had a differing effect on members of the team such that some team members were positively impacted by the training whereas others were unaffected, thus contributing to an increased level of differentiation. Although according to the manipulation check the average participant in the simulation indicated that the prosocial competency training provided content regarding communication and collaboration more

strongly than in the control condition, I contend that this does not necessarily indicate that all participants equally learned from the training. An individual could recognize that the training video contained information regarding communication and collaborative problem solving yet may not have been motivated to act on the lessons from this training.

Supporting this idea, research on training motivation, which is defined as the direction and persistence dedicated towards learning behavior when exposed to training (Colquitt, LePine, & Noe, 2000), indicates that motivation to act on the lessons from training is dependent on a large number of factors. One such factor contributing to training motivation is goal commitment (Kim, Oh, Chiabruru, & Brown, 2012; Noe, 1986). Because the simulation used in this study was an activity in which participants received course-credit for participation regardless of their performance, students likely had differing levels of commitment and dedication to actively participating in the simulation. Some students likely worked toward achieving their goals and were focused on success in the simulation while others may have been distracted by other commitments and may have been less devoted to their goals in the simulation. In other words, goal commitment and thus motivation to learn from the training were likely variable in this sample. Providing support for this assertion that goal commitment varied amongst participants in the training, I collected data on goal commitment during the simulation (using a scale not included in this dissertation) and analyses of this data indicated that there was indeed variability in participants' goal commitment in the training condition ($M = 4.32$, $minimum = 2.20$, $maximum = 7.00$, $SD = .71$).

Alternatively, it is possible that those who were underwent the prosocial competency training focused on the role structure in the simulation to facilitate effective

and efficient communication and collaboration. The communication and collaborative problem solving competencies emphasized that all relevant perspectives should be incorporated into decisions and that interactions between teammates should avoid bottlenecks by communicating and collaborating with team members who have the most pertinent expertise (Stevens & Campion, 1994; 1999). Thus, rather than encouraging all team members to communicate and collaborate with their team members equally as hypothesized, perhaps teams who underwent the prosocial competency training recognized that certain roles were more important for team success (supplemental analyses indicates that goal accomplishment for those in the leader role was the most critical for team success). Thus, due to the role structure of the simulation, these individuals may have been focused on the critical and relevant relationships in order to be efficient in communications and avoid bottlenecks in making decisions, thus explaining the positive relationship between training and differentiation.

In summary, prosocial competency training unexpectedly increased differentiation in this simulation. I offer two possible explanations for this finding, one which focuses on training motivation and one that focuses on the role structure in the simulation. These explanations do not only help to explain the positive direct relationship between training and TMX differentiation, but they also help to explain the lack of findings between prosocial competency training and the quality of exchanges. If prosocial competency training increased the variance in TMX levels such that some individuals are positively impacted while others are unaffected or negatively effected, we would not necessarily expect to find a significant direct relationship between training and the quality of exchanges when the whole population is taken into account.

Accordingly, my findings regarding prosocial competency training provide unique insights for TMX theory. First, to my knowledge, this is the only study that has examined the antecedents of TMX differentiation. TMX differentiation has been examined as a moderator in the existing literature a few times, however little has been done to determine the nomological network surrounding differentiation. This is a surprising and critical oversight as research has shown that differentiation is an important factor for teams (e.g., Liao et al., 2010). The current study's findings indicate that training regarding communication and collaborative problem solving increases the variation of TMX levels in the team. This is important for TMX theory, because it establishes training as an external motivational force that enhances differentiation. Furthermore, these findings indicate that to gain a full understanding of team-based exchanges, it is critical to not only examine the drivers of TMX or TMX-team but also to understand how these factors influence TMX differentiation. Whereas prosocial competency training has an important effect on team-based exchanges via its positive influence on TMX differentiation, it did not have a significant direct relationship with TMX or TMX-team in the current study. Thus, this research provides evidence that examining relationships between proposed antecedents and TMX or TMX-team can lead to an incomplete understanding of the team processes that are occurring if the relationship with differentiation is not also considered. Thus, these findings expand our knowledge regarding TMX theory such that they illuminate that exclusively focusing on the antecedents of TMX and TMX-team and disregarding how these factors influence differentiation may lead to an incomplete or flawed understanding of exchange relationships within teams.

Moving to the outcomes of TMX and TMX-team, I next sought to address the question, *Does TMX differentiation in teams serve as a boundary condition on the empowering effects of TMX and TMX-team?* Prior research has consistently proposed that TMX would increase psychological empowerment, yet these hypotheses received varying degrees of empirical support (Chen & Klimoski, 2003; Liden et al., 2000). Building from this prior research and using social comparison theory as a theoretical basis, I proposed TMX differentiation as an important boundary condition to the relationship between TMX and psychological empowerment. Interestingly, the results demonstrated a strong direct relationship between TMX and psychological empowerment existed, but did not find differentiation to be a significant moderator of this relationship. The theoretical implications of these results are two-fold.

First, this study was similar to Chen and Klimoski's (2003) prior research, which likewise found a strong relationship between exchanges and empowerment, such that both studies involved participants who were new to their role and team—Chen and Klimoski's study focused on newcomers to teams and the current study was composed of participants that were only recently introduced to their team and role in the simulation. In contrast, Liden and colleagues (2000), whose prior research did not find a link between TMX and psychological empowerment, examined individuals who were vastly more tenured and had been with their organization for over ten years on average and in their current role for over four years on average.

Perhaps the current findings indicate that there may be different empowerment processes occurring for those who are new to their role and team. Whereas tenured employees may be influenced by a host of both team and organizational factors that they

have come to observe over their tenure, individuals new to their team are primarily influenced by their direct surroundings until they can acclimate to this context "since the proximal work group provides immediate work and socio-cultural environment within the which the new recruit must learn" (Anderson & Thomas, 1996; p. 423). Therefore, whereas those who have more tenure may be empowered by a vast array of factors such as structural characteristics, work design, organizational leadership, and organizational support in addition to the characteristics of their team and teammates (Maynard et al., 2012; Seibert et al., 2011), individuals new to their team are more likely to attend to their immediate team context in their initial time together (Anderson & Thomas, 1996). This is especially relevant in the current context of the simulation where many of these factors external to the team, such as structural empowerment and leadership, were not present to influence empowerment. Without these additional factors that typically account for significant variance in psychological empowerment (Maynard et al., 2012; Seibert et al., 2011), the effect of the relationships within the team would likely be prominent. This suggests that the extent to which TMX is empowering may be dependent on the relevance and prominence of team-based interactions and may be a result of tenure. Team members who are especially attuned to their team surroundings, as was the case in the current study in which the team was the main unit of analysis, are likely to be empowered by the quality of relationships that form in this context.

The second theoretical implication of these findings is that TMX differentiation may not represent a social comparison process as proposed. The results demonstrate that TMX differentiation did not moderate the relationship between TMX and psychological empowerment. In proposing TMX differentiation as a moderator of this relationship, I

made the assumption that differentiation was indicative of the strength of social comparisons such that high levels of differentiation would encourage team members to contrast themselves against one another. However, as differentiation did not have this hypothesized effect, this suggests that perhaps differentiation may be representative of an entirely different aspect of team interactions. Consistent with this idea that TMX differentiation may not represent social comparisons, the direction of the moderating effect of differentiation on the relationship between TMX-team and team empowerment was also unexpected.

I proposed that strong social comparison opportunities in teams, as evidenced by high levels of differentiation, would be associated with a fragmented and less effective team, thus limiting the empowering effect of TMX-team. However, the results demonstrated that TMX differentiation actually enhanced the relationship between TMX-team and team empowerment. Therefore, consistent with the findings at the individual level, one potential theoretical explanation for these findings is that TMX differentiation represents a team process other than social comparisons. Although TMX differentiation is a relatively new construct, parallel literature on LMX differentiation has similarly indicated that increased levels of differentiation may represent a beneficial division of labor and status (Liden et al., 2006) rather than a detrimental contrasting comparison process. The rationale for these arguments pulls on role theory and Stogdill's (1959) assertion that "a differentiated role structure has utility in enabling the members to operate upon a complicated and continuing task, each in accord with his specialized skills and abilities" (p. 133). In other words, differentiation may represent a subdivision of labor and status that allows for individuals to apply their skills in a manner that is most

effective for the group (Liden et al., 2006). This perspective on differentiation is consistent with literature on administrative theory (Massie, 1965), which contends that those who are critical to the functioning of an organization, such as decision-makers or leaders, should have clear and unambiguous authority in order to make effective decisions because "the diffusion of power makes it difficult to take any decisive actions" (Miller & Friesen, 1977; p. 268).

This need for a division of labor and decisive actions is especially relevant in the current context where there are strong goal asymmetries and goal conflicts and short deadlines within the team. For an example, the photographer in the simulation has an individual goal to stay at both camps 1 and 2 for an extra day. However, the team as a whole could attain more success (via the cumulative points earned) if the photographer acquiesces his or her individual goal for the leader's goals of keeping the team together through the entire climb (Roberto & Edmondson, 2011). Because the photographer's decision whether or not to stay an extra day at camps 1 and 2 occurs within the first rounds of the simulation, the team must quickly recognize these goal asymmetries and determine the best course of action. The supplemental analyses indicated that indeed the role structure of the simulation is critical to understanding the proposed relationships. For example, the leader's goal accomplishment was the most significant predictor of team performance (see Table 22). Furthermore, TMX quality demonstrated a unique pattern of relationships with goal accomplishment across the roles (see Table 23). These findings indicate that some roles might be more central and significant for team success. This inference is consistent with theory on the strategic core, which explains that "certain team roles are most important for team performance and that the characteristics of the role

holders in the "core" of the team are more important for overall team performance"
(Humphrey, Morgeson, & Mannor, 2009; p. 48). Further supporting this idea, research
has demonstrated that teams with strong goal asymmetries as is the case in the Everest
Simulation are likely to be most successful when they have an effective planning process
such that they "devise a plan for coordinating and prioritizing member goal attainment to
minimize goal conflicts and maximize team performance" (Pearsall & Venkataramani,
2015; p. 738).

In order for team members to develop this plan for coordinating and prioritizing
goals, team members must first recognize the importance of acquiescing their individual
goals for the benefit of the team (Cronin & Weingart, 2007). For this to occur, team
members may need to form differing quality relationships with one another such that they
are loyal and defensive of certain teammates who have the most valuable skills and
expertise, whereas other relationships may be better suited as matter-of-fact and less
developmentally focused or friendship oriented. This focus on differing quality
relationships should not be viewed as ostracizing or shunning certain members of the
team, rather it should be viewed as an efficient use of team member's limited resources as
they must rapidly determine how to best attain team success (Maule & Edland, 1997).
When individuals must make rapid decisions with incomplete information, it is important
to effectively cope with these uncertainties in order to avoid making detrimental
decisions (e.g., Corso & Lobler, 2011; Janis & Mann, 1977). When the short-cuts used to
make decisions under uncertainty are well adapted to the structure of the environment,
they are likely to be most effective (Gigerenzer & Goldstein, 1996; Goodie & Crooks,
2004). Thus, it is critical that decisions that are made under time-pressures and goal

asymmetries, as is the case in the current simulation, are made through attending to the most relevant information. In order to do so, teams may need to focus their efforts and relationships with those in the simulation that are most suited for their current needs.

For example, the environmentalist starts wheezing early in the simulation. In order to successfully figure out how to deal with this health issue, the environmentalist must share the relevant health information presented to him/her along with eliciting certain information from others. If this information is appropriately communicated, the team will make the correct decision for the environmentalist's health and will be awarded an extra point for successfully passing the Medical Challenge. Focusing on these exchanges to and from the environmentalist would be associated with increased differentiation, because the quality of relationships that team members hold with the environmentalist would be strengthened whereas others would be emphasized less and thus attenuated, allowing the team to effectively and efficiently use its limited resources. In the supplemental analyses (see Table 21), we see that this does indeed happen in the simulation, such that the TMX quality of the environmentalist is significantly and positively related to TMX differentiation. In conclusion, through a combination of generally high quality exchanges and differentiation such that the important exchanges are emphasized, the team is likely to be more confident in it's ability to succeed, is likely to better perceive the impact of its actions, and is likely to feel capable of acting autonomously, thus explaining the positive influence of TMX differentiation on the relationship between TMX-team and team empowerment.

This finding is critical for TMX theory because it provides insights that universally high levels of TMX within a team may not always be the most motivating or

beneficial for teams. Teams that are subject to goal asymmetries, incomplete information, and time pressures, as was the case in the current study, may require some team members to become role-players whereas others adapt a more influential position over the team. When this differentiation in relationships accompanies teams that have generally above-average quality relationships, it promotes team empowerment. Thus, the current study provides evidence that TMX-team offers an incomplete understanding when it is not considered in conjunction with TMX differentiation; examining the joint effect of TMX and TMX differentiation can help us to best understand the motivational outcomes of relationships within teams.

A final intended contribution of this study was to examine the impact of TMX and TMX-team on performance and viability through addressing my last research question, *Does empowerment serve as a motivational mechanism linking TMX and TMX-team to task performance and viability, and are these effects conditional on TMX differentiation?* At the individual level, TMX had a significant direct relationship with peer-rated performance and viability along with an indirect relationship through psychological empowerment. TMX is empowering because it provides individuals with relationships and resources that promote feelings of competence, improve one's ability to see the big picture, and allow one the standing to act autonomously. Whereas previous research has demonstrated that contextual antecedents such as socio-political support are associated with empowerment (Seibert et al., 2011) and empowerment provides a lever leading to employee success (Maynard et al., 2012), this current study extends what has been found in these prior studies through emphasizing the relational basis of these connections. The current results make a contribution through demonstrating that in self-managed teams,

TMX is a significant predictor of perceptions regarding performance along with the individual's intention to remain a member of the team via psychological empowerment. However, TMX also has a strong direct relationship with peer-rated performance and viability, indicating that psychological empowerment may not be the only transmitting mechanism in these connections. Accordingly, other factors beyond psychological empowerment are also likely to transmit the effect of TMX to these outcomes.

Interestingly, although TMX was connected with the ultimate outcomes of peer-rated performance and viability, TMX did not have an indirect or direct relationship with objective performance. Perhaps this lack of findings is due to the nature of performance in this simulation and the goal asymmetries that existed. Individual objective performance was measured as the percentage of individual goals that were obtained during the simulation. However, the simulation is set up such that there is goal conflict and asymmetry built into the team's tasks and individual goals are often in contrast with one another and sometimes are not in the best interest of the team as a whole (Roberto & Edmondson, 2011). For instance, the team would be more successful as a whole if all of the team members stayed together throughout the entire climb, however team members may instead choose to stay an extra day at certain camps alone in order to accomplish their individual goals (Roberto & Edmondson, 2011). In other words, the individual objective performance measure was a measure of individual goal accomplishment, although the team often benefitted when some of these individual goals were not pursued. According to representational gap theory (Cronin & Weingart, 2007), individuals in teams often have an imperfect understanding of the goals of other team members, however engaging in productive team processes can illuminate these team members'

asymmetrical goals (Pearsall & Venkataramani, 2015). Building from this perspective, it is likely that those individuals who had high levels of TMX in the simulation would be more likely to share information with their team members and therefore would be more attuned to overall goal structure within the team. Thus, high levels of TMX would allow individuals to attend to not only their individual goals but also to fill representational gaps regarding other team members' goals and how these goals impact the team as a whole. In summary, because individual objective performance was often in contrast to team performance, it is not surprising that individuals who actively exchanged feedback, advice, and support with their teammates did not accomplish all of their individual goals. These individuals likely worked towards their team goals at the expense of their individual goals, thus providing an explanation why TMX was not significantly related to objective performance in the current context.

Finally, at the team level, this study addresses an important uncertainty in TMX theory regarding the relationship between TMX-team and team success. The existing literature on TMX-team has found mixed results concerning the relationship with team effectiveness such that some studies have found a positive connection whereas others have failed to find a significant effect (e.g., Cogliser et al., 2013; Jordan et al., 2013; Liu et al., 2011). The current study provides insight into these mixed findings through demonstrating that the relationship between TMX-team and team success can best be understood when incorporating the mediator of team empowerment and the boundary condition of differentiation. As these findings were robust across three measures of team success—a subjective team-rated measure of perceived performance, an objective measure of goal accomplishment, and a subjective team-rated measure of team

viability—this provides strong evidence that the relationship between TMX-team and team success is more complicated than previously predicted.

As the previous studies that examined the outcomes of TMX-team largely did not consider differentiation, this provides potential insights into the null findings in these studies such that they may have been the result of low levels of differentiation in these teams. Accordingly, the current study's results provide two important contributions for TMX theory. First, in assessing the relationship between the teamwork process of TMX-team and the team outputs, it is important to consider the intervening emergent states that impact this relationship. Examining team empowerment in the current study offered a unique viewpoint on the motivational state that transmitted the effect of TMX-team to the outputs of performance and viability. A second contribution is the finding regarding TMX differentiation. Especially in a context similar to the simulation where there are strong goal asymmetries and time pressures, it is critical to not only understand the effect of average level of TMX within the team on outcomes but also to consider the variation in relationship quality within these teams. The results of this study demonstrate that TMX-team was only related to performance and viability when differentiation was high and not when it was low. This indicates that TMX-team promotes team success via team empowerment only when the quality of relationships differ within the team, perhaps because this differentiation supports the goal asymmetries and role differentiation needed to be successful in this context. Conversely, when differentiation is low such that the quality of exchange relationships is relatively homogeneous across all members of the team, TMX-team does not significantly promote team success.

Managerial Implications

The use of teams is becoming increasingly prominent in organizations and is becoming ingrained in the way companies function. Supporting this assertion, a recent Ernst & Young survey of 821 business executives reported that almost 9 out of 10 business executives believed that teamwork was essential for addressing the complex problems facing organizations ("How Companies Use Teams to Drive Performance," 2013). Despite the prominence of teams in organizations, the performance of these teams is all-too-often lackluster and disappointing (e.g., Wartzman, 2013). One way to explain this unsatisfactory performance is to examine the team processes that contribute to team success or the lack thereof (Ilgen et al., 2005; Mathieu et al., 2008). Through adopting a motivational perspective to examine one such critical teamwork process, TMX, this study has several important implications for managers.

One important practical implication of the current study is the findings that collectivism is beneficial for teams such that it enhances TMX. The results demonstrate that collectivism is a strong predictor of relationship quality such that individuals who are high on collectivism are more likely to provide information, advice, support, and feedback to their teammates and are similarly likely to receive these benefits in exchange. Accordingly, in order to form effective teams, managers can assess the likelihood that team members will make strong exchange-based contributions to the team through examining levels of collectivism. In practice, collectivism can be used as an important screening mechanism when recruiting team members along with an important diagnostic mechanism for understanding why teams may not be effectively working together.

A second practical contribution of this study is the findings regarding prosocial competency training and TMX differentiation. The results indicate that prosocial

competency training increases TMX differentiation. Managers should be aware that although prosocial competency training did not directly affect TMX levels, the training can benefit a team's motivation and performance outcomes via increasing differentiation. As TMX differentiation was shown to enhance the relationships between TMX-team, team empowerment, and team outcomes, likely because it encouraged effective role differentiation, managers can benefit from utilizing prosocial competency training. It is important to note that this lesson is particularly applicable for teams that are similar to the simulation context used in this study such that the teams need to deal with goal asymmetries and goal conflicts and are subject to time constraints. Thus, a practical implication of the current study is that managers may benefit from implementing prosocial competency training within their teams.

With regards to the outcomes examined in this study, empowerment has been consistently recognized as a mechanism for motivating both individual and team success (Maynard et al., 2012; Seibert et al., 2011). The current study not only reinforces the relationship between psychological empowerment and individual performance and viability and the relationship between team empowerment and team performance and viability, but it also establishes TMX and TMX-team, under high levels of differentiation, as important contributors to psychological and team empowerment, respectively. Thus, the current study can inform managers that an effective way to manage the performance and viability of individuals within teams and of the team as a whole is through encouraging team members to engage in high quality relationships with one another. Performance and viability were improved at the individual and team-level via increased levels of empowerment when teams members exchanged advice, support, and feedback

with one another. Accordingly, managers can stimulate such high quality relationships

through encouraging team members to support one another, actively swap information,

and provide encouragement to others within the team. Further, managers can set aside

time for team members to focus on developing these quality relationships rather than

solely focusing on the task-work within the team.

Limitations & Future Directions

A first limitation of this study involves the use of a student sample through a

simulation. Although the Everest simulation has been used in prior management research

(e.g., Pearsall & Venkataramani, 2015; Tost, Gino, & Larrick, 2013) and student samples

are commonplace in both the TMX (e.g., Alge et al., 2003; Dierdorff & Ellington, 2012;

Jordan et al., 2002) and greater management literatures (e.g., Cerne, Nerstad, Dysvik, &

Skerlavaj, 2014; Christian & Ellis, 2011), there are some drawbacks to this sample. First,

there could be concerns regarding the external validity of this sample and its

generalizability to the workplace. The exchange of information, feedback, support, and

advice in student-based simulation teams may not fully represent the team-based

exchanges that occur in the more general workplace. Teams in the general workplace

may have more complex reward and task structures and may have more complex

dynamics due to organizational factors and policies, and therefore they may require the

consideration of additional factors that were not included as part of the simulation.

Furthermore, as the participants in this sample were undergraduate students, they were

relatively homogeneous with regards to age (92.3% of participants were between 20 and

23 years old), which is not consistent with the overall workforce. Because of such, this

study may be best generalized to employees in this age-group and may be limited in its

generalizability to a larger population since it cannot take into account the age dynamics and potential age faultlines that often occur in organizational teams (Bunderson & Sutcliffe, 2002; Kunze & Bruck, 2010; Kilduff Angelmar, & Mehra, 2000). Furthermore, students in this sample generally had low levels of prior work experience (53.6% had less than one year of work experience whereas 32.0% of participants had between one and two years of work experience and only 14.5% of participants had more than two years of work experience). Thus, the experiences of these students may be different than employees in the broader workplace, especially those who have had more extensive prior experience working in organizational teams. Based on these factors, the current study would be the most generalizable to teams with relatively young and inexperienced members who are relatively new to their team and task, as was the case in the simulation context. This is an important group to understand as the literature examining newcomers in teams is relatively nascent (Chen & Klimoski, 2003). Yet, despite this applicability to an important and relevant population, future research should explore how the current findings apply to the more general workforce, including to employees with more tenure and age diversity.

Along the same lines, an additional limitation of this study is that the teams in the simulation were limited in duration such that they were only put into place for a brief time period (2 hours and 15 minutes on average) and then disbanded. Despite this time restraint, teams in the simulation still had to deal with a number of problems that are common to many types of teams. For example, teams in the simulation had to deal with the common team issues of information and goal asymmetry (Roberto & Edmondson, 2011), such that the members of the team were each given unique information and they

needed to develop a way to effectively communicate this information in order to be successful. Despite the realism of such issues to the issues often faced by teams in the workplace, it is possible that due to time restraints, the teams in this sample may not have had the time to form as intricate or dynamic relationships as are commonplace in teams that are together for longer periods of time. Similarly, the teams in this sample were put together as ad hoc in-person project teams. As such, the results of this study may or may not be generalizable to other types of teams—such as action teams or virtual teams. To address these concerns, future research should replicate and extend the current study in field settings and with a variety of different team structures.

Additionally, while most of the data for this study was collected using surveys, I undertook a number of tactics to minimize the risk of common method bias with the current study. First, I utilized multiple sources of data when possible. More specifically, multiple members of the team rather than just the focal employee completed measures regarding team mean collectivism, TMX-team, subjective individual and team performance, and team viability. Additionally, prosocial competency was operationalized via a training manipulation. Furthermore, objective performance measures were obtained from the simulation itself. Second, data were collected at multiple times during the simulation. Through employing surveys at different points in time, I was able to temporally separate the collection of data and thus reduce the likelihood of common method bias impacting my results. Third, participants in the simulation were continuously reassured that their responses were anonymous and confidential, which has been recommended as a tactic to reduce social desirability with survey data collection (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Despite these strengths in utilizing a

unique setting to examine my research questions and thus reducing the likelihood of common method bias, future studies should seek to use different designs and replicate the current results. For example, field studies that allow for the collecting of data from multiple sources within an organization longitudinally would be a constructive replication of this study.

The measure of individual objective performance could be considered an additional limitation in the current study. Although this measure was taken directly from the performance measure used in the simulation, this measure does not account for the fact that high-performing team members may have given up their individual goals if they were in contrast to the team goals or were detrimental to other team members. Although this is consistent with what often occurs in organizations, such that employees must weigh the benefits of focusing on individual versus team goals, goal accomplishment may not be the best way to measure performance. To overcome this limitation, I collected a second measure of performance (i.e., peer-rated performance). Whereas the measure of objective performance from simulation does not account for contributions to the team goal, the peer-rated performance measure helps to overcome this shortcoming by introducing a second approach to measuring performance that focuses on teammates' perceptions of performance. Because teammates were asked to rate the individual's overall performance, this measure accounts for factors beyond individual goal accomplishment and is likely to include one's contribution to the team. In addition to these two approaches to measuring performance, future research could benefit from expanding on the current measures through exploring the impact of exchanges on

different types of performance (such as promotability) and different sources of performance ratings (such as supervisor's evaluations of employee performance).

An additional limitation of this study could be considered the conceptualization of TMX. In the current study and in numerous others, TMX has been viewed through the same lens as other exchange based constructs and has been based on the tenets of social exchange theory. Specifically, social exchange theory assumes that workplace relationships such as TMX are based on the norms of obligation and reciprocity (Blau, 1964). Furthermore, social exchange theory explains that parties to relationships negotiate their expectations and engage in interactions based on their desire for mutuality in exchanges (Blau, 1964; Cropanzano & Mitchell, 2005; Emerson, 1976; Homans, 1961; Jacobs, 1970). However, it is possible that TMX is different from other exchange-based relationships such that high quality TMX relationships may be the result of other processes—such as team members' affective commitment to the team (Johnson & Yang, 2010)—that do not require obligation or reciprocity but rather account for an individual's desire to assist and support those around themselves. Alternatively, TMX may be the result of a combination of reciprocity and other factors, such as friendship and affective commitment.

Other researchers have questioned the extent to which TMX is similar to other exchange-based constructs, explaining all social exchanges may require their own theoretical underpinning regarding the resources that are exchanged. For example, Liao and colleagues (2010) noted, "studying social exchanges in teams without consideration of the specific resource being exchanged may lead to flawed expectations" (p. 1103). Thus, I echo this limitation in the current study through acknowledging that future

research should explore the extent to which TMX is solely based on the norms of exchange and reciprocity as assumed in this dissertation and further explore how team-based exchanges are similar or different from other types of exchanges.

An additional limitation could be considered the conceptualization and measurement of TMX based on the assumption that team members think of their team as a psychological object. Although this assumption is consistent with TMX theory (Seers, 1989) and is consistent with the way TMX has been measured in all of the existing TMX literature, this operationalization of TMX assumes that individuals can conceptualize their team as a whole and a homogenous unit. For example, the items in the scale used in this study (e.g., "My teammates are the kind of people one would like to have as friends"; Liden et al., 2000) make the assumption that team members form relatively homogeneous relationships with all of their teammates and therefore can make general inferences about the team as a whole. However, there is a large literature that indicates relationships within teams may be more fractured than TMX theory proposes. For instance, there is extensive research on faultlines, which are "hypothetical dividing lines that split a team into relatively homogeneous subgroups" (Thatcher & Patel, 2011; p. 1119). Faultlines may make it difficult to categorize the group as a whole. Similarly, differences in demographic and personality characteristics may be related to in- and out-groups (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990; Lau & Murninghan, 1998) and such relational dissimilarity may lead to discounting a team member's contribution to the team (Price, Harrison, & Gavin, 2006). Thus, future research could benefit from revisiting the conceptualization and measurement of TMX and consider that team-based

relationships may be more splintered and less cohesive than both the theory and measurement of TMX currently assume.

Lastly, the current context provided the opportunity to examine teams who are self-managed without a formal or appointed leader. Thus the current study provides unique insights into these types of teams, however it is significant to note that I was unable to account for the effects of a formal leader or LMX in this study. Importantly, although one of the roles in the simulation was termed a "leader," this individual was not given any incremental power or status beyond the other roles in the simulation. Accordingly, data on LMX was neither collected nor available due to the self-managed structure of these teams. However, much of literature on TMX has concluded that the effect of TMX may be limited when LMX is taken into account (Banks et al., 2013) and should be examined as an incremental influence over LMX (Liao et al., 2010). Thus, although this context provided the opportunity to examine TMX in self-managed teams, this sample does not provide the opportunity to simultaneously account for LMX, which is a prominent component of many other types of teams. As such, future research should examine the discussed relationships in teams that allow researchers to consider the incremental effect of the explored relationships when accounting for LMX levels.

Conclusion

TMX is an exchange-based construct that was introduced to capture the reciprocal give-and-take of feedback, advice, and support between an individual and his or her team (Seers, 1989). This study contributes to the theory on TMX through adopting a motivational perspective to examine the multi-level antecedents and consequences of TMX. The current research demonstrates that prosocial motivation is an important

precursor to team-based exchanges. Prosocial motivation in the form of trait-based

collectivism positively influenced the level of exchanges within the team whereas

prosocial motivation in the form of competency training increased TMX differentiation

within the team. Further, the current research demonstrates the importance of team-based

exchanges through establishing relationships between these exchanges and empowerment,

performance, and viability. Psychological empowerment was shown to connect

individual level TMX to the outcomes of individual viability and peer-rated performance.

Similarly, team empowerment was shown to connect TMX-team to the outcomes of team

viability, subjective team performance, and objective performance. Additionally, the

current study provides insights into the role of TMX differentiation in teams, such that

differentiation enhanced the relationship between TMX, team empowerment, and the

ultimate outcomes. In summary, the current dissertation contributes to the literature

through expanding our knowledge of TMX theory, prosocial motivation, empowerment,

and team success.

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Appendix A: Figured and Tables

Figure 1. *Hypothesized Model*
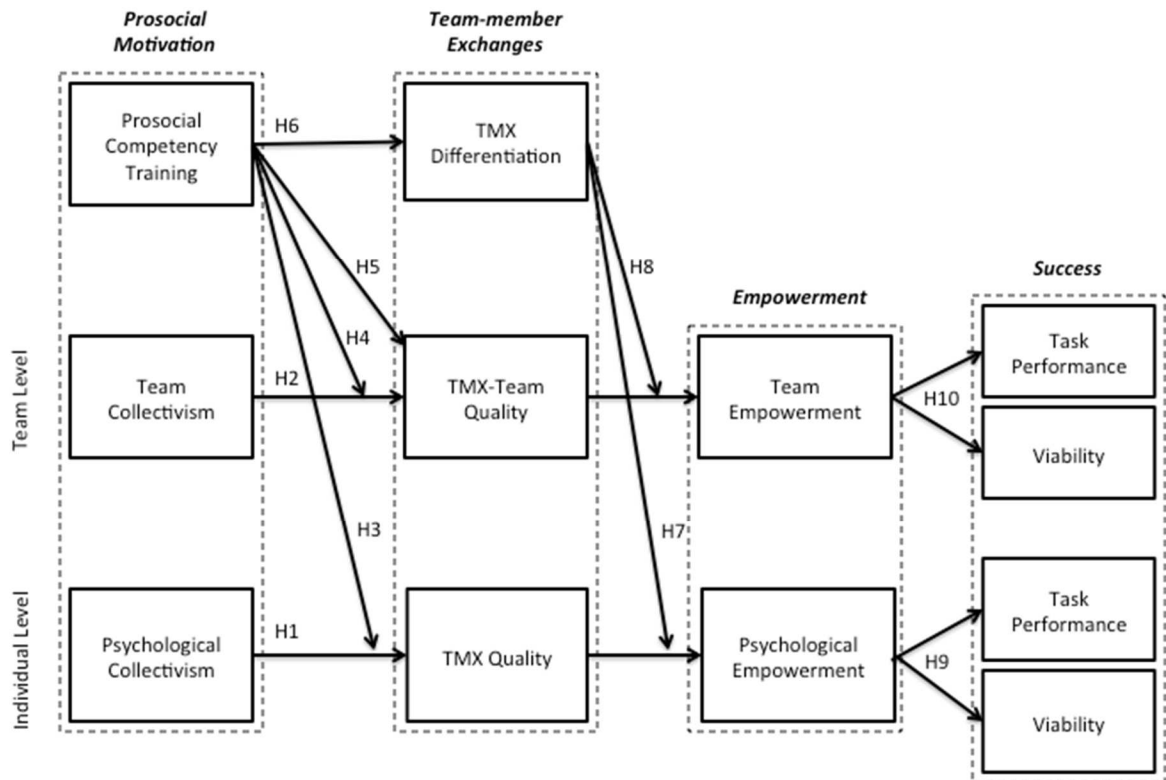
Figure 2. *Effect of TMX-team and TMX differentiation on Team Empowerment*
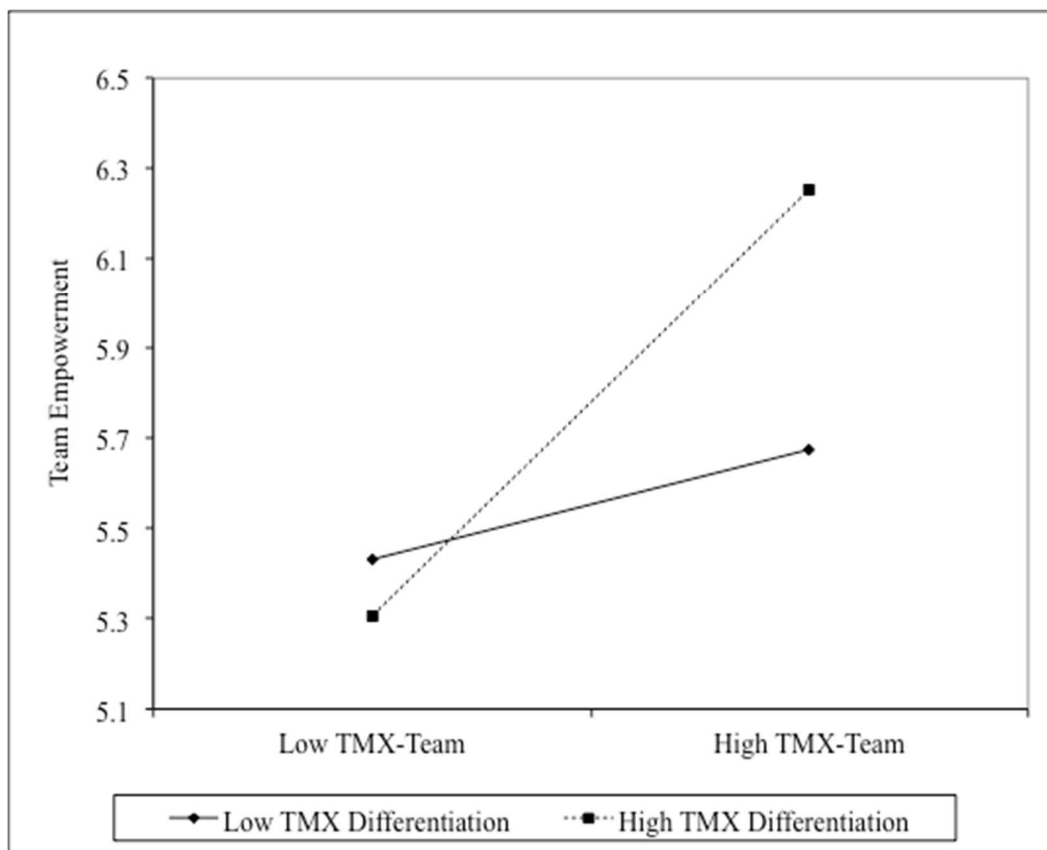
Table 1. *Outlier Analysis*

			Z-Score	
Level	*Team Number*	*Individual Role*	*Variable*	*Z-Score*
Team	222	n/a	Team Performance	-3.45
Team	143	n/a	Team Viability	-3.45
Team	127	n/a	Team mean collectivism	3.30
Team	144	n/a	TMX Differentiation	3.04
Team	165	n/a	TMX Differentiation	3.06
Team	162	n/a	TMX Differentiation	4.24
Individual	162	5	TMX	-4.28
Individual	144	2	TMX	-3.45
Individual	155	2	TMX	-3.31
Individual	162	1	TMX	-3.17
Individual	165	4	TMX	-3.03
Individual	215	1	Psychological Empowerment	-3.71
Individual	153	1	Psychological Collectivism	-4.44
Individual	167	4	Psychological Collectivism	-4.44
Individual	243	1	Psychological Collectivism	-3.52
Individual	147	2	Psychological Collectivism	-3.13

			Mahalanobis D^2	
Level	*Team Number*	*Individual Role*	*Mahalanobis D^2*	*Probability of Mahalanobis D^2*
Team	162	n/a	21.0166	.0008
Individual	162	5	35.565	.0000
Individual	167	4	31.605	.0000
Individual	153	1	20.566	.0001

			Studentized Residuals	
Level	*Team Number*	*Individual Role*	*Regression Examined*	*t-value*

Team	162	n/a	Collectivism & Training → TMX-Team	-2.82
Team	215	n/a	Collectivism & Training → TMX-Team	-2.35
Team	174	n/a	Collectivism & Training → TMX-Team	-2.28
Team	121	n/a	Collectivism & Training → TMX-Team	-2.22
Team	127	n/a	TMX-Team & Differentiation → Emp	-3.03
Team	155	n/a	TMX-Team & Differentiation → Emp	-2.53
Team	121	n/a	TMX-Team & Differentiation → Emp	2.46
Team	222	n/a	TMX-Team & Differentiation → Emp	-2.02
Team	143	n/a	Empowerment → Team Rated Perf	-3.33
Team	124	n/a	Empowerment → Team Rated Perf	-2.51
Team	222	n/a	Empowerment → Team Rated Perf	-2.48
Team	135	n/a	Empowerment → Team Rated Perf	-2.44
Team	228	n/a	Empowerment → Objective Performance	2.91
Team	221	n/a	Empowerment → Objective Performance	-2.31
Team	229	n/a	Empowerment → Objective Performance	-2.26
Team	176	n/a	Empowerment → Objective Performance	2.25
Team	165	n/a	Empowerment → Objective Performance	-2.03
Team	344	n/a	Empowerment → Objective Performance	-2.00
Team	143	n/a	Empowerment → Viability	-3.85
Team	763	n/a	Empowerment → Viability	-3.31
Individual	162	5	Psychological Collectivism → TMX	-3.79
Individual	144	2	Psychological Collectivism → TMX	-3.46
Individual	162	1	Psychological Collectivism → TMX	-3.41
Individual	155	2	Psychological Collectivism → TMX	-3.36
Individual	165	4	Psychological Collectivism → TMX	-3.29
Individual	174	4	Psychological Collectivism → TMX	-3.23
Individual	167	4	Psychological Collectivism → TMX	3.05
Individual	162	5	TMX → Psychological Empowerment	3.96
Individual	236	3	TMX → Psychological Empowerment	-3.26
Individual	215	1	TMX → Psychological Empowerment	-3.20
Individual	237	5	TMX → Psychological Empowerment	-3.12

Individual	216	2	TMX → Psychological Empowerment	-2.86
Individual	227	3	TMX → Psychological Empowerment	-2.86
Individual	175	5	TMX → Psychological Empowerment	-2.55
Individual	236	2	TMX → Psychological Empowerment	-2.55
Individual	167	5	TMX → Psychological Empowerment	-2.36
Individual	233	3	TMX → Psychological Empowerment	-2.30
Individual	152	1	Psychological Empowerment → Perf	2.78
Individual	143	4	Psychological Empowerment → Perf	-2.60
Individual	116	3	Psychological Empowerment → Perf	2.50
Individual	111	2	Psychological Empowerment → Perf	2.46
Individual	207	1	Psychological Empowerment → Perf	2.43
Individual	116	1	Psychological Empowerment → Perf	2.32
Individual	243	4	Psychological Empowerment → Perf	2.32
Individual	145	1	Psychological Empowerment → Perf	2.29
Individual	243	3	Psychological Empowerment → Perf	2.25
Individual	154	5	Psychological Empowerment → Perf	2.24
Individual	165	3	Psychological Empowerment → Obj Perf	-2.61
Individual	152	3	Psychological Empowerment → Obj Perf	-2.57
Individual	135	4	Psychological Empowerment → Obj Perf	-2.53
Individual	174	3	Psychological Empowerment → Obj Perf	-2.52
Individual	145	3	Psychological Empowerment → Obj Perf	-2.50
Individual	121	3	Psychological Empowerment → Obj Perf	-2.48
Individual	167	4	Psychological Empowerment → Obj Perf	-2.25
Individual	165	5	Psychological Empowerment → Obj Perf	-2.06
Individual	135	5	Psychological Empowerment → Obj Perf	-2.04
Individual	124	4	Psychological Empowerment → Obj Perf	-2.03
Individual	143	4	Psychological Empowerment → Viability	-5.37
Individual	174	4	Psychological Empowerment → Viability	-4.30
Individual	155	3	Psychological Empowerment → Viability	-3.99
Individual	143	5	Psychological Empowerment → Viability	-3.86
Individual	135	4	Psychological Empowerment → Viability	-3.84

Individual	162	1	Psychological Empowerment → Viability	-3.53
Individual	155	2	Psychological Empowerment → Viability	-3.09
Individual	206	2	Psychological Empowerment → Viability	-2.64
Individual	124	2	Psychological Empowerment → Viability	-2.57
Individual	215	1	Psychological Empowerment → Viability	-2.17

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Level	Team Number	Individual Role	Regression Examined	Statistic
Individual	121	3	Psychological Empowerment → Obj Perf	-1.14

Centered Leverage

Level	Team Number	Individual Role	Regression Examined	3k/n	Statistic
Team	127	n/a	Collectivism & Training → TMX-Team	.10	.21
Team	243	n/a	Collectivism & Training → TMX-Team	.10	.12
Team	167	n/a	Collectivism & Training → TMX-Team	.10	.12
Team	162	n/a	TMX-Team & Differentiation → Emp	.10	.33
Team	165	n/a	TMX-Team & Differentiation → Emp	.10	.19
Team	121	n/a	TMX-Team & Differentiation → Emp	.10	.18
Team	144	n/a	TMX-Team & Differentiation → Emp	.10	.16
Team	222	n/a	Empowerment → Team Rated Perf	.05	.12
Team	155	n/a	Empowerment → Team Rated Perf	.05	.11
Team	174	n/a	Empowerment → Team Rated Perf	.05	.11
Team	215	n/a	Empowerment → Team Rated Perf	.05	.10
Team	222	n/a	Empowerment → Objective Performance	.05	.12
Team	174	n/a	Empowerment → Objective Performance	.05	.11
Team	155	n/a	Empowerment → Objective Performance	.05	.11
Team	215	n/a	Empowerment → Objective Performance	.05	.10
Team	222	n/a	Empowerment → Viability	.05	.12
Team	155	n/a	Empowerment → Viability	.05	.11
Team	174	n/a	Empowerment → Viability	.05	.11
Team	215	n/a	Empowerment → Viability	.05	.05

Individual	167	4	Psychological Collectivism → TMX	.05	.07
Individual	153	1	Psychological Collectivism → TMX	.05	.07
Individual	162	5	TMX → Psychological Empowerment	.05	.07

Table 2. *Outlier Statistics for Team 162*

Level	Individual Role	Outlier Test Used	Outlier Test Results
Team	n/a	Z-Score (TMX Differentiation)	4.24
Team	n/a	Mahalanobis D	21.02; p = .0008
Team	n/a	Studentized Residuals (Collectivism & Training → TMX-Team)	-2.82
Team	n/a	Centered Leverage	0.33
Individual	5	Z-Score (TMX)	-4.28
Individual	1	Z-Score (TMX)	-3.17
Individual	5	Mahalanobis D	35.57; p = 0.000
Individual	5	Studentized Residuals (Collectivism → TMX)	-3.79
Individual	1	Studentized Residuals (Collectivism → TMX)	-3.41
Individual	5	Studentized Residuals (TMX → Psychological Empowerment)	3.96
Individual	1	Studentized Residuals (Psychological Empowerment → Viability)	-3.53
Individuals	5	Centered Leverage (TMX → Psychological Empowerment)	0.07

Table 3. *Team Member Roles*

Role	Background
Leader	Experienced mountaineer who has summited Everest 5 times.
Physician	Tenured medical professor with publications in top medical journals. (S)he has summited mountains before, but none about 8000 meters.
Photographer	Emmy award winner with award-winning photography and documentaries. Has summited Everest twice.
Marathoner	Runner in top physical condition who has won many marathons, however (s)he has asthma. (S)he has summited the tallest mountain in North America.
Environmentalist	The most accomplished mountaineer in Italy. (S)he has summited Everest twice. (S)he had acute mountain sickness during a recent expedition in the Himalayas, but has not shared this with the team.

Table 4. *Null Model for Hierarchical Linear Modeling Analyses*

Dependent Variable	χ^2	*p*
TMX	89.03	.006
Psychological Empowerment	61.12	.364
Peer-rated Individual Performance	102.60	<.001
Objective Individual Performance	197.43	<.001
Individual Viability	131.34	<.001

Table 5. *Correlations and Descriptive Statistics at the Individual Level*

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Familiarity	1.24	.44	*n/a*									
2. Sex	1.40	.49	-.05	*n/a*								
3. First Language	1.26	.44	.14*	.14*	*n/a*							
4. Psych Collectivism	4.84	.86	.17**	-.10	.12*	*(.90)*						
5. Prosocial Training	1.49	.50	.00	.05	.02	-.04	*n/a*					
6. TMX	5.77	.76	.15**	.03	.10	.25**	.07	*(.90)*				
7. Psych Empowerment	5.10	.90	.16**	.05	.03	.15*	-.06	.38**	*(.90)*			
8. Peer-rated performance	3.63	.59	.08	.02	-.06	.02	.03	.44**	.33**	*(.93)*		
9. Objective Performance	53.62	21.50	-.08	.09	-.05	-.08	-.04	-.05	.04	.14*	*n/a*	
10. Individual Viability	5.95	.99	.08	-.05	.04	.07	-.02	.55**	.36**	.44**	.09	*(.90)*

Note: * $p < .05$, ** $p < .01$; Sex (1 = Male, 2 = Female); First Language (1 = English, 2 = Other Language); SD = Standard Deviation; Prosocial Training = Prosocial Competency Training; Psych Collectivism = Psychological Collectivism; Psych Empowerment = Psychological Empowerment; Reliabilities are listed along the diagonal

Table 6. *Correlations and Descriptive Statistics at the Team Level*

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Familiarity	1.24	.27	n/a										
2. Sex	40.34	24.21	-.28*	n/a									
3. First Language	26.19	21.72	.00	.35**	n/a								
4. Team mean collectivism	4.84	.39	.24†	.04	.15	n/a							
5. Prosocial Training	1.49	.50	.01	.10	.04	-.01	n/a						
6. TMX-Team	5.77	.40	.11	-.14	-.03	.24†	.13	n/a					
7. TMX Differentiation	.53	.45	-.13	.09	-.11	-.11	.24†	-.28*	n/a				
8. Team Empowerment	5.64	.49	.07	-.09	-.07	-.19	-.06	.53**	-.08	(.94)			
9. Subj Performance	5.87	.63	-.02	-.04	-.11	-.22†	.10	.50**	-.04	.78**	(.95)		
10. Obj Performance	.55	.14	-.10	.07	-.19	-.27*	-.02	-.02	-.20	.32*	.38**	n/a	
11. Team Viability	5.38	.61	-.14	.12	-.06	-.11	.08	.59**	.03	.66**	.70**	.15	(.78)

Note: † $p < .10$, * $p < .05$, ** $p < .01$; SD = Standard Deviation; Sex = Percentage Female; First Language = Percentage not English; Prosocial Training = Prosocial Competency Training; Subj Performance = Peer-rated performance; Obj Performance = Objective Performance; Reliabilities are listed along the diagonal

Table 7. *Hierarchical Linear Modeling Analyses Examining the Effect of Psychological Collectivism and Prosocial Competency Training on TMX (H1 & H3)*

	Model 1			Model 2			Model 3		
	γ	SE	p	γ	SE	p	γ	SE	p
Level 1 Relationships									
Intercept	5.77**	.05	.001	5.77**	.05	.001	5.78**	.05	.001
Familiarity	.23	.13	.074	.24	.10	.022	.20*	.10	.047
Sex	.17	.10	.077	.06	.09	.472	.11	.09	.212
First Language	.16	.11	.141	.16	.10	.124	.12	.10	.235
Psychological Collectivism	.20**	.06	.001				.20**	.06	.001
Level 2 Relationships									
Prosocial Competency Training				.11	.11	.309	.10	.11	.350
Cross-Level Relationships									
Psychological Collectivism x Prosocial Competency Training							.07	.11	.525

Note: * *p* < .05, ** *p* <.01; γ = Standardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 8. *Hierarchical Regression Analyses Examining the Effect of Team mean collectivism and Prosocial Competency Training on TMX-Team (H2, H4, H5)*

	Step 1			Step 2			Step 3			Step 4		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Familiarity	.12	.21	.574	.02	.21	.911	.01	.21	.969	.01	.22	.969
Sex	-.00	.00	.398	-.00	.00	.330	-.00	.00	.270	-.00	.00	.297
First Language	.00	.00	.907	.00	.00	.932	.00	.00	.918	.00	.00	.921
Team mean collectivism				.25†	.14	.084	.26†	.14	.065	.26†	.14	.067
PC Training							.13	.11	.211	.13	.11	.215
Team mean collectivism x PC Training										-.00	.30	.996
R^2		.03			.08			.11			.11	
F		.50	.683		1.17	.336		1.26	.293		1.03	.415
Δ R²					.05			.03			.00	
Δ F					3.10	.084		1.61	.211		.00	.996

Note: † $p < .10$, * $p < .05$, ** $p < .01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English; PC Training = Prosocial competency training (1 = Control; 2 = Training)

Table 9. *Hierarchical Regression Analyses Examining the Effect of Prosocial Competency training on TMX Differentiation (H6)*

	Step 1			Step 2		
	b	*SE*	*p*	*b*	*SE*	*p*
Familiarity	-.16	.23	.501	-.17	.23	.455
Sex	.00	.00	.448	.00	.00	.550
First Language	-.00	.00	.291	-.00	.00	.280
Prosocial Competency Training				.21[†]	.12	.076
R^2		.04			.09	
F		.73	.537		1.39	.249
ΔR^2					.06	
ΔF					3.28[†]	.076

Note: [†] $p < .10$, * $p < .05$, ** $p < .01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English; Prosocial competency training (1 = Control; 2 = Training)

Table 10. *Hierarchical Linear Modeling Analyses Examining the Effect of TMX and TMX Differentiation on Psychological Empowerment (H7)*

	Model 1			Model 2			Model 3		
	γ	*SE*	*p*	γ	*SE*	*p*	γ	*SE*	*p*
Level 1 Relationships									
Intercept	5.10**	.05	.001	5.10**	.05	.001	5.10**	.05	.001
Familiarity	.23	.15	.120	.33*	.16	.050	.23	.15	.123
Sex	.04	.12	.756	.05	.13	.681	.04	.12	.703
First Language	-.01	.14	.948	.06	.15	.667	-.00	.14	.982
TMX	.46**	.09	.001				.43**	.10	.001
Level 2 Relationships									
TMX Differentiation				.00	.12	.974	.00	.12	.997
Cross-Level Relationships									
TMX x TMX Differentiation							.15	.16	.360

Note: * *p* < .05, ** *p* <.01; γ = Standardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 11. *Supplemental Hierarchical Regression Analyses Examining the Effect of TMX and TMX Differentiation on Psychological Empowerment (H7)*

	Step 1			Step 2			Step 3		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Familiarity	.34**	.25	.005	.24*	.11	.038	.23*	.11	.045
Sex	.11	.11	.322	.08	.10	.412	.08	.10	.399
First Language	.00	.12	.998	-.05	.11	.635	-.05	.11	.637
TMX				.44**	.07	.000	.41**	.07	.000
TMX Differentiation				.11	.11	.323	.12	.11	.275
TMX x TMX Differentiation							.12	.11	.277
R^2	.03			.16			.17		
F	2.96*		.033	11.29**		.000	9.61**		.000
ΔR^2				.13			.00		
ΔF				23.11**		.000	1.19		.277

Note: * $p < .05$, ** $p < .01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 12. *Hierarchical Regression Analyses Examining the Effect of TMX-Team and TMX Differentiation on Team Empowerment (H8)*

	Step 1			Step 2			Step 3		
	b	*SE*	*p*	*b*	*SE*	*p*	*b*	*SE*	*p*
Familiarity	.10	.26	.691	.04	.22	.871	.04	.21	.843
Sex	-.00	.00	.680	-.00	.00	.994	.00	.00	.750
First Language	-.00	.00	.768	-.00	.00	.748	-.00	.00	.383
TMX-Team				.67**	.15	.000	.74**	.15	.000
TMX Differentiation				.08	.13	.539	.25	.15	.092
TMX-Team x TMX Differentiation							.98*	.41	.022
R^2	.01			.29			.36		
F	.24		.871	4.38**		.002	4.89**		.000
ΔR^2				.28			.07		
ΔF				10.48**		.000	5.55*		.022

Note: [†] $p < .10$, * $p < .05$, ** $p < .01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 13. *Hierarchical Linear Modeling Analyses Examining the Effect of Psychological Empowerment on Performance and Viability (Supplemental Analysis for H9)*

	Peer-rated performance			Objective Performance			Individual Viability		
	γ	SE	p	γ	SE	p	γ	SE	p
Intercept	3.63**	.04	.001	53.62**	1.90	.001	5.95**	.08	.001
Familiarity	.09	.10	.404	-3.41	3.18	.288	.29*	.14	.038
Sex	.06	.07	.412	3.85	2.84	.180	-.05	.11	.664
First Language	-.05	.08	.564	-.27	2.75	.922	.14	.14	.300
Psychological Empowerment	.19**	.04	.001	.15	1.32	.907	.39**	.07	.001

Note: * *p* < .05, ** *p* <.01; γ = Standardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 14. *PROCESS Results Examining the Effect of TMX on Performance and Viability through Psychological Empowerment (H9)*

	B	SE	t	p	R^2
Mediator Model: Psychological Empowerment					.16
Constant	-.33	.23	-1.45	.149	
Familiarity	.23*	.11	2.04	.042	
Sex	.09	.10	.87	.384	
First Language	-.06	.11	-.52	.607	
TMX	.43**	.06	6.73	.000	
Dependent Variable Model: Peer-rated performance					.24
Constant	3.76**	.15	25.91	.000	
Familiarity	.01	.07	.15	.884	
Sex	.02	.06	.34	.737	
First Language	-.14	.07	-1.96	.051	
TMX	.29**	.04	6.79	.000	
Psychological Empowerment	.12**	.04	3.33	.001	
Dependent Variable Model: Objective Performance					.02
Constant	55.29**	6.01	9.10	.000	
Familiarity	-3.33	2.95	-1.13	.261	
Sex	3.86	2.58	1.49	.136	
First Language	-2.35	2.91	-.81	.421	
TMX	-1.93	1.79	-1.08	.282	
Psychological Empowerment	1.66	1.53	1.09	.279	
Dependent Variable Model: Viability					.16
Constant	6.27**	.23	27.63	.000	
Familiarity	-.07	.11	-.64	.520	
Sex	-.15	.10	-1.53	.128	
First Language	-.01	.11	-.12	.904	
TMX	.63**	.07	9.34	.000	
Psychological Empowerment	.21**	.06	3.56	.000	

Note: * $p < .05$, ** $p < .01$; b = Unstandardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 15. *Hierarchical Regression Analyses Examining the Effect of Team Empowerment on Peer-rated performance (Supporting Analysis for H10)*

	Step 1			Step 2		
	b	*SE*	*p*	*b*	*SE*	*p*
Familiarity	-.13	.29	.645	-.16	.21	.452
Sex	.00	.00	.649	.00	.00	.553
First Language	-.00	.00	.340	-.00	.00	.359
TMX-Team	.81**	.19	.000	.22	.16	.179
Team Empowerment				.91**	.13	.000
R^2	.27			.59		
F	4.97**		.002	17.77**		.000
ΔR^2				.36		
ΔF				50.71**		.000

Note: $^\dagger p < .10$, * $p < .05$, ** $p <.01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 16. *Hierarchical Regression Analyses Examining the Effect of Team Empowerment on Objective Performance (Supporting Analysis for H10)*

	Step 1			Step 2		
	b	*SE*	*p*	*b*	*SE*	*p*
Familiarity	-.03	.07	.683	-.03	.07	.623
Sex	.00	.00	.371	.00	.00	.342
First Language	-.00	.00	.106	-.00	.00	.117
TMX-Team	-.00	.05	.991	-.09[†]	.05	.099
Team Empowerment				.13**	.04	.003
R²		.06			.21	
F		.83	.511		2.78*	.027
Δ R²					.15	
Δ F					10.01**	.003

Note: [†] *p* < .10, * *p* < .05, ** *p* <.01; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 17. *Hierarchical Regression Analyses Examining the Effect of Team Empowerment on Team Viability (Supporting Analysis for H10)*

	Step 1			Step 2		
	b	SE	p	b	SE	p
Familiarity	-.35	.24	.158	-.37†	.21	.084
Sex	.01†	.00	.076	.01*	.00	.040
First Language	-.00	.00	.298	-.00	.00	.337
TMX-Team	.97**	.16	.000	.60**	.13	.000
Team Empowerment				.85**	.12	.000
R^2	.43			.60		
F	10.30**		.000	15.72**		.000
ΔR^2				.16		
ΔF				21.65**		.000

Note: † $p < .10$, * $p < .05$, ** $p < .01$; b = Unstandardized Coefficient; SE = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 18. *PROCESS Results Examining the Effect of TMX-Team and TMX Differentiation on Performance and Viability through Team Empowerment (H10)*

	b	SE	t	p	R^2
Mediator Model: Team Empowerment					.36
Constant	.03	.31	.09	.931	
Familiarity	.04	.21	.20	.843	
Sex	.00	.00	.32	.750	
First Language	-.00	.00	-.88	.383	
TMX-Team	.74**	.15	5.09	.000	
TMX Differentiation	.25†	.15	1.72	.092	
TMX-Team x TMX Differentiation	.98*	.41	2.36	.022	
Dependent Variable Model: Peer-rated performance					.79
Constant	6.07**	.30	19.91	.000	
Familiarity	-.15	.21	-.71	.483	
Sex	.00	.00	.60	.553	
First Language	-.00	.00	-.90	.372	
TMX-Team	.25	.18	1.42	.162	
TMX Differentiation	.07	.15	.50	.622	
TMX-Team x TMX Differentiation	.14	.43	.32	.751	
Team Empowerment	.89**	.14	6.50	.000	
Dependent Variable Model: Objective Performance					.30
Constant	.61**	.10	6.45	.000	
Familiarity	-.05	.07	-.72	.476	
Sex	.00	.00	1.07	.291	
First Language	-.00†	.00	-1.74	.088	
TMX-Team	-.14*	.05	-2.47	.017	
TMX Differentiation	-.12*	.05	-2.52	.015	
TMX-Team x TMX Differentiation	-.10	.13	-.72	.475	
Team Empowerment	.15**	.04	3.56	.001	
Dependent Variable Model: Viability					.78
Constant	5.66	.30	18.84	.000	
Familiarity	-.34	.21	-1.64	.106	
Sex	.01†	.00	1.98	.053	
First Language	-.00	.00	-.75	.454	
TMX-Team	.65**	.17	3.75	.001	
TMX Differentiation	.19	.15	1.28	.208	
TMX-Team x TMX Differentiation	.03	.43	.08	.936	
Team Empowerment	.58**	.14	4.27	.000	

Note: † $p < .10$, * $p < .05$, ** $p < .01$; b = Unstandardized Coefficient; SE = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 19. *Indirect Effects (H9) & Conditional Indirect Effects (H10)*

	b	SE	LLCI	ULCI
TMX → Psychological Empowerment → Peer-rated performance				
Indirect Effect	.05	.02	.02	.09
Direct Effect	.29	.04	.21	.38
TMX → Psychological Empowerment → Objective Performance				
Indirect Effect	.71	.65	-.46	2.09
Direct Effect	-1.93	1.79	-5.46	1.60
TMX → Psychological Empowerment → Team Viability				
Indirect Effect	.09	.04	.03	.18
Direct Effect	.63	.07	.50	.76
TMX-Team → Team Empowerment → Peer-rated performance				
- 1 SD (-.447) of TMX Differentiation	.28	.30	-.20	1.06
Mean (.000) of TMX Differentiation	.67	.23	.27	1.17
+1 SD (.447) of TMX Differentiation	1.07	.41	.37	1.94
TMX-Team → Team Empowerment → Objective Performance				
- 1 SD (-.447) of TMX Differentiation	.04	.05	-.03	.18
Mean (.000) of TMX Differentiation	.10	.04	.03	.19
+1 SD (.447) of TMX Differentiation	.16	.08	.04	.33
TMX-Team → Team Empowerment → Team Viability				
- 1 SD (-.447) of TMX Differentiation	.18	.21	-.11	.84
Mean (.000) of TMX Differentiation	.44	.17	.19	.87
+1 SD (.447) of TMX Differentiation	.70	.27	.27	1.31

Note: † $p < .10$, * $p < .05$, ** $p < .01$; b = Unstandardized Coefficient; SE = Standard Error; LLCI = Lower level confidence interval; ULCI = Upper level confidence interval; 5000 Bootstrapped Sample

Table 20. *Supplemental Hierarchical Linear Modeling Analyses Examining the Effect of Psychological Collectivism and TMX Subscales*

	TMX Subscale: Receipt of Exchanges			TMX Subscale: Giving of Exchanges		
	γ	*SE*	*p*	γ	*SE*	*p*
Level 1 Relationships						
Intercept	5.70**	.06	.000	5.83**	.05	.000
Familiarity	.26	.13	.052	.20	.13	.139
Sex	.12	.10	.259	.21	.10	.050
First Language	.22	.12	.073	.12	.11	.270
Psychological Collectivism	.25**	.06	.000	.17**	.06	.005

Note: * $p < .05$, ** $p < .01$; γ = Standardized Coefficient; *SE* = Standard Error; Sex (1 = Male, 2 = Female); First language (1 = English, 2 = Other language)

Table 21. *Supplemental Hierarchical Regression Analyses Examining the Effect of Each Role on TMX Differentiation*

| | Step 1 | | | Step 2 | | |
	b	*SE*	*p*	*b*	*SE*	*p*
Familiarity	.72	.33	.500	-.13	.20	.506
Sex	-.16	.23	.448	.00	.00	.359
First Language	-.00	.00	.291	-.00	.00	.327
Leader Role TMX Quality				.04	.08	.585
Photographer Role TMX Quality				-.19**	.06	.002
Environmentalist Role TMX Quality				.21**	.07	.007
Physician Role TMX Quality				-.21**	.07	.003
Marathoner Role TMX Quality				-.10	.08	.193
R^2		.04			.38**	
F		.73			3.82**	
ΔR^2					.34**	
ΔF					5.50**	

Note: * $p < .05$, ** $p < .01$; *b* = Unstandardized Coefficient; *SE* = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 22. *Supplemental Hierarchical Regression Analyses Examining the Effect of Individual Goal Accomplishment of Each Role on Team Objective Performance*

	Step 1			Step 2		
	b	*SE*	*p*	*b*	*SE*	*p*
Familiarity	-3.04	7.30	.679	-.19	.57	.740
Sex	.08	.09	.362	-.00	.01	.728
First Language	-.16	.09	.103	-.00	.01	.896
Leader Goal Accomplishment				.38**	.02	.000
Photographer Goal Accomplishment				.19**	.02	.000
Environmentalist Goal Accomplishment				.12**	.01	.000
Physician Goal Accomplishment				.17**	.01	.000
Marathoner Goal Accomplishment				.16**	.01	.000
R^2		.06			1.00**	
F		1.13			1193.14**	
ΔR^2					.94**	
ΔF					1797.76**	

Note: $^{\dagger} p < .10$, $* p < .05$, $** p < .01$; b = Unstandardized Coefficient; SE = Standard Error; Sex = Percentage female; First language = Percentage not English

Table 23. *Supplemental Indirect Effect Analyses*

	b	*SE*	*LLCI*	*ULCI*
TMX → Psychological Empowerment → *Objective performance* for Leader Role				
Indirect Effect	1.88	1.70	-.89	5.91
Direct Effect	1.73	3.56	-5.41	8.87
TMX → Psychological Empowerment → *Objective Performance* for Photographer Role				
Indirect Effect	.76	.84	-.41	3.09
Direct Effect	-1.85	2.47	-6.80	3.10
TMX → Psychological Empowerment → *Objective performance* for Environmentalist Role				
Indirect Effect	-1.42	1.57	-5.96	.78
Direct Effect	1.73	4.74	-7.78	11.23
TMX → Psychological Empowerment → *Objective performance* for Physician Role				
Indirect Effect	.22	1.83	-3.35	4.08
Direct Effect	-1.56	4.46	-10.51	7.38
TMX → Psychological Empowerment → *Objective performance* for Marathoner Role				
Indirect Effect	2.93	3.00	-1.31	11.19
Direct Effect	-6.61	5.82	-18.29	5.06

Note: * *p* < .05, ** *p* <.01; *b* = Unstandardized Coefficient; *SE* = Standard Error; LLCI = Lower level confidence interval; ULCI = Upper level confidence interval; 5000 Bootstrapped Sample

Table 24. Summary of Hypotheses and Results

Hypothesis	Predicted Relationship	Results
H1	Psychological collectivism is positively related to TMX quality.	Supported
H2	Team mean collectivism is positively related to TMX-Team Quality.	Supported
H3	Prosocial competency training moderates the positive relationship between psychological collectivism and TMX quality such that this relationship is strengthened when teams receive prosocial competency training.	Not supported • Interaction was not significant.
H4	Prosocial competency training moderates the positive relationship between team mean collectivism and TMX-team quality such that this relationship is strengthened when teams receive prosocial competency training.	Not supported • Interaction was not significant.
H5	TMX-team quality is higher in teams receiving prosocial competency training than in teams not receiving prosocial competency training.	Not supported • Relationship was not significant.
H6	TMX differentiation is lower among teams receiving prosocial competency training than those not receiving prosocial competency training	Not supported • Relationship was significant, however there was a positive relationship rather than the proposed negative relationship.
H7	TMX differentiation moderates the relationship between TMX quality and psychological empowerment such that the relationship becomes increasing positive and strong as differentiation increases.	Not supported • TMX was significantly and positively related to psychological empowerment, however TMX differentiation did not moderate this

		relationship as proposed.
H8	TMX differentiation moderates the relationship between TMX-team quality and team empowerment such that the relationship becomes increasingly positive and strong as differentiation decreases.	Not supported • The interaction was significant, however it was in the opposite direction than proposed such that the relationship between TMX-team and team empowerment became increasingly positive and strong as differentiation increased.
H9	The positive indirect effects of TMX on task performance (a) and individual viability (b) through psychological empowerment are conditional upon TMX differentiation such that the effects are strengthened as differentiation increases.	Not supported • TMX had a significant indirect effect on peer-rated performance and viability through psychological empowerment, but this relationship was not moderated by TMX differentiation as proposed. • TMX did not have a significant indirect relationship with objective performance as proposed.
H10	The positive indirect effects of TMX-team on team task performance (a) and team viability (b) through team empowerment are conditional upon TMX differentiation such that the effects are strengthened as differentiation decreases.	Not supported • TMX-team had a significant indirect effect on peer-rated performance, objective performance, and viability through team empowerment and TMX differentiation moderated these relationships. However, differentiation moderated these relationships in the opposite direction than proposed such that the effects were strengthened as differentiation increased.

Appendix B: Training Scenarios

Scenario 1: You recently graduated from college and were hired by Titan Car Company to work on their design team. Your team consists of a manager and three tenured team members who have vast experience in design. The other team members do not seem welcoming, because they believe that the manager should have hired someone for your role who has more experience in the industry. Your manager is very busy and has told you that she needs you to begin making valuable contributions to the team immediately. During your first week of work, you are given the task of deciding on the optimal fabric material for covering the steering wheel in a new car model. You are not sure what is the best choice, and you want to make the correct decision since this is your first big assignment in your new job. Additionally, your teammates are depending on your decision. Their future decisions on other design elements of the car depend on your choice, so you don't want to upset them by picking a material that isn't optimal. Of the options below, what is the best way to approach this assignment?

   Options:

1. You should make your decision independently without input from others in an attempt to impress them with your decision-making skills.

   a. ***Incorrect -*** Decisions in teams should be made alone when you have the relevant expertise and no one else does or when decisions are trivial such that they do not have a large impact. Because this is not true in this scenario, option 1 is not the optimal choice.

2. You should ask your teammates for their perspectives based on their experience and expertise.

   a. ***Correct -*** When making a decision in a team, you should consult others when they are experts, and you should incorporate the knowledge of those that have the relevant expertise into your decision. In this case, this is your teammates. Additionally, individuals on teams are more likely to accept and buy-into a decision when they are involved in making it. Because your decision will ultimately impact your teammates and they are skeptical of your ability, you want them to accept your decision. An effective way to get their buy-in is to have them involved in the decision.

3. You should ask your manager for advice on how to make your decision.

   a. ***Incorrect -*** Effective communication networks in teams are decentralized such that they do not contain bottlenecks in communication channels. Because your manager has already informed you that she is busy and because you know that your teammates have expertise in design, it is more effective and timely to go to them directly rather than through your manager.

Scenario 2: You are working as an entry-level internal auditor in a large financial firm, and your job is to make sure that the correct controls are in place. During your recent audit, you had some concerns and brought them to your team during your weekly update. If your concerns are accurate, this could mean a large financial and reputational loss for the company. When you voice your concerns, a senior auditor on the team chimes in. This senior auditor, who is a few years more experienced than you, says that the team had a similar concern in another department last year, but it turned out to be nothing. The rest of the team is nodding along with the senior auditor. You're worried that this senior auditor is minimizing the problem. What should you do?

> ***Options:***

> 1. Because this auditor has more experience, you should smile and nod along with what he is saying even though you disagree.

>> a. ***Incorrect -*** Communication in teams is most effective when there is congruence between what you feel, what you say, and your nonverbal messages. Nonverbal messages can either reinforce or undermine verbal messages. As a team member, you should work to have consistency between your verbal and nonverbal messages. Additionally, you should look for inconsistencies between what you teammates seem to be saying and their nonverbal cues. Any inconsistency is a sign that someone isn't being fully forthcoming with his or her opinions or perspectives.

> 2. In an attempt to discredit his opinion, you should point out that this senior auditor made critical mistakes on his last audit.

>> a. ***Incorrect -*** Communication in teams should be behavior or event oriented and not person oriented. When messages are person oriented, such that they focus on the person rather than the behavior or event, they are likely to provoke a defensive reaction. Instead, communication should be focus on the behavior or event, and should not convey rigidity in viewpoints, indifference towards others on the team, or feelings of superiority.

> 3. You should acknowledge the opinions of the senior auditor and seek to understand how this concern is similar and different than the concern in the previous audit.

>> a. ***Correct -*** Because this decision can have large consequences, it is important to ensure that all credible perspectives on the team are heard and incorporated into the decision. Therefore, it is worth taking the time to politely hear all viewpoints. This should be done in a manner such that no one on the team monopolizes the conversation and everyone should have an opportunity to speak. In doing so, you should actively listen to others' perspectives, acknowledge their contribution, and look to build from each additional viewpoint. The most effective teams are open to

information, ideas, and the feelings of others and are willing to ask questions and incorporate others points of view.

Scenario 3: You work in a fairly large company that is understaffed, and because of such, everyone has been working very long hours. The head of the company has asked one member from each department to be part of a project team that will recruit new employees. This project team will meet twice a week for a couple of hours. You are made in charge of the project team and are planning the agenda for the first meeting. Which of the following should be included on the agenda?

Options:

1. Because you want to hear everyone's perspectives on how to recruit, you should set aside some time for brainstorming and then discussion.

    a. ***Correct -*** Teams sometimes have problems with groupthink and conformity such that the most assertive and outspoken team member monopolizes the discussion and decisions. This can lead to suboptimal decisions because limited viewpoints are being incorporated into decisions. One way to combat groupthink and conformity in brainstorming. An effective brainstorming technique is to encourage each team member to come up with his or her own ideas independently and then come back together and share these ideas. Then, as a team, you can work to incorporate these ideas together. In other words, you should separate idea generation from evaluation.

2. Because everyone is very busy, you should set a tightly scheduled agenda without time for small-talk.

    a. ***Incorrect -*** Although small-talk may seem to be unproductive, it actually has a great value for teams. These conversations strengthen interpersonal relationships. Additionally, small-talk allows you to get a better idea of your teammates' knowledge backgrounds, their strengths, and the areas where they will need help. Therefore, small-talk can be very beneficial for teams.

3. Because you want to be kept in the loop, you should establish rules that all ideas on the team should first be ran by you before individuals initiate a discussion with any other members of the team.

    a. ***Incorrect -*** Teams should feel comfortable exchanging ideas and information with one another. Through this open environment, this exchange will occur in a timely and efficient manner. Although decisions may need to be made with key people involved, discussions and information should be exchanged openly.

Scenario 4: You work in the advertising department of a large company with a team of five people. You recently hired a consulting firm to evaluate your share of the market, and you found that you are not adequately capturing customers in the 18 to 25-age range. Your team scheduled a meeting to discuss ideas for how to improve your market share in this age group. During the meeting, one of your teammates who is very assertive and

vocal seems to be pushing his ideas without allowing everyone else to contribute their viewpoints. Your team doesn't seem to be getting anywhere, and you are supposed to take an hour break for lunch. What should you do?

> *Options:*

>> 1. You should tell the team that everyone should write down an idea over lunch and give these ideas to you. You will then pick the best option for proceeding.

>>> a. *Incorrect* – Teams are most successful when everyone is able to integrate their unique knowledge. Additionally, inefficiencies occur when team members aren't allowed to communicate with each other and everything must be funneled through one person. This can create bottlenecks that hinder effectiveness.

>> 2. You should tell the team that everyone will be given thirty minutes to independently brainstorm after lunch. When you get back together, everyone will share their ideas and you will work to incorporate them to all team members' liking.

>>> a. *Correct* – As mentioned before, teams sometimes have problems with groupthink and conformity such that the most assertive and outspoken team member monopolizes the discussion and decisions. This can lead to suboptimal decisions because limited viewpoints are being incorporated into decisions. One way to combat groupthink and conformity in brainstorming. An effective brainstorming technique is to encourage each team member to come up with his or her own ideas independently and then come back together and share these ideas. Then, as a team, you can work to incorporate these ideas together. In other words, you should separate idea generation from evaluation. The best solutions are those where everyone feels as though their viewpoint has been sufficiently incorporated in the decision and everyone is satisfied with the outcome of the meeting.

>> 3. You should cancel lunch and continue with your meeting.

>>> a. *Incorrect* – The small-talk that may occur during lunch has a great value for the team. These conversations can strengthen interpersonal relationships and help the team members better understanding each others' knowledge backgrounds, their strengths, and the areas where they will need help. Additionally, team members may feel as though they can informally brainstorm during lunch without as much pressure as the formal meeting.

Appendix C: **Measures**

1. Psychological collectivism – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree)

Instructions: Think about the work groups to which you currently belong, and have belonged to in the past. The items below ask about your relationship with, and thoughts about, those particular groups. Respond to the following questions, as honestly as possible, using the response scales provided.

1. I preferred to work in those groups rather than working alone.
2. Working in those groups was better than working alone.
3. I wanted to work with those groups as opposed to working alone.
4. I felt comfortable counting on group members to do their part.
5. I was not bothered by the need to rely on group members.
6. I felt comfortable trusting group members to handle their tasks.
7. The health of those groups was important to me.
8. I cared about the well-being of those groups.
9. I was concerned about the needs of those groups.
10. I followed the norms of those groups.
11. I followed the procedures used by those groups.
12. I accepted the rules of those groups.
13. I cared more about the goals of those groups than my own goals.
14. I emphasized the goals of those groups more than my individual goals.
15. Group goals were more important to me than my personal goals.

2. TMX – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree)

Instructions: Think about your experience in the Everest Simulation. The items below ask you to reflect on your experience in the simulation. Respond to the following questions, as honestly as possible, using the response scales provided.

1. When I am in a bind, my teammates will take on extra work to help ensure the completion of my important tasks.
2. My teammates have asked for my advice in solving a simulation-related problem of theirs.
3. I would come to a teammates defense if he/she were being criticized.
4. I respect my teammates in our simulation.
5. My teammates create an atmosphere conducive to accomplishing my work.
6. My teammates are the kind of people one would like to have as friends.
7. Even when they disagree with me, my teammates respect the value of my judgments and decisions.
8. I feel that I am loyal to my teammates.
9. My teammates value the skills and expertise that I contribute to our team.

Original measure:
1. *When I am in a bind, my coworkers will take on extra work to help ensure the completion of my important tasks.*
2. *My coworkers have asked for my advice in solving a job-related problem of theirs.*
3. *I would come to a co-worker's defense if he/she were being criticized.*
4. *I respect my coworkers as professionals in our line of work.*
5. *My coworkers create an atmosphere conducive to accomplishing my work.*
6. *My coworkers are the kind of people one would like to have as friends.*
7. *Even when they disagree with me, my coworkers respect the value of my judgments and decisions.*
8. *I feel that I am loyal to my coworkers.*
9. *My coworkers value the skills and expertise that I contribute to our work group.*

3. Psychological empowerment – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree)

Instructions: Think about your experience in the Everest Simulation. The items below ask you to reflect on your individual role in the simulation team. Respond to the following questions, as honestly as possible, using the response scales provided.

1. I am confident about my ability to do my role.
2. I am self-assured about my capabilities to perform my role activities.
3. I have mastered the skills necessary for my role.
4. I have significant autonomy in determining how I do my role.
5. I can decide on my own how to go about doing my role.
6. I have considerable opportunity for independence and freedom in how I do my role.
7. My impact on what happens in my team is large.
8. I have a great deal of control over what happens in my team.
9. I have significant influence over what happens in my team.
10. My role is very important to me.
11. My role activities are personally meaningful to me.
12. My role is meaningful to me.

Original measure:
1. *I am confident about my ability to do my job.*
2. *I am self-assured about my capabilities to perform my work activities.*
3. *I have mastered the skills necessary for my job.*
4. *I have significant autonomy in determining how I do my job.*

5. I can decide on my own how to go about doing my work.
6. I have considerable opportunity for independence and freedom in how I do my job.
7. My impact on what happens in my department is large.
8. I have a great deal of control over what happens in my department.
9. I have significant influence over what happens in my department.
10. The work I do is very important to me.
11. My job activities are personally meaningful to me.
12. The work I do is meaningful to me.

4. *Team empowerment* – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree)

Instructions: Think about your experience in the Everest Simulation. The items below ask you to reflect on your team from the simulation. Respond to the following questions, as honestly as possible, using the response scales provided.

1. My team has confidence in itself.
2. My team can get a lot done when it works hard.
3. My team believes that it can be very productive.
4. My team believes that its decisions are significant.
5. My team feels that its tasks worthwhile.
6. My team feels that its decisions are meaningful.
7. My team can select different ways to make the team's decisions.
8. My team determines as a team how things are done in the team.
9. My team performs tasks that matter.
10. My team makes a difference.

Original measure:
1. My team has confidence in itself.
2. My team can get a lot done when it works hard.
3. My team believes that it can be very productive.
4. My team believes that its projects are significant.
5. My team feels that its tasks worthwhile.
6. My team feels that its work is meaningful.
7. My team can select different ways to do the team's work.
8. My team determines as a team how things are done in the team.
9. My team makes its own choices without being told by management.
10. My team has a positive impact on this company's customers.
11. My team performs tasks that matter to this company.
12. My team makes a difference in this organization

5. *Viability* – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree)

Instructions: Think about your experience in the Everest Simulation. The items below ask you to reflect on your experience in the simulation. Respond to the following questions, as honestly as possible, using the response scales provided.

Individual Viability:
1. Taken as a whole, I was satisfied with the composition of our team.
2. Taken as a whole, things went pleasantly with our team.
3. If I ever had to participate in a similar project again, I would like to do it with this team.

Team Viability:

1. Team members have found being a member of this team to be a very satisfying experience.
2. Most team members feel like they are learning a great deal by working on this project.
3. Most of the members of this team would welcome the opportunity to work as a group again in the future.

6. Performance

Instructions: Think about your experience in the Everest Simulation. The items below ask you to reflect on your experience in the simulation. Respond to the following questions, as honestly as possible, using the response scales provided.

Individual Peer-rated performance – 5-point scale (1 = Way below expectations, 2 = Below expectations, 3 = At expectations, 4 = Above expectations, 5 = Way beyond expectations):
1. All in all, how competently does this individual perform the job?
2. In your estimation, how effectively does this individual get the work done?
3. How would you judge the overall quality of this individual's work?
4. Provide an overall summary of this individual's competence

Team Peer-rated performance – 7-point scale (1 = Strongly Disagree, 7 = Strongly Agree):
1. My team has performed well in the simulation.
2. My team has been effective during the simulation.
3. My team has made high quality decisions in the simulation.
4. My team has worked together efficiently in the simulation.

VITA

Jaclyn Ann Margolis is graduating with her PhD in organizational behavior from the LeBow College of Business at Drexel University. Prior to beginning her PhD, Jaclyn received her Masters in Business Administration from the LeBow College of Business. Jaclyn completed her undergraduate degree at Lehigh University with a dual-major in Finance and Economics and a minor in psychology. As of August 2015, Jaclyn will begin as a Visiting Assistant Professor of Applied Behavioral Science at the Graziadio School of Business at Pepperdine University. Jaclyn's research interests focus on teams, leadership, motivation, and social comparison processes. Her teaching focuses on organizational behavior, leadership, teamwork, and general management.