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The Influence of Team Prosocial Motivation on Emergent States and Shared Leadership

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The Influence of Team Prosocial Motivation on Emergent States and Shared Leadership

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Requirements for the Degree of

Doctor of Philosophy

By

Tyree David Mitchell

June, 2016

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Biography

The author was born in Cheverly, Maryland on December 19th, 1989. He graduated from Oxon Hill High School in Oxon Hill, Maryland in 2007. He received a Bachelor of Arts degree in psychology from Hampton University in 2011 and a Master of Arts degree in industrial/organizational psychology from DePaul University in 2014.
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Abstract

Despite the growing body of research on shared leadership, relatively little is known about the antecedents of shared leadership. The following study examined the effects of team prosocial motivation on team emergent states (i.e., team empowerment, psychological safety) and shared leadership. Drawing on motivational theories (e.g., self-determination theory), it was hypothesized that team empowerment and psychological safety would mediate the relationship between team prosocial motivation and shared leadership. Also, in line with the social identity and self-categorization perspectives, it was hypothesized that team surface-level diversity (racial diversity, gender diversity, faultline strength) would moderate the effects of team prosocial motivation on emergent states and shared leadership, such that the relationships between team prosocial motivation and emergent states and shared leadership would be weaker when surface-level diversity was high as opposed to low. Undergraduate and MBA students participated in two leaderless team discussion exercises (customer service, executive selection) within the context of an assessment center. Students were randomly assigned to 1 of 2 study conditions (low vs. high team prosocial motivation) and completed the exercises in five-person teams (107 teams total). Results from mediation and moderated mediation regression analyses did not provide support for the aforementioned hypotheses. Results from exploratory analyses indicated that team trait prosocial motivation, team impression management motives, and team intrinsic motivation predicted shared leadership. Further, results from exploratory analyses revealed a significant interaction effect
of team racial diversity and team trait prosocial motivation on shared leadership and a marginally significant interaction effect of team gender diversity and team trait prosocial motivation on shared leadership. Implications for science and practice are discussed.
CHAPTER I
Introduction

Faced with concerns of heightened environmental complexity and technological changes, many organizations are relying more on team-based structures to address such challenges and enhance their organizational effectiveness (Cohen & Bailey, 1997; Mathieu, Maynard, Rapp, & Gilson, 2008). Several scholars have identified leadership as one of the most critical factors that influences work team effectiveness (Hackman & Walton, 1986; Zaccaro, Rittman, & Marks, 2001). While the majority of the team leadership literature focuses on the influence of a single person on a collective of individuals (Stewart & Manz, 1995), increased attention is being paid to leadership approaches in which team members share leadership responsibilities. This increased focus on collective leadership can be attributed to recent shifts to flatter organizational structures and self-managing teams (Manz & Sims, 1987) and teamwork that requires team members to have high levels of expertise and specialized knowledge (DeNisi, Hitt, & Jackson, 2003). In addition, ambiguous and complex team environments have made it extremely difficult for a single leader to perform all of the requisite leadership functions (Day, Gronn, & Salas, 2004). The aforementioned trends have important implications for sharing leadership responsibilities in work teams.

Shared leadership is conceptualized as a “team process where leadership is carried out by the team as a whole, rather than solely by a single designated individual” (Ensley, Hmieleski, and Pearce, 2006, p. 220). This collectivistic approach to leadership has been linked to effective team functioning (e.g., team
cohesion, Bergman, Rentsch, Small, Davenport, & Bergman, 2012), and important team outcomes (e.g., team performance, Nicolaides et al., 2014). Despite the increased attention paid to shared leadership over the past two decades, there is scant empirical research to inform scholars and organizations how to develop shared leadership in teams (Carson, Tesluk, & Marrone, 2007).

With regard to the importance of understanding the antecedent conditions of shared leadership, leadership researchers have noted the following:

There are benefits associated with considering leadership as an outcome in that it is something created by the team, and in particular, is reflected in the social capital of the team. Unlike human capital, in which the focus is on developing individual knowledge, skills, and abilities, the emphasis with social capital is on building networked relationships among individuals that enhance cooperation and resource exchange (e.g., connectivity) (Day, Gronn, & Salas, 2004, p. 860).

This research addresses the current gap in the literature by examining team prosocial motivation—team members’ shared desire to benefit others through their work (Hu & Liden, 2015)—as an antecedent condition of shared leadership in work teams. Recent research suggests that when team members share a desire to benefit others members are more likely to engage in team processes that create synergistic gains (Hu & Liden, 2015). Given such insight, an examination of the effects of team prosocial motivation on shared leadership may provide a novel perspective for how to increase levels of shared leadership in work teams.
In the subsequent sections, I develop a model of shared leadership that specifies the mechanisms that link team prosocial motivation to shared leadership and the boundary conditions of the team prosocial motivation-shared leadership relationship. In developing my hypotheses, I first define shared leadership and distinguish it from related constructs. Next, I review the literature related to the primary study variables of shared leadership, prosocial motivation, empowerment, psychological safety, and surface-level diversity. I conclude by developing hypotheses about how the relationship between team prosocial motivation and shared leadership will be mediated by team empowerment and psychological safety and moderated by team surface-level diversity.

**Defining and Measuring Shared Leadership**

One of the earliest conceptualizations of team leadership can be traced back to Gibb (1954), who proposed a dual model of leadership. This dual model of leadership describes what we know in modern day terms as vertical and shared leadership. Vertical leadership emphasizes how influence resides within a single team member and specifies how individuals employ specific behaviors to enhance team effectiveness (e.g., transformational leadership behaviors, Purvanova & Bono, 2009). Shared leadership can be defined as “an emergent team property that results from the distribution of leadership influence across multiple team members” (Carson et al., 2007, p.1218). Based on this definition of shared leadership, we can identify several differences between vertical and shared leadership. First, vertical leadership involves a top-down influence from a single designated leader (Conger & Pearce, 2003), whereas shared leadership involves a
collective (hierarchical or lateral) influence of members within a team on each other (Sivasubramaniam, Murry, Avolio, & Jung, 2002). While vertical leadership often stems from formal authority, shared leadership stems from interactions (e.g., providing social support for members) with internal team members as well as external members (e.g., coaches). Also, with shared leadership, the leader-follower distinction is reduced because team members can assume leadership roles at any point in time (Nicolaides et al., 2014). Moreover, shared leadership involves a mutual, simultaneous, and continuous influence process (Pearce, 2004) that emerges across time and emphasizes interactions among team members that are social in nature (Conger & Pearce, 2003), whereas vertical leadership is a less dynamic, interactive influence process.

In order to gain a better understanding of the nature of shared leadership it is useful to know how the construct has been measured in previous works. In the following sections, I will discuss both traditional (e.g., questionnaires) and novel approaches (e.g., actor-interdependence model) to measuring shared leadership.

**Questionnaires.** The traditional approach to measuring shared leadership involves the use of questionnaires, particularly questionnaires developed by Pearce and Sims (2002) and Avolio, Sivasubramaniam, Murry, Jung, and Garger (2003). The questionnaire developed by Pearce and Sims (2002) is based on concepts studied in earlier leadership research (e.g., transactional leadership, directive leadership). The questionnaire developed by Avolio et al. (2003) is based on the Multifactor Leadership Questionnaire (MLQ, Avolio, Bass, & Jung, 1999) and focuses on the “full range” of transformational leadership behaviors
(e.g., avoidant leadership, management by exception, intellectual stimulation). Although the two questionnaires may differ in content, they are similar in that they both apply frequently studied individual leadership behaviors to the entire team (Gockel & Werth, 2010). For both questionnaires, each team member is asked to rate the leadership behaviors displayed by the team as a collective unit. Next, ratings are averaged at the team-level to capture a measure of shared leadership. The primary advantages of using the questionnaire approach are that it’s based on well-established leadership concepts and the data collection process is not particularly burdensome on participants. One of the primary disadvantages of this approach is that relatively little information can be gleaned from the average of individual ratings. More specifically, the average of individual ratings of leadership behaviors does not provide information about how team members are influencing each other or to what degree members are being influenced by others (Gockel & Werth, 2010).

**Social network methods.** An alternative approach to measuring shared leadership is grounded in social network analysis. Social network analysis is concerned with the association between actors, which collectively make up a network (Mayo, Meindl, & Pastor, 2003). With respect to shared leadership, the unit of analysis is invariably the link that connects multiple actors (Mayo et al., 2003). In other words, the focus is on how much each team member influences other members. In social network analysis, there are measures to describe how much influence one particular individual has within a network (i.e., individual network measures) and how much influence resides within a network as a whole.
Centrality is an individual network measure and captures “an individual’s influence in the social system” (Mayo et al., 2003, p. 196). As it relates to shared leadership, degree centrality is operationalized by summing the number of ties leading from or to a particular team member. The amount of ties ascribed to a receiver is known as the indegree and the number of ties ascribed to a sender is known as the outdegree. Individuals with high indegrees provide leadership for many other members within the team, whereas individuals with high outdegrees follow the leadership of multiple individuals within the team. Network centralization is a measure that captures the degree to which members vary in their influence over each other (Gockel & Werth, 2010). A network that is highly centralized is hierarchical in nature, with very few actors that are central to the network and the remaining actors linked to the central actors. In contrast, a network that is less centralized means that all members are linked to relatively the same amount of actors (Mayo et al., 2003). Further, network centralization can be low for very different reasons. For example, network centralization can be low if all team members are providing leadership for others in the team or if all members are indifferent and choose not to provide leadership for others. Thus, it is important to consider the total amount of influence within the network, such as network density.

The density of a leadership network is the average number of relationships—for each member—pertaining to leadership influence (Carson et al., 2007). Operationally, the density of a network refers to the total amount of
links in the network in proportion to the total amount of possible links (Wasserman & Faust, 1994). In other words, the more team members provide leadership to others within the team the denser the team’s leadership network. While this approach has been accepted as a valid measure of shared leadership (e.g., Carson et al., 2007), scholars have noted that network density indicates average tendencies but fails to consider the variability or dispersion of influence within the team (Gockel & Werth, 2010).

In general, network approaches are advantageous because they allow researchers to assess the degree to which all members exert influence within the team and the pattern of interaction between team members. However, one of the main drawbacks to this approach is that the data collection process can be quite onerous, as each team member is required to answer questions about their relationships with every member in the team (Mayo et al., 2003).

**Coefficient of variation.** The coefficient of variation (CV) is a measure that considers both the average and dispersion of team members’ influence scores, as it is operationalized as the standard deviation divided by the sample mean (Gockel & Werth, 2010). CV has often been used in the team diversity literature to assess the degree of heterogeneity of certain attributes (e.g., age) within the team (Harrison & Klein, 2007). One of the main advantages of this approach is that it can be adapted to examine various leadership approaches. However, one of the primary disadvantages of this approach is that different team states may result in low scores, as this measure is sensitive to sample size and lopsided distributions of influence within the team.
The approaches discussed thus far use one value per team to examine hypotheses pertaining to shared leadership. While such approaches assist researchers in assessing shared leadership as an emergent state or team property, the averaging process prohibits researchers from modeling exactly how individuals within the team influence one another (Gockel & Werth, 2010).

**Actor-partner interdependence model.** The actor-partner interdependence model (APIM) is a novel, promising approach to measuring shared leadership (Gockel & Werth, 2010). Originating from the literature on dyadic contexts (Kraemer & Jacklin, 1979), this technique can be used to study mutual influence in teams and capture the complex nature of multilevel data (Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). The primary contribution of the APIM to the literature is that it distinguishes individual effects on team members’ behaviors from team-level effects. As it relates to shared leadership, the APIM allows researchers to model shared leadership as a predictor or an outcome variable (Gockel & Werth, 2010). The APIM implies that a member’s outcome (e.g., mood) is a product of actor effects (individual inputs) in addition to partner effects (team members’ inputs). The partner effects model the mutual influence between team members. Therefore, if members display leadership behavior within a team, the actor effect would indicate the degree to which one’s own influence affects oneself whereas the partner effect would indicate the degree to which others’ influence affects oneself (shared leadership). In short, a member’s outcome (e.g., mood) could be the result of both actor and partner effects (shared leadership). This approach is advantageous in that it provides researchers with a
wealth of information about the mutual influence process in teams, while requiring team members to complete relatively few questions. The primary drawback to this approach is that it can only be used to model the processes if team members rate their own behavior instead of their team members’ leadership behaviors. This means that team members must be able to accurately assess their levels of influence within the team. Second, this approach is limited in that it cannot model team-level outcomes, only individual-level outcomes.

**Qualitative approaches.** Thus far this research has only discussed quantitative approaches to measuring shared leadership. However, qualitative approaches have also been used to study shared leadership, namely leadership sociograms (Pearce, 2002) and ethnographic methods. Sociograms require researchers to observe team meetings and/or recording of interaction patterns between team members (Conger & Pearce, 2003). This approach enables researchers to gain a richer understanding of continuous team dynamics that are not provided by questionnaire-based methods. The primary weakness of this approach is that it does not capture the influence that happens outside of team meetings, which is especially important for intact teams.

The ethnographic approach is an alternative approach to sociograms. This approach requires in-depth observation of the team in its natural work setting. Given that the scope of this approach exceeds one or two specific interactions, it provides a more naturalistic and comprehensive perspective concerning team dynamics. While this approach is superior to the sociogram approach in that it provides the richest amount of information regarding team dynamics, it is very
time consuming and only allows for in-depth analysis of one team at a time.

In this section, this research has provided a definition and description of shared leadership and discussed various approaches to measuring the construct. However, to gain a better understanding of shared leadership, it is also important to explain how it differs from related constructs, such as self-managing teams, empowerment, team cognition, emergent leadership, and helping behaviors.

**Distinguishing Shared Leadership from Similar Constructs**

**Emergent leadership.** Emergent leadership explains how members influence other team members in the absence of formal authority (Schneider & Goktepe, 1983). This form of leadership is related to shared leadership in that both emphasize how informal (as opposed to formal) leaders exert their influence within the team. However, shared leadership and emergent leadership research differ in focus. Emergent leadership research focuses on how individual and team attributes predict the emergence of informal leadership, with a specific focus on how one or two team members emerge as informal leaders. Conversely, shared leadership emphasizes how leadership can reside in a team in the absence or presence of a designated leader, can be formal or informal, and focuses specifically on the distribution of leadership roles and responsibilities across all members as opposed to one or two members.

**Collective cognition.** Shared leadership is also different from collective cognition constructs (e.g., transactive memory systems [TMSs], team mental models [TMMs]). TMMs describe how team members conceptualize attributes of the task or team in a similar manner (Mathieu, Heffner, Goodwin, Salas, &
Cannon-Bowers, 2000) and TMSs describe systems that enable team members to
develop and maintain a collective awareness of who knows what within the team
(Moreland, 1999). While both constructs emphasize how information about the
team is mentally processed as a collective unit, shared leadership focuses
primarily on the collective influence of members within a team. Further, shared
leadership is measured by the distribution of leadership responsibilities in the
team whereas collective cognition constructs such as TMMs are measured by the
similarity or accuracy of members’ mental models (Edwards, Day, Arthur, &
Bell, 2006). Moreover, the relationship between collective cognition constructs
and shared leadership is likely to be reciprocal in nature. That is, TMSs and
TMMs may facilitate shared leadership through a series of social exchanges and
team interactions, and through the development of shared understandings and
coordination of knowledge expertise (e.g., Burke, Fiore, & Salas, 2003), TMMs
and TMSs are likely to facilitate the emergence of shared leadership roles and
responsibilities.

**Team empowerment.** In addition, shared leadership is distinct from team
empowerment. More specifically, team empowerment is defined as increased
motivation that is due to team members’ collective, positive assessments of their
abilities and organizational tasks (Maynard, Gilson, & Mathieu, 2012).
Consistent with Marks, Mathieu, and Zaccaro’s (2001) typology of team
processes, team empowerment is an emergent state that can act as a precursor to
team processes or a consequence of such processes depending on the point in a
team’s performance cycle. Hence, team empowerment may facilitate the
development of shared leadership by increasing team members’ desires to exert influence within the team, or shared leadership may facilitate greater team empowerment by increasing task motivation as a result of team members increased responsibilities. It is also possible for a team to experience high levels of empowerment with low levels of shared leadership, as an external leader may bear most of the leadership responsibility.

**Helping behaviors.** Further, a difference should be made between shared leadership and team process variables that explain how team members provide assistance to each other on various team tasks and activities (e.g., back up behaviors, Porter, 2005). While such behaviors contribute to team effectiveness, they lack the active influence that is necessary for leadership. The notion that helping behavior is related to but distinct from shared leadership is supported by a recent study that found only a moderate correlation between cooperation and shared leadership (Ziegert, 2005).

**Self-managing teams.** Finally, shared leadership should also be distinguished from self-managing teams. Teams that are autonomous or self-managing are designed such that members have increased decision-making power and increased responsibility for developing their own goals and monitoring progress toward goal attainment (Manz & Sims, 1987). Though such team designs may foster the development of shared leadership through increased employee involvement (Spreitzer, Cohen, & Ledford, 1999), team self-management in and of itself is not likely to bring about shared leadership, as internal team environmental factors (e.g., social support) and external factors (e.g., coaching)
play key roles in the emergence of shared leadership (Carson et al., 2007).

**Antecedents of Shared Leadership**

Scholars and practitioners have paid considerable attention to how shared leadership relates to team functioning and effectiveness. In fact, leadership researchers have linked shared leadership to several effective team processes (e.g., team mental model similarity, McIntyre & Foti, 2013), and important team outcomes (e.g., team effectiveness, Wang, Waldman, & Zhang, 2014). Despite the growing body of research on the effects of shared leadership on team processes and outcomes, there is scarce empirical research on the precursors of shared leadership. What are the factors that facilitate the emergence of shared leadership in work teams? Given the lack of empirical research that addresses this question, scholars have called for more research that identifies antecedents of shared leadership (e.g., Nicolaides et al., 2014). Several antecedents have been identified including shared purpose, social support, voice, coaching, ability, task, complexity, and organizational size.

**Shared purpose.** Carson and colleagues found empirical support for three internal team conditions (shared purpose, voice, social support) and one external condition (coaching) that facilitate the emergence of shared leadership (Carson et al., 2007). Shared purpose refers to when team members have a mutual understanding of the team’s main objectives and actions necessary to establish a focus on team goals. Previous research suggests that team members are likely to feel empowered as well as committed to the team and its work when a common sense of purpose exists among members (Kirkman & Rosen, 1999). As a
consequence of increased team empowerment and commitment to the team, team members increase their willingness to share leadership roles and responsibilities within the team (Pearce & Conger, 2003).

Social support. Social support—the efforts of team members to provide psychological and emotional strength to others members in the team—is another antecedent condition of shared leadership. When team members encourage one another and recognize individual member contributions and accomplishments, they feel valued and appreciated for their contributions. Social support motivates team members to perform behaviors that benefit the entire team (Cameron & Spreitzer, 2012), and is likely to facilitate cooperation and a shared responsibility for outcomes of the team (Kirkman & Rosen, 1999).

Voice. Additionally, voice has been recognized as an antecedent of shared leadership. Voice has been studied in various research areas to describe workplace phenomena such as organizational citizenship behaviors (e.g., Grant & Mayer, 2009) and due process (e.g., Cawley, Keeping, & Levy, 1998). Voice can be defined as “promotive behavior that emphasizes expression of constructive challenge intended to improve rather than merely criticize” (Van Dyne & LePine, 1998, p. 109). Voice emphasizes participation and input and is associated with constructively challenging team goals and team decision-making (DeDreu & West, 2001), satisfaction with the team, and team self-management (LePine & Van Dyne, 1998).

Coaching. Finally, supportive coaching is an external team condition that can act as an antecedent of shared leadership. Supportive coaching can be defined
as an external team leader’s role interactions with the team, with the intentions of supporting and reinforcing a team’s self leadership as well as improving team coordination and use of team resources (Morgeson, 2005). Distinct from other external team leadership functions such as team design (Wageman, 2001) and boundary management (Druskat & Wheeler, 2003), supportive coaching is more closely related to the emergence of team autonomy and self-management. This form of coaching can facilitate shared leadership in various ways. For instance, external team leaders build team member capabilities by monitoring the work environments for things that can potentially disrupt team work cycles and prepare the team to manage such issues (Morgeson, 2005). Second, supportive coaching facilitates a sense of independence and competence among members (Cohen, Chang, & Ledford, 1997), as evidenced when external leaders promote and reward cases in which members exhibit effective leadership behaviors (Manz & Sims, 1987). Additionally, external coaching can increase positive team processes, leading team members to assume greater responsibility for their work (empowerment) and feel more comfortable taking interpersonal risks with team members (Edmondson, 1999; Kirkman & Rosen, 1999). In turn, this should increase team member initiative and mitigate social loafing within the team (Hackman & Wageman, 2005).

**Ability, task complexity, and organizational size.** In one of few empirical investigations of the antecedents of shared leadership, Ziegert (2005) examined the perceived ability of team members, task complexity, and organizational size as antecedents of shared leadership. He found that perceived
ability of team members was positively related to shared team leadership, task complexity was negatively related to shared team leadership, and organizational size had significant curvilinear effects on shared leadership, such that shared leadership was lower in average size restaurants but higher in smaller or larger restaurants.

**Conceptualization of Prosocial Motivation**

**Global prosocial motivation.** A promising area of research in investigating the antecedents of shared leadership is employee motivation, particularly prosocial motivation. Prosocial motivation refers to the “desire to expend effort based on a concern for helping or contributing to other people” (Grant & Berry, 2011, p. 77). Grant and Berg (2011) conceptualized prosocial motivation at three distinct levels: global prosocial motivation, contextual motivation, and situational motivation. Global prosocial motivation can be defined as an employee’s natural tendency to preserve or enhance the welfare of others. This form of prosocial motivation may be best understood in terms of personal values for enhancing the welfare of others such as benevolence, kindness, or altruism (e.g., Gordon, 1960; Williams, 1968).

**Contextual and situational prosocial motivation.** Contextual prosocial motivation can be defined as an employee’s motivation to benefit a specific group of individuals through a particular occupation or work role (e.g., teachers, nurses). Unlike global prosocial motivation, which can be viewed as a stable disposition, contextual prosocial motivation is moderately variable across situations and time, and is targeted toward a specific domain (Grant & Berg, 2011).
Situational prosocial motivation can be viewed as the desire to promote the welfare of a specific group of individuals in a specific situation. This form of prosocial motivation is highly variable, meaning that motivational levels may vary greatly based on the specific group of individuals and the specific situation (Grant & Berg, 2011). To illustrate the difference between contextual and situational prosocial motivation, contextual prosocial motivation would help explain why a professor is motivated to educate students in general, whereas situational prosocial motivation would help explain why a professor is motivated to provide career advising to a particular student after class. Taken together, these three conceptualizations of prosocial motivation illustrate how prosocial motivation can be viewed as a trait-like characteristic or a psychological state.

**Dimensionality of prosocial motivation.** Grant and Berg (2011) also highlight the fact that prosocial motivation varies along several dimensions. This can be better understood in the context of the three core psychological processes of motivation including direction, intensity, and persistence of effort (Kanfer, 1990). In terms of direction, prosocial motivation can be directed toward various domains and beneficiaries of contact (Grant, 2012). More specifically, individuals may be prosocially motivated to preserve and enhance the welfare of others in one or more domains including economic and financial status, happiness and enjoyment, learning and growth, and health and safety.

Further, beneficiaries of prosocial acts include individuals, groups (in-group and out-group members), organizational stakeholders (internal and external stakeholders), and countries. With regard to the intensity or varying degrees of
prosocial motivation, extreme levels of prosocial motivation are controlled by the emotional experiential system whereas less extreme levels are controlled by the rational cognitive system (Grant & Wade-Benzoni, 2009). Finally, prosocial motivation can persist for a short duration such as taking a few minutes to help someone write a cover letter (e.g., Grant & Gino, 2010) or for a long duration (e.g., Mother Teresa’s lifetime commitment to helping the poor).

**Distinguishing Prosocial Motivation from Related Constructs**

**Self-interested motivation.** The traditional assumption regarding prosocial motivation is that high levels of prosocial motivation correspond with low levels of self-interested motivation (e.g., Meglino & Korsgaard, 2004). However, recent empirical evidence suggests that prosocial and self-interested motivations are independent factors (DeDreu & Nauta, 2009). Such evidence points to the fact that prosocial motivation can help individuals fulfill multiple goals. For instance, individuals may desire to benefit others because they believe it is their responsibility to promote the welfare of others aside from an egocentric profit motive (altruism), because helping others can increase self-esteem and positive affect and reduce negative affect (egoism), because it is consistent with their personal moral values (principlism), and/or to preserve or strengthen their bond within a valued group (Batson, Ahmad, Powell, & Stocks, 2008). This particular view that prosocial motivation can assist individuals in achieving multiple goals helps to highlight the fact that prosocial motivation is related to but not tantamount to altruism (DeDreu, 2006).
**Intrinsic motivation.** Prosocial motivation is also distinct from intrinsic motivation—the desire to expend effort as a result of the interest in and genuine enjoyment of work (Ryan & Deci, 2000). More specifically, prosocial motivation is different from intrinsic motivation in terms of autonomy of self-regulation, temporal focus, and goal directedness (Grant, 2008). With regard to autonomy of self-regulation, individuals who are intrinsically motivated perform work tasks because they genuinely enjoy completing the work. The decision to exert effort on work tasks is autonomous and completely volitional (Ryan & Deci, 2000). In contrast, individuals who are prosocially motivated are not naturally drawn toward completing their work but are more likely to push themselves toward completing their work. Thus, the decision to exert effort on work tasks is less volitional and based more on self-control to accomplish a certain goal, or conscious self-regulation (Ryan & Deci, 2000).

With respect to temporal focus and goal directedness, prosocial motivation involves an other-oriented approach to generating future-oriented beneficial outcomes, whereas intrinsic motivation involves a task-focused approach to the process of accomplishing work goals in the present. The distinction between the two types of motivation can be more clearly understood upon consideration of the following scenario. Auto mechanics are considered to be intrinsically motivated when they are motivated to fix a damaged vehicle based on the pleasure and enjoyment that comes from the process of the task. However, auto mechanics are considered to be prosocially motivated when they are motivated to fix a damaged vehicle based on a desire to help someone in need of getting to work, which
provides meaning in the outcome of a fixed vehicle. These differences indicate that intrinsic and prosocial motivation are independent constructs.

**Consequences of Prosocial Motivation**

**Individual level.** Beyond its theoretical contributions to the study of organizational behavior and organizational psychology, prosocial motivation has proven to be a construct with great practical significance, as previous research suggests that it predicts interpersonal citizenship behaviors (Grant & Mayer, 2009), acceptance of negative feedback (Korsgaard, Meglino, & Lester, 1997), employee initiative (DeDreu & Nauta, 2009), and strengthens the relationship between individual difference variables and job performance (e.g., core self-evaluation and job performance, Grant & Wrzesniewski, 2010). Despite the information that we know about prosocial motivation and outcomes for individual employees, much is still to be learned regarding the effects of team-level prosocial motivation on work team outcomes.

In contrast to an individual focus on benefiting others, team prosocial motivation refers to “team members’ shared desire to focus their efforts on benefiting others” (Hu & Liden, 2015, p. 1104). Team prosocial motivation represents much more than a bottom-up process in which employees’ prosocial motivation is aggregated to the team-level (Kozlowski & Klein, 2000), but a shared belief developed through team member exchanges that the team greatly values benefiting others through their work (Morgeson & Hoffman, 1999). In fact, work teams can act as information processors in that team members collect information about the values of the team (De Dreu, Nijstad, & Van Knippenberg,
2008) and develop social norms focused on impacting others when team members as a whole believe that prosocial values guide team behavior. In such cases where the majority of team members share a desire to make a prosocial impact, team members act as benefactors and beneficiaries where members work together to benefit others outside the team while receiving resources and help from members within the team (Hu & Liden, 2015).

**Team level.** Research from the management and psychology literatures have repeatedly shown that team behaviors that are prosocial in nature (e.g., helping behavior, Hackman, 2011) contribute to valued team outcomes. For instance, there is empirical evidence that teams that maintain high levels of cooperation attain high levels of performance (Mathieu et al., 2000). In one of the few studies that have examined the effects of team prosocial motivation on team outcomes, Hu and Liden (2015) found that team cooperation acts as a mechanism through which team prosocial motivation influences team performance and team OCB, and team viability acts as a mediating mechanism through which team prosocial motivation influences team turnover.

Given these insights, when team members share a desire to benefit others, members may be more likely to engage in team processes that create synergistic gains (e.g., cooperation, Hu & Liden, 2015) and may be more willing to assume leadership roles and responsibilities to enhance the welfare of others. The next sections describe two mediating mechanisms that may help account for the relationship between team prosocial motivation and shared leadership: team empowerment and team psychological safety.
**Team Empowerment**

**Definition and dimensions.** At the individual level, empowerment can be defined as heightened intrinsic task motivation as evidenced by cognitions (i.e., meaning, competence, impact, self-determination) that reflect an employee’s orientation to his or her work role (Spreitzer, 1995). At the team-level, team empowerment can be viewed as the collective increase of task motivation by the team that results in higher levels of impact, potency, autonomy and meaningfulness (Kirkman & Rosen, 1999). Research on empowerment stems from two motivational frameworks including Albert Bandura’s research on self-efficacy (Bandura, 1977) and the job characteristics model (Hackman & Oldham, 1976). Thus, two different lines of thought developed in studying empowerment: structural empowerment and psychological empowerment. Structural empowerment draws on job characteristics research and emphasizes the delegation of authority and responsibility from upper management to lower level employees, whereas psychological empowerment draws on self-efficacy research and emphasizes the employee’s cognitive states or beliefs that they can complete the work on their own (Maynard et al., 2012).

Although this two-dimensional view exists within the team empowerment literature, the preeminent conceptualization at both the individual and team level is a construct containing four dimensions: impact, meaningfulness, autonomy, and potency (Kirkman & Rosen, 1997). Impact refers to the extent to which employees view their behavior as making a difference, or the extent to which they perceive their behavior affects work outcomes. Meaningfulness refers to the
congruence between an employee’s work goals and values, or the degree to which an employee cares about a work task. Autonomy refers to the degree of control employees have over work tasks and processes, and emphasizes choice in beginning and regulating action. Finally, potency refers to employees’ perceptions regarding their ability to perform work tasks at a high level.

**Mediating effects of team empowerment.** Scholars have suggested that “team empowerment may be another mediating mechanism through which leadership becomes shared among team members” (Carson et al., 2007, p. 1230). Guided by self-determination theory (SDT), this research argues that the team prosocial motivation-shared leadership relationship can be further realized through team empowerment. SDT suggests that individuals’ innate psychological needs (i.e., competence, autonomy, relatedness) are the basis for their self-motivation, personality integration, and behavioral regulation (Ryan & Deci, 2000). Recent research on SDT suggests that psychological needs of competence, autonomy, and relatedness are fulfilled when employees are intrinsically motivated to benefit others (Sheldon, Arndt, & Houser-Marko, 2003). Concerning competence, as stated previously, prosocially motivated individuals are not naturally drawn to their work and push themselves toward completing their work. Thus, when individuals dedicate more effort and persistence toward achieving an outcome relevant to them, they are likely to feel more capable of achieving the outcome (Bandura, 1977). Moreover, drawing on theories of self-perception (Bem, 1972) and cognitive dissonance (Festinger, 1957), when prosocially motivated individuals choose to exert great effort toward their work to benefit
others, they are likely to consider their efforts as successful even if they have not met the organization’s criteria for success.

With regard to autonomy, prosocial motivation can be conceptualized as a more self-determined or autonomous form of extrinsic motivation. In other words, when employees perceive that their own actions are impacting others and feel personally responsible for the choice to exert more persistence and promote the welfare of others, they are likely to experience their actions as volitional (Grant, 2007; cf. Ryan & Deci, 2000). On the topic of relatedness, employees are likely to feel valued in linking their behavior to outcomes that impact others’ lives (Grant, 2007).

When team members are driven by the purpose of benefiting others through their work they are more likely to share information and ideas (Grant & Berry, 2011). This is consistent with previous research that suggests prosocially motivated individuals are more likely to engage in team processes that engender team effectiveness (De Dreu, 2006; Hu & Liden, 2015). Taken together, when team members collectively share a desire to benefit others, they should experience heightened feelings of empowerment (i.e., autonomy, impact, potency, meaningfulness). Consequently, increased levels of autonomy and work meaningfulness (Kirkman & Rosen, 1997), in addition to increased involvement in team processes (Spreitzer, Noble, Mishra, & Cooke, 1999) should increase members’ desires to exert influence within the team (Avolio, Jung, & Sivasubramaniam, 1996).
A second possible mediator of the relationship between team prosocial motivation and shared leadership is team psychological safety.

**Team Psychological Safety**

**Definition.** Team psychological safety is team members’ shared beliefs that the internal environment within the team is safe for interpersonal risk taking (Edmondson, 1999). This emergent state is based on the fundamental assumption that team members will not be rejected by others for voicing opinions or making contributions. Teams high on psychological safety are typified by affect-based and cognition-based trust among team members as well as concern for members within the team (Schaubroeck, Lam, & Peng, 2011). High team psychological safety influences team members’ levels of work engagement primarily because of shared perceptions that members can openly and actively participate in teamwork activities without suffering social backlash (e.g., being harshly criticized for ideas) (Schaubroeck et al., 2011). Further, when teams are high on psychological safety members are more likely to engage in information sharing, and consequently, are more committed to teamwork tasks, are better able to identify with team members, and use more effective performance strategies (Edmondson, 1999; Edmondson & Lei, 2014).

**Mediating effects of psychological safety.** Team psychological safety may act as a mediating mechanism through which team prosocial motivation influences shared leadership. As mentioned previously, the degree to which the team develops shared norms focused on team prosocial motivation is contingent upon whether members perceive team members as highly motivated to benefit
others. When members perceive that the team is collectively motivated to help others, members become less concerned with monitoring personal losses or gains (Meglin & Korsgaard, 2004) and less afraid of voicing their dissenting opinions as long as they perceive their inputs as positively contributing to team goals (Grant & Berry, 2011). This is supported by empirical evidence that shows that individuals who are motivated to benefit others through their work are more likely to engage in affilitative citizenship behaviors (e.g., showing courtesy to other employees), as well as challenging citizenship behaviors (e.g., voicing opinions to others in the team, Grant & Mayer, 2009).

Further, when a psychologically safe climate is developed within a team in which there are healthy levels of task conflict and members feel valued for their inputs, teams typically observe a corresponding increase in cooperation and sense of shared responsibility for team outcomes (Kirkman & Rosen, 1999). In sum, teams that are motivated to make a prosocial impact are likely to foster a psychologically safe climate, which in turn, should lead to increased levels collective influence and shared leadership.

**Team Surface-Level Diversity**

The diversity literature highlights two major but opposing explanations for how diversity impacts team functioning, namely the information/decision-making perspective and the social categorization perspective (Williams & O’Reilly, 1998). The social identity and self-categorization perspectives (Turner, Hogg, Oakes, Reicher & Wetherell, 1987) argue that observable in-group/out-group categories play a pivotal role in regulating how individuals perceive self-other
similarities. Consistent with these perspectives, when a specific team characteristic is salient team members have a tendency to focus on the self-aspects common among members of the in-group as opposed to characteristics shared with out-group members, especially during early team interactions and in the absence of information regarding deep-level characteristics of team members (e.g., personality; Byrne, 1971; Harrison, Price, Gavin, & Florey, 2002). Conversely, the information/decision making perspective posits that diverse teams are comprised of individual team members that can draw on personal experiences and contribute unique perspectives to positively impact team functioning and performance (Ancona & Caldwell, 1992; Bantel & Jackson, 1989). The differential effects of gender and racial diversity on team functioning have been well documented in the team diversity literature.

**Gender.** Studies on the effects of gender dissimilarity on team functioning have yielded equivocal results. For example, Konrad, Winter, and Gutek (1992) found that diversity in team gender composition led to dissatisfaction and isolation for women in certain circumstances. Conversely, Fisher, Bell, Dierdorff, and Belohlav (2012) as well as Rentsch and Klimoski (2001) did not find significant effects of team gender composition on team cognition. To make sense of these inconsistent findings, it is important to note that the effect of team gender composition on team functioning is contingent upon the degree to which gender differences are apparent to members in the team (van Knippenberg et al., 2004).

**Race.** It is also important to note that different forms of diversity have different effects on team functioning (Bell, Villado, Lukasik, Belau, & Briggs,
In particular, research on work team racial diversity shows that racial diversity negatively influences team cognition (Fisher et al., 2012), commitment to the work team (Riordan & Shore, 1997), and team performance (Bell et al., 2011). Further, Shuter (1982) examined the first several minutes of a conversation in intraracial and interracial dyads and found that Caucasians and African Americans greatly altered their initial interaction depending on the dyad composition.

**Faultlines.** Faultlines are hypothetical dividing lines that partition a team into homogeneous subgroups based on the degree to which members align on multiple demographic characteristics (e.g., both race and gender) (Lau & Murnighan, 1998). Diversity faultlines are generally viewed to negatively affect team processes and outcomes (van Knippenberg & Schippers, 2007); however, some researchers have found that faultlines can lead to positive team outcomes (e.g., group satisfaction) in some cases (Lau & Murnighan, 2005). Faultline research has contributed to the team diversity literature by arguing that team members’ alignments on demographic characteristics affects behavior as opposed to the dispersion of certain characteristics within a team (Bezrukova, Jehn, Zanutto, & Thatcher, 2009). Recent research supports this notion by suggesting that such alignments on demographic characteristics yield more direct and widespread effects on team functioning than the dispersion of specific attributes within a team (Bezrukova, Thatcher, & Jehn, 2007; Lau & Murnighan, 2005).

Based on the previous findings, team racial and gender diversity and demographic faultlines are expected to moderate the effects of team prosocial
motivation on emergent states (empowerment and psychological safety) and shared leadership.

**Moderating effects of team surface-level diversity.** Although prosocially motivated team members may be inclined to work effectively with one another to generate high quality outputs to benefit people, the context in which the team inhabits greatly influences the opportunity for them to engage in effective teamwork (Hu & Liden, 2015). Salient contextual cues such as race or gender can influence attitudes toward specific individuals or the team collectively (Riordan & Shore, 1997). With regard to the role of surface-level diversity as a moderator of prosocial motivations in team contexts, scholars have noted the following:

The impact of perceived self-other (dis) similarity on helping motivations observed in interpersonal contexts of helping directly points to a possible role of in-group/out-group categorization processes in moderating the nature of the motivations underlying helping in the context of groups (Sturmer & Snyder, 2010, p. 40).

The following research argues that the effects of team prosocial motivation on team emergent states (psychological safety and empowerment) and shared leadership will be weaker when teams are characterized by higher levels of racial and gender diversity and demographic faultlines as opposed to lower levels. In line with social categorization perspectives, team members are likely to perceive self and other in-group members as similar to each other while perceiving out-group members as dissimilar from the self and in-group.
Race/ethnicity and gender are demographic characteristics that are easily identified and are often used as the basis for how members categorize each other (Stangor, Lynch, Duan, & Glass, 1992). Salient group characteristics (e.g., heterogeneity in race/ethnicity, and gender) are likely to influence team members to focus on differences between group members which can negatively impact team functioning. Further, when teams lack the necessary time to learn more about deep-level compositional characteristics there is a greater likelihood that superficial differences will shift team members’ attentional focus away from a positive motivational focus toward the task (e.g., meaningfulness of work, impact), hamper social integration (e.g., cohesion), and decrease commitment to the work team (Gist, Locke, & Taylor, 1987; Harrison et al., 2002; Riordan & Shore, 1997; Tajfel & Turner, 1986). This is consistent with research that suggests that perceived self-other differences may serve as a “warning signal (i.e., a cue of stigma or deviance)” (Sturmer & Snyder, 2010, p. 42) that is likely to elicit anxiety and negative emotions among team members (Jackson & Sullivan, 1989), which may prevent members from engaging in interpersonal risk taking with each other. Thus, the effects of team prosocial motivation on empowerment and psychological safety will be weaker when teams have strong faultlines and high gender and racial diversity. In turn, lower levels of empowerment and psychological safety should lead to lower levels of shared leadership.

However, several theoretical perspectives (self-categorization and social identity perspectives, similarity-attraction paradigm) suggest that prosocially motivated team members who view themselves as similar and identify with the
team are more likely to experience positive emergent states and share leadership responsibilities. According to the similarity-attraction paradigm, similarity between team members results in a high degree of interpersonal attraction among team members (Byrne, 1971), which should be positively associated with effective team processes such as communication and cohesion (Lincoln & Miller, 1979). Similarly, social identity theory suggests that social identification with a team influences attitudes and behaviors that are typically associated with team cooperation and altruism (Turner, 1982, 1984). To the degree that members recognize aspects of themselves in others, the impact of potential costs associated with helping and providing resources to team members is likely to be mitigated (Sturmer & Snyder, 2010) and team members are more likely to work in a cooperative fashion to provide quality outputs for task beneficiaries. There are a myriad of examples within the literature that provide support for the notion that team or team-based similarities between in-group members (and the self) are directly related to helping. For example, individuals allocate more resources to in-group members (e.g., Tajfel, Billig, Bundy, & Flament, 1971), often exhibit more security in interacting with in-group members (e.g., Stephan & Stephan, 1985), and tend to have higher levels of trust in in-group members than out-group members (e.g., Brewer, 1996). Considering previous research findings, it is likely that the effects of team prosocial motivation on empowerment and psychological safety will be strengthened when teams have weak faultlines and low gender and racial diversity. In turn, higher levels of empowerment and psychological safety should lead to lower levels of shared leadership.
Rationale

This research examines how team prosocial motivation relates to shared leadership and when the association is weaker or stronger. This study proposes that team members’ desire to benefit others through their work will foster high levels of shared leadership—a distribution of responsibility and influence among members. More specifically, this research contends that the relationship between team prosocial motivation and shared leadership may be further realized through distinct emergent team properties (i.e., team empowerment and psychological safety) (as displayed in Figure 1). It is also argued that although team prosocial motivation may influence the distribution of leadership among team members, the team prosocial motivation-shared leadership relationship may be contingent upon the surface-level diversity of the team. As salient demographic characteristics increase within the team, it is likely that the effects of team prosocial motivation on emergent states and shared leadership will become weaker.

The present investigation makes several contributions to the science and practice of shared leadership. This research responds to Carson et al.’s (2007) calls for research to examine more predictors of shared leadership. In examining the effects of team prosocial motivation on shared leadership development, this study contributes to the literature on the antecedents of shared leadership as well as the research on the usefulness of collective prosocial motivation in the workplace. Additionally, this research proposes how team prosocial motivation facilitates shared leadership in work teams through team psychological safety and empowerment. Further, the present research extends the team diversity literature
by examining team surface-level diversity as an important contextual factor that may weaken or strengthen the relationship between team prosocial motivation and shared leadership. As a final point, this research may be of great value to practice, particularly managers and team leaders within organizations. This investigation is unique in that it informs organizations of a means through which they can expand the leadership capacities of their work teams by emphasizing promoting the welfare of others.

*Figure 1. Theoretical Model*
Statement of Hypotheses

Hypothesis 1a: Team prosocial motivation will be positively related to team empowerment.

Hypothesis 1b: Team prosocial motivation will be positively related to team psychological safety.

Hypothesis 2: Team prosocial motivation will be positively related to shared leadership.

Hypothesis 3: Team empowerment will be positively related to shared leadership.

Hypothesis 4: Team psychological safety will be positively related to shared leadership.

Hypothesis 5a: The relationship between team prosocial motivation and shared leadership will be partially mediated by team empowerment.

Hypothesis 5b: The relationship between team prosocial motivation and shared leadership will be partially mediated by team psychological safety.

Hypothesis 6a: Team racial diversity will moderate the relationship between team prosocial motivation and team empowerment, such that the relationship will be stronger when team racial diversity is low as opposed to when team diversity is high.

Hypothesis 6b: Team racial diversity will moderate the indirect effect of team prosocial motivation on shared leadership through team
empowerment, such that team empowerment will mediate the indirect effect when team racial diversity is low as opposed to high.

Hypothesis 6c: Team racial diversity will moderate the relationship between team prosocial motivation and psychological safety, such that the relationship will be stronger when team racial diversity is low as opposed to when team diversity is high.

Hypothesis 6d: Team racial diversity will moderate the indirect effect of team prosocial motivation on shared leadership through team psychological safety, such that team psychological safety will mediate the indirect effect when team racial diversity is low as opposed to high.

Hypothesis 7a: Team gender diversity will moderate the relationship between team prosocial motivation and team empowerment, such that the relationship will be stronger when team gender diversity is low as opposed to when team gender diversity is high.

Hypothesis 7b: Team gender diversity will moderate the indirect effect of team prosocial motivation on shared leadership through team empowerment, such that team empowerment will mediate the indirect effect when team gender diversity is low as opposed to high.

Hypothesis 7c: Team gender diversity will moderate the relationship between team prosocial motivation and psychological safety, such that the relationship will be stronger when team gender diversity is low as opposed to when team gender diversity is high.
Hypothesis 7d: Team gender diversity will moderate the indirect effect of team prosocial motivation on shared leadership through team psychological safety, such that team psychological safety will mediate the indirect effect when team gender diversity is low as opposed to high.

Hypothesis 8a: Team faultlines will moderate the relationship between team prosocial motivation and team empowerment, such that the relationship will be stronger when team faultlines are weak as opposed to when team faultlines are strong.

Hypothesis 8b: Team faultlines will moderate the indirect effect of team prosocial motivation on shared leadership through team empowerment, such that team empowerment will mediate the indirect effect when team faultlines are weak as opposed to when team faultlines are strong.

Hypothesis 8c: Team faultlines will moderate the relationship between team prosocial motivation and psychological safety, such that the relationship will be stronger when team faultlines are weak as opposed to when team faultlines are strong.

Hypothesis 8d: Team faultlines will moderate the indirect effect of team prosocial motivation on shared leadership through team psychological safety, such that team psychological safety will mediate the indirect effect when team faultlines are weak as opposed to when team faultlines are strong.
CHAPTER II

Method

Participants

Data were collected from 515 undergraduate and MBA students enrolled in management courses across two universities (large Midwestern university, large western university). Of the participants, 54% were males, with ages ranging from 18 to 50 ($M = 24.75$, $SD = 5.35$). Participants were members of White (33.7%), Hispanic (34.9%), Asian (18.7%), Black (5%), and other ethnic groups (7.7%). At the team-level, 63.6% of teams were evenly balanced in terms of gender composition (50% male and 50% female) and 13.1% of teams were mostly female (23.4% were mostly male).\(^1\) As for the ethnic composition of teams, 50.5% were mostly minority (11.2% were mostly White) and 38.3% of teams were evenly balanced (50% White and 50% minority).\(^2\) Teams ranged in size from two to six members ($M = 4.83$, $SD = 0.59$).

Of the 108 teams that participated in the developmental assessment center, only one team chose not to participate in this study. Participants received partial course credit for participating in the assessment center; no monetary incentives were given to participants. Given the fact that team prosocial motivation has moderate effects on team outcome variables (Pearson correlation

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\(^1\) Following previous research (Riordan & Shore, 1997), if a team was composed of more than 60% women, it was categorized as mostly female; if a team was between 40% and 60% female, it was categorized as a 50/50 male and female team; if a team was less than 40% female, it was categorized as a mostly male team.

\(^2\) Similarly, if a team was composed of more than 60% White, it was categorized as mostly White; if a team was between 40% and 60% female, it was categorized as a 50/50 minority and White team; if a team was less than 40% White, it was categorized as a mostly minority team.
coefficients ranging from .29 to -.60, Hu & Liden, 2015), a total of 107 teams provided this research with adequate statistical power to detect such effects using ordinary least-squares regression ($N = 107, \alpha = .05$, Cohen, 1992). Twenty-seven teams were comprised of MBA students and 80 teams were comprised of undergraduate business students. A total of 53 teams were in the high team prosocial motivation condition and 54 teams were in the low team prosocial motivation condition. Team members were randomly assigned to study conditions.

**Procedures**

*Pilot study.* To ensure that the prosocial motivation manipulation would be effective in inducing participants with high and low levels of prosocial motivation, a pilot test was conducted. Individuals for the pilot study were recruited primarily through a psychology graduate email group at a large Midwestern university. The email contained a link to a Qualtrics survey in which the prosocial motivation manipulation was embedded. A total of 50 individuals participated. Similar to the instructions that participants in the focal study received, individuals were asked to imagine being a vice president of a publishing company who has just returned from a 3-week safari vacation. Further, participants were informed that they would need to make two critical decisions in an upcoming meeting with the other vice presidents of the organization regarding the selection of a senior executive and new customer service initiatives. Participants then read the instructions for the team meeting (Appendices A & B), the addendum that contained the prosocial motivation manipulation (Appendix
C), and then were asked to answer two questions (e.g., To what extent do you agree that the team would be concerned with helping others through their initiatives?) per topic (CEO selection, customer service initiatives) (see Appendix D). Participants in the high prosocial motivation condition read statements about how the fictitious organization was in great need of help selecting a senior-level manager and generating new customer service initiatives, whereas participants in the low prosocial motivation condition read statements about how the organization was not in any great need of help with such issues. Participants in the pilot study did not complete the team exercises, just the pilot manipulation check items for the CEO meeting (α = .95) and the CSI meeting (α = .85).

Pilot study results revealed that there were significant mean differences between participants in the high prosocial motivation condition (M = 5.67, SD = 1.27) and low prosocial motivation condition (M = 2.60, SD = 1.53) on the CEO manipulation check measure, t(48) = 7.75, p < .001. It was also determined that there were significant mean differences between participants in the high prosocial motivation condition (M = 5.65, SD = 1.06) and low prosocial motivation condition (M = 4.07, SD = 1.49) on the CSI manipulation check measure, t(48) = 4.25, p < .001. Taken together, these results suggest that that prosocial motivation manipulation would be effective in inducing participants with high and low levels of prosocial motivation. Table 1 also summarizes the pilot study manipulation check results.
Table 1.

*Pilot Manipulation Check Results: Means and Standard Deviations of Team Members’* Levels of Prosocial Motivation Across High and Low Prosocial Motivation Conditions

<table>
<thead>
<tr>
<th></th>
<th>Low PS</th>
<th>High PS</th>
<th>T</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO Meeting</td>
<td>2.60 (1.52)</td>
<td>5.67 (1.27)</td>
<td>-7.75***</td>
<td>.000</td>
</tr>
<tr>
<td>CSI Meeting</td>
<td>4.07 (1.49)</td>
<td>5.65 (1.06)</td>
<td>-4.25***</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. $N = 50$. Low PS = Low Team Prosocial Motivation Condition; High PS = High Team Prosocial Motivation Condition. *** $p < .001$ (2-tailed).

*Focal study.* In the main study, participants completed the two team meetings within the context of a three-hour developmental assessment center for course credit. Participants received and completed the informed consent document on the day of the assessment center and participants completed prework (i.e., reading of background material such as annual reports) before the start of the assessment center. Aside from the prework, participants did not receive any additional information prior to the start of the assessment center. Also, participants completed a series of demographic items and individual difference measures (i.e., prosocial motivation, impression management motives, intrinsic motivation) at the outset of the assessment center.

The assessment center exercises included two 25-minute leaderless team discussions. One discussion required team members to arrive at a consensus on several customer service initiatives to implement within the fictitious organization, while the other exercise required members to make a team
recommendation for hiring a senior-level manager. Teams completed both exercises and the exercises were always completed in the same order (the executive selection exercise followed by the customer service initiative exercise).

This discussion format has been previously used in leadership research (e.g., Walter, Cole, van der Vegt, Rubin, & Bommer, 2012) and follows a format commonly used in assessment centers in which roles are unassigned (Thornton & Mueller-Hanson, 2004). The discussions took place in various classrooms (breakout rooms) that were set aside for team meetings. All discussions took place within the three-hour window for the assessment center but were scheduled at different times. Assessment center proctors—hypothesis-blind graduate students, faculty, and staff from the two business schools—provided instructions and distributed documents to assessment center participants in the main room but were not physically present during the team meetings. Similar to the assessment center proctors, the author of this study helped distribute documents for each session but was not physically present during the actual team exercises.

Upon arrival of all team members, each member stated their name and their assessment center ID to a camera, which recorded the entire team meeting from that point forward. Next, one team member read an addendum aloud to the team (see Appendix C) which contained the prosocial motivation manipulation. Prosocial motivation is often manipulated in studies by altering the level of need that an individual, team, or entity expresses, fostering an empathetic desire to help.

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3 Participants in these meetings shared a common goal and had to work together to arrive at a consensus on each decision (interdependent). Because these groups shared two common characteristics of teams (Hackman, 1990), they were considered student teams (as opposed to groups) for the purposes of this study (Hollenbeck, Beersma, & Schouten, 2012).
the beneficiaries (e.g., Grant & Berry, 2011; Hu & Liden, 2015). Similar to the pilot study, participants in the high prosocial motivation condition read statements about how the fictitious organization was in dire need of help selecting a senior-level manager and generating new customer service initiatives, whereas participants in the low prosocial motivation condition read statements about how the organization was not in any great need of help with such issues. Team members then discussed their viewpoints on each decision within the 25 minutes allotted for each team meeting (customer service initiatives, executive selection). The team meeting ended once the team made their final recommendations regarding the new customer service initiatives to implement and the final three candidates for the CEO position. Finally, once all the assessment center activities were completed, all participants returned to the main room and the author of this study read a debriefing statement to participants in person before they were dismissed (Appendix E).

Measures

Manipulation check: Prosocial motivation. Participants completed a 2-item measure after each exercise in order to assess each team’s level of prosocial motivation (see Appendix D). Participants were asked to rate the degree to which they agreed with a series of statements regarding their team’s motivations driving their final decisions (e.g., “My management team selected initiatives that focused heavily on doing good for others”). The response format was a 7-point Likert-type scale (1 = Strongly Disagree, 7 = Strongly Agree). The scores from the manipulation check measure for the executive selection exercise (α = .78) and the
customer service exercise (α = .84) demonstrated good reliability. Team members’ responses to the manipulation check items were more similar than consistent (ICC₁ = .11, ICC₂ = .38, median rwg using a uniform and slightly skewed distribution = .84 and .76). Although ICC₁ and ICC₂ values were lower than expected, rwg statistics were above .70 indicating strong agreement (LeBreton & Senter, 2008). Considering this information, data were aggregated to the team level.

**Coder training.** Pairs of coders (8 undergraduate psychology students blind to the study purpose and manipulation) were trained by the author to assess team-level variables (empowerment and psychological safety) in the recorded team meetings. The majority of coders were upper-level undergraduate students majoring or minoring in industrial/organizational psychology. Coders received extensive training designed to help them develop a frame of reference for the ratings (Bernardin & Buckley, 1981; Uggerslev & Sulsky, 2008). The training consisted of both lecture and practice sessions. Coders first received a 1-hour lecture on study variables (i.e., psychological safety, and dimensions of empowerment). Coders were also trained by the author of this study to identify dimensions of team empowerment (i.e., potency, meaningfulness, autonomy, impact, Kirkman & Rosen, 1999) and behavioral indicators of psychological safety (e.g., admitting errors, asking for help, or voicing ideas, Edmondson & Lei, 2014). Coders then had the opportunity to practice identifying behavioral exemplars of each variable. They received access to several recordings of teams’ leaderless team discussions and were asked to code these materials on their own.
Coders then met a week later to compare ratings and discuss agreement and disagreement with each other. After a frame of reference was established, coders began coding the remainder of the team meetings for psychological safety and empowerment. The author frequently compared coders’ coding sheets and checked for agreement. Raters were reliable and similar in rating teams on psychological safety (ICC$_1$ = .74, ICC$_2$ = .85, median $r_{wg}$ using a uniform and slightly skewed distribution = .94 and .91) and empowerment (ICC$_1$ = .73, ICC$_2$ = .85, median $r_{wg}$ using a uniform and slightly skewed distribution = .99 and .99).

**Emergent states.** The coding task consisted of watching each leaderless team discussion (2 per team) and coding for behavioral exemplars of team empowerment and psychological safety. Coders used observation sheets during the process, which listed behavioral examples of empowerment and psychological safety (see Appendices F and G). Videos were rated in random order, with each coder rating approximately three teams per week (6 videos). Raters viewed each video one at a time and two coders rated each video. Rater pairs determined a consensus score for each dimension of empowerment and psychological safety, ranging from 1 (not at all) to 5 (To a great extent); these scores were averaged to provide a single rating for each team. The team empowerment composite was formed by averaging the ratings of all 4 empowerment dimensions (impact, autonomy, meaningfulness, potency). Teams’ empowerment scores were then

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4 Upon examining the correlations between the empowerment dimensions, only two of the empowerment relationships (impact and autonomy, autonomy and potency) were significantly related to each other ($r = .59$, $p < .001$, $r = .28$, $p < .01$). Thus, all hypotheses were examined with separate empowerment dimensions as well as a team empowerment composite.
averaged across exercises (executive selection, customer service). Similarly, psychological safety scores were also averaged across exercises.

Shared leadership. Shared leadership was measured following a social network approach (Mayo et al., 2003), using three different operationalizations: density, centralization, and coefficient of variation (CV). Density is a measure of the sum total of leadership provided by team members as perceived by others and aptly reflects the degree to which leadership behaviors are distributed among very few or many team members (Carson et al., 2007). Using a round-robin format, participants rated team members on the following question (see Appendix H): “To what extent did you rely on [insert participant ID] for leadership?” Participants wore ID badges to aid participants in making accurate ratings of their team members. Team members’ ratings of other members were fairly reliable and similar (ICC₁ = .31, ICC₂ = .65, median r wg using a uniform and slightly skewed distribution = .88 and .81).

The computational formula for network density is: \( D = \frac{ties}{n(n-1)} \), in which the sum of influence relationships (ties) in the team is divided by the number of all possible relationships (Sparrowe, Liden, Wayne, & Kraimer, 2001). Since the study data were valued (e.g., on a 1-7 Likert-type scale), density was computed by dividing the sum of the responses by the total possible sum of the responses (Gockel & Werth, 2010). Thus, consistent with this Carson et al.’s (2007) definition of shared leadership as an emergent team property that indicates

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5 There was a fairly strong relationship between team empowerment scores for the CEO and CSI meeting \((r = .46, p < .001)\).
6 There was a modest relationship between team psychological safety scores for the CEO and CSI meeting \((r = .23, p < .05)\).
the distribution of influence among many members of team, higher density scores suggest that many team members were perceived as providing leadership for the team as opposed to only one or two members. Density scores were averaged across the two exercises for each team.  

Although the primary operationalization of shared leadership was density, shared leadership was also operationalized as network centralization—a general index of how much team members differ in their influence over one another (Gockel & Werth, 2010). While density helps to account for the total amount of influence in the team, centralization helps to account for the amount of variance in influence in the team. Consistent with (Freeman, 1979), the computational formula for team centralization is:

\[
C_X = \frac{\sum_{i=1}^{n} [\max_c C_X(p) - C_X(p_i)]}{\max \sum_{i=1}^{n}[\max_c C_X(p) - C_X(p_i)]]}
\]

To summarize the formula, first, each team members’ indegree centrality—the amount of leadership attributed to a team member by other members—is calculated. Next, the highest indegree centrality in the team is identified and each team member’s indegree centrality is subtracted from this value. Subsequently, these numbers are summed in order to represent the numerator in the formula. This number is then divided by the highest possible value in a team of equal size. In other words, the denominator represents a situation in which one team member influences all team members but is not influenced by any team members (i.e., maximum centrality within the team). The

7 Density scores for the CEO and CSI meeting were highly correlated (r = .62, p < .001).
range of network centralization is from 0 to 1, with team members being more equal in their influence over each other when the value is closer to 0 and team members being less equal in their influence over each other when the value is closer to 1 (Gockel & Worth, 2010). Stated differently, when centralization is high there is a low degree of shared leadership and when centralization is low there is a high degree of shared leadership. Following recommendations from Gockel and Werth (2010), team centralization values were subtracted from 1 so that the correlations between centralization and team-level variables (e.g., team prosocial motivation) would be positive, if team-level variables affected shared leadership positively. Team centralization scores were averaged across exercises for each team.\(^8\)

Finally, shared leadership was also operationalized as the coefficient of variation (CV). Often used in the team diversity literature (Harrison & Klein, 2007), CV reflects both the variation and the mean of team members’ influence scores (CV = SD/M).\(^9\) CV was computed using team members’ indegree centralities (Gockel & Werth, 2010). CV is similar to team centralization in that lower values represent higher amounts of shared leadership. Thus, like team centralization, CV values were subtracted from 1 so that correlation coefficients would be positive if variables positively affected shared leadership. CV scores for

\(^8\) There was a fairly strong relationship between centralization scores for the CEO and CSI meeting \(r = .47, p < .001\).

\(^9\) There has only been one study that has used CV to examine a construct close to shared leadership (Haleblian & Finkelstein, 1993). Considering that CV has been used primarily in diversity research, this study also serves as one of the few empirical investigations of CV as an operationalization of shared leadership.
each team were averaged across exercises.¹⁰

Team surface-level diversity. Self-report measures of race/ethnicity and gender were collected and used to calculate racial and gender diversity. Race/ethnicity included the following categories: White/Caucasian, Asian/Pacific Islander, Black/African American, Hispanic, and Other (see Appendix I for demographic items). In line with Harrison and Klein’s (2007) diversity typology, racial and gender diversity were conceptualized in terms of variety. When diversity is conceptualized in terms of variety, within-group heterogeneity increases as the quantity of unique attribute categories (race or gender) within a team increases. Teams within this sample ranged from fully homogenous to heterogenous regarding race and gender. This research used Blau’s (1977) index of heterogeneity to operationalize gender and racial diversity in terms of variety. The computational formula for Blau’s (1977) index of heterogeneity is: 1 - Σ Pk², where Pk is the proportion of each category (e.g., women) in a given team. In brief, Blau’s index consists of adding the squared proportion of team members in each category and then subtracting the total from 1. A high index means that there is a greater diversity within the team (0 = minimum possible diversity, value close to 1 = maximum possible diversity).

For the purposes of this study, faultlines were based on two social categories: race/ethnicity and gender. Following previous research (e.g., Chung et al., 2015; Jiang, Jackson, Shaw, & Chung, 2012), this study used the algorithm developed by Shaw (2004) to measure faultline strength (FLS). The ASW.culster

¹⁰ There was a fairly strong relationship between CV scores for the CEO and CSI meeting (r = .44, p < .001).
package in R was used to calculate FLS. Shaw’s (2004) algorithm captures the extent to which subgroups based on one defining attribute (e.g., race) are internally similar and different on other attributes (e.g., gender), differentiating itself from other measures that only focus on the similarity of subgroups (e.g., Thatcher, Jehn, & Zanutto, 2003, *Fau index*). Computationally speaking, final FLS was calculated by multiplying internal subgroup alignment (IAG) and the reciprocal of cross-subgroup alignment (CGAI) in team surface-level characteristics [FLS = IA X (1 – CGAI)]. Faultline strength scores ranged from 0 to .67, with higher values indicating greater faultline strength.

**Control variables.** Team members’ levels of trait prosocial motivation (Grant’s 2008 4-item scale, $\alpha = .93$) (see Appendix J), intrinsic motivation (Grant’s 2008 4-item scale, $\alpha = .89$) (see Appendix K), and impression management motivation (Rioux & Penner’s 2001 10-item scale, $\alpha = .88$) (see Appendix L) were taken into account in study analyses. Following previous recommendations on operationalizing individual-level constructs at the team-level of analysis (Chan, 1998), the team average was used to operationalize team trait prosocial motivation, team intrinsic motivation, and team impression management motives. To measure intrinsic and prosocial motivations, participants answered an introductory question from Grant (2008) which was adapted for a student setting, “Why are you motivated to complete your coursework?” followed by four items for intrinsic motivation (e.g., “Because I enjoy the work itself”) and four items for prosocial motivation (e.g., “Because I want to have a positive impact on others”). The response format for both scales was a 7-point Likert-type scale (1 = Strongly
Disagree, 7 = Strongly Agree). As far as impression management, participants responded to 10 items in which they were asked how important each motive statement would be in their decision to engage in an organizational citizenship behavior (OCB; e.g., “To avoid looking bad in front of others”). The response format for the scale was a 6-point Likert-type scale (1 = not at all important, 6 = extremely important). Also, given that not all teams had an equal amount of team members and students from different universities participated in this study, team size and the student sample (MBA versus undergraduate students) were also identified as potentially relevant control variables.

Variables used in exploratory analyses. Team performance was also assessed based on subject-matter expert (SME) ratings. SMEs were professors in management and Industrial/Organizational psychology with extensive experience in designing and conducting research in assessment center contexts. More specifically, two SMEs rated all 7 candidates for the CEO position on 1 item (“The candidate is a good fit for the CEO role.”) and all 10 customer service initiatives on 1 item (“The initiative will improve ILIAD’s customer service rankings.”). SMEs used a 5-point Likert-type scale to make their ratings (1 = Strongly Disagree, 5 = Strongly Agree). SMEs were very consistent in their ratings (inter-rater reliability = .97). This method of using expert judgments as weights to create composite scores has been widely used in the organizational sciences (Bobko, Roth, & Buster, 2007). Team CEO performance was calculated by summing the values associated with each candidate selected by the team and team CSI performance was calculated by summing the values associated with
each initiative selected by the team. An overall team performance variable was created by averaging team CEO and team CSI performance. In addition to team performance, team average self-report GPA—a proxy for average team cognitive ability—was examined in exploratory correlational analyses.\textsuperscript{11}

\textsuperscript{11} Zajac (1991) found a strong positive association between participants’ self-reported GPA and official university records ($r = .81$, $p < .001$). Self-reported GPA should be viewed as a conservative measure of cognitive ability because a fair amount of the variance can be attributed to motivational factors (Klein, 1991).
CHAPTER III

Results & Analyses

Focal Study Manipulation Check

Independent t-tests were performed to test for differences in team members’ responses to the focal study manipulation check measures across the two experimental conditions. Results revealed that there were not significant mean differences between members in the high prosocial motivation condition and low prosocial motivation condition on the CEO manipulation check measure, \( t(105) = -1.57, p = .12 \). It was also determined that there were not significant mean differences between members in the high prosocial motivation condition and low prosocial motivation condition on the CSI manipulation check measure, \( t(105) = -1.67, p = .10 \). Taken together, these results suggest that the team prosocial motivation manipulation influenced team members' levels of prosocial motivation in the desired direction but not to the extent to which there were statistically significant mean differences between team members in the high prosocial motivation condition and low prosocial motivation condition. Table 2 also summarizes the focal study manipulation check results.
Table 2.

Manipulation Check Results: Means and Standard Deviations of Team Members’ Levels of Prosocial Motivation Across High and Low Prosocial Motivation Conditions

<table>
<thead>
<tr>
<th></th>
<th>Low PS</th>
<th>High PS</th>
<th>t</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO Meeting</td>
<td>5.84 (.54)</td>
<td>6.01 (.54)</td>
<td>-1.57</td>
<td>.12</td>
</tr>
<tr>
<td>CSI Meeting</td>
<td>6.43 (.41)</td>
<td>6.55 (.32)</td>
<td>-1.67</td>
<td>.10</td>
</tr>
</tbody>
</table>

Note. N = 107 (53 in the Low PS, 54 in the High PS). Low PS = Low Team Prosocial Motivation Condition; High PS = High Team Prosocial Motivation Condition. * p < .05 (2-tailed).

Analytical Strategy

Descriptive statistics (means and standard deviations) and intercorrelations of study variables were examined prior to hypothesis testing using SPSS version 23. These statistics are listed in Table 3. Although this research identified several potentially relevant control variables (i.e., team size, student sample, impression management motives, intrinsic motivation, trait prosocial motivation), only intrinsic motivation, impression management, and trait prosocial motivation demonstrated significant associations with shared leadership. Therefore, only intrinsic motivation, impression management, and trait prosocial motivation were entered as covariates in analyses; including team size and the student sample as covariates in regression models did not change the results of the hypothesized relationships. Further, this research checked for major violations of statistical assumptions and influential cases prior to conducting regression analyses. No influential cases or major violations of statistical assumptions were found. It
should also be noted that density was the primary operationalization of shared leadership used in analyses.

This research followed Preacher and Hayes (2008) methodology to examine the mediating effects of team empowerment and psychological safety on team prosocial motivation and shared leadership. This approach is superior to traditional methods of testing mediation (e.g., Baron & Kenny, 1986) in that several mediating variables can be assessed simultaneously and remain uninfluenced by one another. Further, this research followed Preacher, Rucker, and Hayes (2007) methodology to examine the conditional indirect effects of team prosocial motivation on shared leadership through team empowerment and psychological safety. Team prosocial motivation, racial diversity, gender diversity, and faultline strength were mean-centered and the interaction terms were created by multiplying the centered variables of team prosocial motivation and team gender diversity, racial diversity, and faultline strength (Aiken & West, 1991). A bootstrapping approach was used to compute the compound coefficients required by indirect and conditional indirect effects and bias-corrected confidence intervals were used to estimate indirect effects (Edwards & Lambert, 2007).
Table 3

Descriptive Statistics and Intercorrelations of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
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<tr>
<td>5 Impression</td>
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<td>6 Trait PS</td>
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<td>8 Faultline</td>
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<tr>
<td>9 Empower</td>
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<td>-23</td>
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<td>0.06</td>
<td>0.12</td>
<td>0.03</td>
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<td>10 PsychSafe</td>
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<td>0.15</td>
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<td>-22</td>
<td>-01</td>
<td>-09</td>
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<td>-05</td>
<td>-07</td>
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<td>11 SL (Dens)</td>
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<td>-13</td>
<td>0.11</td>
<td>0.02</td>
<td>0.25</td>
<td>0.22</td>
<td>0.14</td>
<td>0.04</td>
<td>0.00</td>
<td>0.01</td>
<td>0.13</td>
<td>-</td>
<td></td>
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<tr>
<td>12 SL (Centr)</td>
<td>0.83</td>
<td>0.09</td>
<td>0.33</td>
<td>0.12</td>
<td>0.01</td>
<td>0.12</td>
<td>0.33</td>
<td>0.25</td>
<td>0.08</td>
<td>-15</td>
<td>0.00</td>
<td>0.10</td>
<td>0.19</td>
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<td>-</td>
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<tr>
<td>13 SL (CV)</td>
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<td>0.00</td>
<td>0.03</td>
<td>0.06</td>
<td>0.12</td>
<td>0.32</td>
<td>0.28</td>
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<td>0.00</td>
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<td>0.17</td>
<td>0.68</td>
<td>0.86</td>
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<tr>
<td>14 Team Perf</td>
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<td>0.06</td>
<td>0.14</td>
<td>0.15</td>
<td>0.08</td>
<td>0.12</td>
<td>0.11</td>
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<td>0.02</td>
<td>0.01</td>
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<td>0.03</td>
<td>0.03</td>
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<tr>
<td>15 Team GPA</td>
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<td>0.01</td>
<td>0.03</td>
<td>0.00</td>
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<td></td>
</tr>
</tbody>
</table>

Note: N = 107 teams for all variables except Team g (N = 102 teams). Correlations greater than or equal to [0.20], p < 0.05, correlations greater than or equal to [0.25], p < 0.01, (2-tailed). Ps Mo = (1 = Low Team Prosocial Motivation, 2 = High Team Prosocial Motivation); Students = (1 = Undergraduates at University 1, 2 = MBA students at University 2); Trait PS = Trait Prosocial Motivation; Intrinsic = Intrinsic Motivation; Impress = Impression Management; Empower = Empowerment; PsychSafe = Psychological Safety; Faultline = Faultline Strength; Gend Div = Team Gender Diversity; Race Div = Team Racial Diversity; SL (Dens) = Shared Leadership operationalized as density; SL (Centr) = Shared Leadership operationalized as team centralization; SL (CV) = Shared Leadership operationalized as coefficient of variation; Team Perf = Team Performance. Team GPA = Average team GPA. Cronbach’s alpha coefficients are presented along the diagonal.
Hypothesis Testing

It was hypothesized that team prosocial motivation would be positively related to team empowerment (Hypothesis 1a), team psychological safety (Hypothesis 1b), and shared leadership (Hypothesis 2). Results suggest that team prosocial motivation was not significantly related to team empowerment ($b = -0.09$, $SE = 0.07$, $p = .18$), psychological safety ($b = -0.24$, $SE = 0.15$, $p = .11$), or shared leadership ($b = .00$, $SE = 0.02$, $p = .91$). It was also hypothesized that team empowerment (Hypothesis 3) and team psychological safety (Hypothesis 4) would be positively related to shared leadership. Results suggest that team empowerment ($b = 0.03$, $SE = 0.03$, $p = .31$) and psychological safety ($b = -0.02$, $SE = .01$, $p = .14$) were not significantly related to shared leadership. This research also failed to find support for the indirect effect of team prosocial motivation on shared leadership through team empowerment (Hypothesis 5a, $z = -0.70$, $p = .48$) and psychological safety (Hypothesis 5b, $z = 1.00$, $p = .32$). These results were the same when shared leadership was operationalized as team centralization and the coefficient of variation, when empowerment dimensions were entered into the models as separate mediators, and when the regression models were examined separately for each exercise. In summary, there was a lack of support for the hypothesized direct effect of team prosocial motivation on emergent states and shared leadership as well a lack of support for the indirect of team prosocial motivation on shared leadership through emergent states. Table 4 also provides a summary of the results.
Table 4

Mediation Analysis Predicting Shared Leadership (Density) Through Emergent States

<table>
<thead>
<tr>
<th>Models</th>
<th>b</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome: Empowerment</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>PS Mo</td>
<td>-.09</td>
<td>.07</td>
<td>-1.34</td>
<td>.18</td>
</tr>
<tr>
<td>Trait PS</td>
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<td>.07</td>
<td>-.84</td>
<td>.40</td>
</tr>
<tr>
<td>Impress</td>
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Notes: *p < .05 (2-tailed). N = 107. Unstandardized regression coefficient = b, Standard Error = SE; Ps Mo = (1 = Low Team Prosocial Motivation, 2 = High Team Prosocial Motivation); Emp = Empowerment; PsySafe = Psychological Safety; Trait PS = Team Trait Prosocial Motivation; Impress = Team Impression Management Motives; Intrinsic = Team Intrinsic Motivation. Bootstrap sample size = 1000. LL = lower limit. CI = confidence interval. UL = upper limit. z = Sobel test for specific indirect effects.
As displayed in Table 5, results revealed that team racial diversity did not moderate the relationship between team prosocial motivation and empowerment (Hypothesis 6a, $b = .09$, $t = 0.24$, $ns$) or team prosocial motivation and psychological safety (Hypothesis 6c, $b = -0.06$, $t = -0.08$, $ns$). The conditional indirect effects of team prosocial motivation on shared leadership through empowerment (Hypothesis 6b) and psychological safety (Hypothesis 6d) at three values of team racial diversity—the mean, one standard deviation below the mean, and one standard deviation above the mean—were also examined. Results suggest that there was not a conditional indirect effect of team prosocial motivation on shared leadership through empowerment or psychological safety at various levels of team racial diversity (1 standard deviation above and below the mean). These results were the same when shared leadership was operationalized as team centralization and the coefficient of variation, when empowerment dimensions were entered into the model as separate mediators, and when the models were examined separately for each exercise. In summary, team racial diversity did not moderate the relationships between team prosocial motivation and emergent states or the indirect effects of team prosocial motivation on shared leadership through empowerment and psychological safety.
### Table 5

*Regression Results for Conditional Indirect Effect (Race)*

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<td><strong>Outcome: Shared Leadership (Density)</strong></td>
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<td>Impress</td>
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<td>.02</td>
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<td>.44</td>
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<td>.14</td>
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<tr>
<td><strong>Outcome: Shared Leadership (Direct effect)</strong></td>
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</tr>
<tr>
<td>PS Mo</td>
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**Bootstrap results (PsySafe)**

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<th>95% UL</th>
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<td>Conditional Indirect Effect (+1 SD)</td>
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<td>.00</td>
<td>.02</td>
</tr>
</tbody>
</table>
Bootstrap results (Emp) | Value | SE  | 95% LL | 95% UL  \\
---|---|---|---|---  \\
Conditional Indirect Effect (-1 SD) | .00 | .01 | -.02 | .00  \\
Conditional Indirect Effect (Mean) | .00 | .00 | -.02 | .00  \\
Conditional Indirect Effect (+1 SD) | .00 | .00 | -.02 | .00  \\

Notes: * p < .05 (2-tailed). N = 107. b = Unstandardized regression coefficient. SE = Standard Error. Ps Mo = (1 = Low Team Prosocial Motivation, 2 = High Team Prosocial Motivation); Emp = Empowerment; PsySafe = Psychological Safety; Trait PS = Team Trait Prosocial Motivation; Impress = Team Impression Management Motives; Intrin = Team Intrinsic Motivation; Race = Racial Diversity; Race x PS Mo = Interaction between team racial diversity and experimental prosocial motivation variable. Bootstrap sample size = 1000. LL = lower limit. UL = upper limit.

As illustrated in Table 6, team gender diversity did not moderate the relationship between team prosocial motivation and empowerment (Hypothesis 7a, \( b = -.52, t = -1.00, ns \)) or team prosocial motivation and psychological safety (Hypothesis 7c, \( b = -1.04, t = -0.93, ns \)). The conditional indirect effects of team prosocial motivation on shared leadership through empowerment (Hypothesis 7b) and psychological safety (Hypothesis 7d) at three values of team gender diversity were also examined. There was not a conditional indirect effect of team prosocial motivation on shared leadership through empowerment or psychological safety at various levels of team gender diversity. These results were the same when shared leadership was operationalized as team centralization and the coefficient of variation, when empowerment dimensions were entered into the models as separate mediators, and when the models were examined separately for each exercise. In summary, team gender diversity did not moderate the relationships between team prosocial motivation and emergent states or the indirect effects of team prosocial motivation on shared leadership through team emergent states.
Table 6

*Regression Results for Conditional Indirect Effect (Gender)*

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<th>t</th>
<th>p</th>
<th>$R^2$</th>
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<td>.09</td>
<td>1.15</td>
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<tr>
<td><strong>Outcome: Shared Leadership (Density)</strong></td>
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<td>.02</td>
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<td><strong>Outcome: Shared Leadership (Direct effect)</strong></td>
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<tr>
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<td>.02</td>
<td>.11</td>
<td>.91</td>
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</table>
As displayed in Table 7, results revealed that team faultline strength did not moderate the relationship between team prosocial motivation and empowerment (Hypothesis 8a, $b = .03, t = 0.08, ns$) or team prosocial motivation and psychological safety (Hypothesis 8c, $b = 0.71, t = 0.78, ns$). The conditional indirect effects of team prosocial motivation on shared leadership through empowerment (Hypothesis 8b) and psychological safety (Hypothesis 8d) at three values of team faultline strength were also examined. Results suggest that there was not a conditional indirect effect of team prosocial motivation on shared leadership through empowerment or psychological safety at various levels of team faultline strength. These results were the same when shared leadership was operationalized as team centralization and the coefficient of variation, when empowerment dimensions were entered into the models as separate mediators, and when the models were examined separately for each exercise. In summary,
team faultline strength did not moderate the relationships between team prosocial motivation and emergent states or the indirect effects of team prosocial motivation on shared leadership through empowerment and psychological safety.

Table 7

*Regression Results for Conditional Indirect Effect (Faultline Strength)*

<table>
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<tr>
<th>Models</th>
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<th>$t$</th>
<th>$p$</th>
<th>$R^2$</th>
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</thead>
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</tr>
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<td>-.58</td>
<td>.56</td>
<td></td>
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<td>.06</td>
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<td>.39</td>
<td>.69</td>
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</table>

| Outcome: Empowerment | .08  |      |      |      |       |
| Ps Mo  | -.09 | .07  | -1.32| .19  |       |
| Faultline | -.03 | .21  | -.15 | .88  |       |
| Faultline x Ps Mo | .03  | .42  | .08  | .94  |       |
| Trait PS | -.06 | .08  | -.84 | .40  |       |
| Impress | -.14 | .07  | -2.02| .05* |       |
| Intrinsic | .11  | .09  | 1.32 | .19  |       |

| Outcome: Shared Leadership (Density) | .10  |      |      |      |       |
| Ps Mo  | .00  | .02  | .11  | .91  |       |
| Psy Safe | -.02 | .01  | -1.49| .14  |       |
| Emp | .03  | .03  | 1.02 | .31  |       |
| Trait PS | .01  | .02  | .58  | .56  |       |
| Impress | .01  | .02  | .77  | .44  |       |
| Intrinsic | .03  | .02  | 1.49 | .14  |       |

| Outcome: Shared Leadership (Direct effect) |      |      |      |      |       |
| PS Mo  | .00  | .02  | .11  | .91  |       |
### Bootstrap results (PsySafe)

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<td>Conditional Indirect Effect (Mean)</td>
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<tr>
<td>Conditional Indirect Effect (+1 SD)</td>
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### Bootstrap results (Emp)

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<tr>
<td>Conditional Indirect Effect (+1 SD)</td>
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</table>

**Notes:** * p < .05 (2-tailed). N = 107. b = Unstandardized regression coefficient. SE = Standard Error. Ps Mo = (1 = Low Team Prosocial Motivation, 2 = High Team Prosocial Motivation); Emp = Empowerment; PsySafe = Psychological Safety; Trait PS = Team Trait Prosocial Motivation; Impress = Team Impression Management Motives; Intrinsic = Team Intrinsic Motivation; Faultline = Faultline Strength x PS Mo = Interaction between team faultline strength and experimental prosocial motivation variable. Bootstrap sample size = 1000. LL = lower limit. UL = upper limit.

### Analytical Strategy for Exploratory Analyses

The exploratory regression analyses examined the moderating effects of team surface-level diversity on team trait prosocial motivation and shared leadership (operationalized as density). The primary purpose of the exploratory regression analyses was to determine if the moderated regression results for team trait prosocial motivation and team surface-level diversity on shared leadership differed from the moderated regression results from team prosocial motivation (experimental variable) and team surface-level diversity on shared leadership. It was reasonable to expect such differences considering that the team prosocial motivation experimental variable was unrelated to shared leadership while team trait prosocial motivation was significantly correlated with shared leadership.

Exploratory analyses were conducted by following the moderated regression procedures recommended by Aiken and West (1991). The independent
and moderator variables of team trait prosocial motivation and team surface-level diversity (faultline strength, racial diversity, gender diversity) were mean-centered and these mean-centered variables were multiplied to create interaction terms. Then, hierarchical ordinary least-squares regression analyses were conducted. The results of these analyses are displayed in Tables 8-10, where control variables were entered in Step 1, the predictor variables in Step 2, and the partial interaction term in Step 3.  

**Exploratory Analyses**

There was a significant interaction between team trait prosocial motivation and gender diversity \( (b = -.24, SE = .09, t = -2.65, p < .01) \) and a marginally significant interaction between team trait prosocial motivation and racial diversity \( (b = .12, SE = .06, t = 1.92, p = .058) \) on shared leadership. However, there was not a significant interaction between team trait prosocial motivation and faultline strength \( (b = .05, SE = .07, t = .77, \text{ns}) \) on shared leadership. When the partial interaction terms were entered in a separate step of the hierarchical regression analyses, the interactions of team trait prosocial motivation and surface-level diversity (i.e., racial diversity, gender diversity) explained 3-5% incremental variance.

---

12 One case was found to be highly influential in the exploratory regression analyses. This case had standardized dfbetas greater than 1 when the predictors were entered into the models, suggesting that the case substantially influenced model parameters (Field, 2009). Moreover, when the interaction terms were included in the regression models the case had a value greater than 1 on Cook’s distance measure (Cook & Weisberg, 1982), suggesting that the case significantly influenced each regression model as a whole. Thus, one case was removed from the exploratory regression analyses.

13 Although the primary operationalization of shared leadership for the exploratory analyses was density, it is important to note that there were not any interactive effects for team surface-level diversity and team trait prosocial motivation on shared leadership when shared leadership was operationalized as centralization or CV.
variance in shared leadership in the respective models. In order to interpret the forms of the interactions, the simple slopes at one standard deviation above and below the means were plotted (see Figures 2 and 3). With regard to team gender diversity, the slopes suggest that teams low on gender diversity are likely to experience higher levels of shared leadership when team trait prosocial motivation is high as opposed to low (Figure 2).

With regard to team racial diversity, the slopes suggest that teams high on racial diversity are likely to experience higher levels of shared leadership when team trait prosocial motivation is high as opposed to low (Figure 3).
Table 8.

Regressions for Team Trait Prosocial Motivation and Gender Diversity as Predictors of Shared Leadership (Density)

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<tr>
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<td>.02</td>
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<tr>
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<td>Prosocial X Gender</td>
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<td>.09</td>
<td>-2.65**</td>
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Notes: * $p < .05$, ** $p < .01$, *** $p < .001$ (2-tailed). $N = 106$. $b =$ Unstandardized regression coefficient. $SE =$ Standard Error. Trait Prosocial Motiv = Team Trait Prosocial Motivation; Prosocial X Gender = Interaction between team gender diversity and team trait prosocial motivation. Gender Diversity and Prosocial Motivation were mean-centered in step 2 before creating the product variable in step 3.
Figure 2. Slopes for the interaction of team trait prosocial motivation and gender diversity predicting shared leadership.


Table 9.

Regressions for Team Trait Prosocial Motivation and Racial Diversity as Predictors of Shared Leadership (Density)

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Notes: *p < .05, **p < .01, ***p < .001 (2-tailed). N = 106. b = Unstandardized regression coefficient. SE = Standard Error. Trait Prosocial Motiv = Team Trait Prosocial Motivation; Prosocial X Race = Interaction between team racial diversity and team trait prosocial motivation. Racial Diversity and Prosocial Motivation were mean-centered in step 2 before creating the product variable in step 3.
Figure 3. Slopes for the interaction of team trait prosocial motivation and racial diversity predicting shared leadership.
Table 10.

Regressions for Team Trait Prosocial Motivation and Faultline Strength as Predictors of Shared Leadership (Density)

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Notes: *p < .05, **p < .01, ***p < .001 (2-tailed). N = 106. b = Unstandardized regression coefficient. SE = Standard Error. Trait Prosocial Motiv = Team Trait Prosocial Motivation; Prosocial X Faultline = Interaction between team faultline strength and team trait prosocial motivation. Faultline Strength and Prosocial Motivation were mean-centered in step 2 before creating the product variable in step 3.
CHAPTER IV

Discussion

Prior research on team prosocial motivation suggests that when team members are prosocially motivated to benefit others team members should experience higher levels of empowerment and psychological safety, which in turn should lead to higher levels of shared leadership. Based on the study findings, team emergent states failed to mediate the relationship between team prosocial motivation and shared leadership, and team surface-level diversity failed to moderate the relationship between team prosocial motivation and emergent states. There are several reasons why different results were expected for these hypotheses. First, according to recent research on self-determination theory, team members’ psychological needs of competence, autonomy, and relatedness (i.e., empowerment) are likely to be satisfied when they are intrinsically motivated to impact others (Sheldon et al., 2003); however, higher levels of team prosocial motivation did not result in higher levels of team empowerment. Second, the high quality team relationships that are typically associated with prosocially motivated teams (Hu & Liden, 2015) often lead to higher levels of team psychological safety (Edmonson & Lei, 2014). When team members are motivated to help others, members should be less preoccupied with monitoring personal losses or gains (Meglino & Korsgaard, 2004) and more inclined to engage in voice behaviors (Grant & Mayer, 2009). However, higher levels of team prosocial motivation did not result in higher levels of team psychological safety. Third, Hu and Liden (2015) found support for the indirect effects of team prosocial motivation on team
outcomes through team processes and emergent states as well as support for the conditional indirect effects of team prosocial motivation on outcomes through mediators at different levels of task interdependence. In this particular study, the means for psychological safety ($M = 2.26, SD = 0.77$) and empowerment ($M = 1.53, SD = 0.36$) were very low, with team empowerment demonstrating a possible restriction in range. The fact that coders observed very little team empowerment and psychological safety in team meetings may explain why there was a lack of support for hypotheses examining the antecedents and consequences of team emergent states.

Moreover, results from correlational analyses suggest that other team factors (i.e., cognitive ability, impression management motives) may be more strongly related to psychological safety and empowerment than team prosocial motivation. Team members in highly intelligent teams may feel more comfortable voicing their dissenting opinions because they feel that their abilities will allow them to positively contribute to team goals. Further, the idea that low impression management motives should lead to higher levels of psychological safety is consistent with previous research that suggests that individuals who have high impression management motives are cautious about developing negative images in the eyes of others and avoid engaging in challenging citizenship behaviors (e.g., voice behaviors) (Grant & Mayer, 2009). Interestingly, the study results suggest that that in order for team members to experience higher levels of psychological safety and empowerment, it may be more important for team members to be less concerned about how they are viewed by others within the
team than for team members to be concerned with benefiting others outside the team.

Although there was a general lack of support for the experimental effects of prosocial motivation on shared leadership, team trait prosocial motivation demonstrated a significant positive association with shared leadership, suggesting that when teams are composed of members who desire to benefit others that it results in a higher distribution of leadership within the team. Teams high on prosocial motivation are more inclined to engage in team processes that contribute to collective benefits (e.g., cooperation) and are more likely to be committed to achieve team goals (Hu & Liden, 2015). Results from correlational and regression analyses also indicate that high team intrinsic motivation and impression management motives had significant positive associations with shared leadership. As for intrinsic motivation, this construct describes individuals’ natural inclination toward mastery and exploration and represents a key source of enjoyment throughout the human lifespan (Ryan & Deci, 2000). The pleasure that such workers experience from the process of completing tasks leads them to be more productive when working independently (Grant 2008), and according to this research, leads them to be more involved in team processes and share leadership responsibilities when working in team settings. As for impression management motives, given the fact that previous research has shown a positive association between prosocial motivation and impression management (e.g., Grant & Mayer, 2009; Rioux & Penner, 2001) it is not totally surprising that teams composed of individuals high on impression management are more likely to experience higher
levels of shared leadership. Individuals with high impression management motives are more inclined to help others primarily because it enhances their own reputation as helpful and capable team members (Deutsch Salamon & Deutsch, 2006).

Exploratory analyses also revealed a significant interaction effect between team trait prosocial motivation and gender diversity on shared leadership as well a marginally significant interaction for team trait prosocial motivation and racial diversity on shared leadership. More specifically, team trait prosocial motivation led to higher levels of shared leadership when gender diversity was low and when racial diversity was high. In line with similar arguments made in this research, when there is greater team racial diversity team members are more likely to categorize dissimilar team members as “out-group” members (Turner et al., 1987) and are less likely to be interpersonally attracted to dissimilar team members (Byrne, 1971). Previous research suggests that high levels of team racial diversity leads to negative team functioning (Bell et al., 2011; van Knippenberg & Schippers, 2007); however, findings from this research suggests that high team trait prosocial motivation improves team functioning for teams high on racial diversity. Given that prosocially team members are more likely to work cooperatively to benefit others outside the team (Hu & Liden, 2015), they may be less likely to focus on surface-level differences between team members and feel more interpersonally attracted to members within the team in spite of surface-level differences. Conversely, high team trait prosocial motivation led to higher levels of shared leadership for teams low on gender diversity. In this study, teams
that were low on gender diversity (i.e., mostly male or mostly female) were primarily male-dominated. In such settings, women are typically perceived to be less competent by their team members, and in comparison to men, have less influence in team decision-making (Joshi, 2014; Ridgeway & Smith-Lovin, 1999). This is consistent with previous research suggesting that leadership in leaderless group settings is often associated with task-oriented behaviors (e.g., initiating structure) that are typically performed by men while women—who focus more attention on socially oriented behaviors (e.g., preserving group harmony, validating others)—are often perceived as social facilitators but not overall leaders in leaderless groups (Eagly & Karau, 1991). In light of this information, it is possible that women’s expertise may not have been utilized in male-dominated teams unless the team was composed of other-oriented people who were likely to include women in team decision making and value their inputs.

Surprisingly, team faultline strength did not moderate the team prosocial motivation-shared leadership relationship. In line with major team diversity theoretical perspectives (social identity, self-categorization, similarity-attraction paradigm), salient demographic characteristics (e.g., gender, race) are often used as the basis for social identity and self-categorization (Harrison, Price, & Bell, 1998), which generally creates strong bonds with similar subgroup members and increased psychological distance from dissimilar subgroup members (van Knippenberg et al., 2004). Strong team faultlines typically negatively affect team processes (relationship and task conflict, cohesion) and performance (Thatcher &
Patel, 2011). In this study, teams on average had weak faultlines suggesting that it may have been unlikely for teams to divide into subgroups based on multiple surface-level characteristics (i.e., race and gender). This may have affected the strength of its effects on the relationship between team prosocial motivation and team outcomes.

Finally, although the primary focus of this research was on what leads to shared leadership, this research also examined the relationship between shared leadership and team performance. Unlike previous empirical investigations (e.g., Carson et al., 2007; McIntyre & Foti, 2013), this research did not observe a significant relationship between shared leadership and team performance. When team members provide leadership for other members and for the purpose of achieving team goals, they should be more committed to the team and engage in more information sharing (Katz & Kahn, 1978). Moreover, when team members are willing to be led by others in the team, teams are more likely to be characterized by high levels of trust and respect and develop shared leadership. In turn, shared leadership serves as a resource for improving team performance (Day et al., 2004). The lack of a relationship between shared leadership and team performance may have been a result of the team performance measure. SMEs rated CEO candidates and customer service initiatives based on their judgments as experts. Considering the subjective nature of such ratings, having a higher distribution of influence within the team may be inconsequential in making decisions in which there are no “right” or “wrong” answers, only better or worse candidates based on SMEs’ ratings.
Theoretical, Measurement, and Practical Implications

This research has several implications for science and practice. First, this research has implications for researchers seeking to gain a better understanding of the role of team diversity in team functioning. This research found that gender and racial diversity affect the team prosocial motivation-shared leadership relationship quite differently. That is, for teams to experience high levels of shared leadership, it’s more important for team members to be prosocially motivated when there is high racial diversity, but also when there is low gender diversity. Research on gender differences in team leadership (e.g., Eagly & Karau, 1991) may help explain why low gender diversity moderated the team prosocial motivation-shared leadership relationship whereas the social identity and self-categorization perspectives (Turner et al., 1987) may help explain why high racial diversity moderated the team prosocial motivation-shared leadership relationship. Based on this study’s findings, researchers may want to pay closer attention to form of motivations that influence team members to focus on commonalities (e.g., shared desire to benefit others) or superordinate goals in order to better identify constructs that act as buffers against the negative effects of in-group/out-group categorization processes when team racial diversity is high, and the negative evaluations of female team members’ leadership behaviors when team gender diversity is low. Thus, it is important for researchers to consider surface (gender, race) as well as deep-level characteristics (prosocial motivation) to gain a richer understanding of how diversity affects team functioning. This is consistent with previous research that suggests that not all forms of diversity have the same effect.
on team dynamics (Bell et al., 2011).

Second, this investigation also addresses the scholarly debate regarding the underlying motivations of helping (altruistic or egoistic) in work contexts (Batson, 1998; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Penner, Dovidio, Piliavin, & Schroeder, 2005). This research found that impression management, prosocial motivation, and intrinsic motivation were all related to sharing leadership responsibilities in a team context. Based on study findings, team members may help out by sharing leadership responsibilities within a team to earn higher levels of social status from their peers (“look good,” Flynn, 2003), to meet an end goal of benefiting others (“do good,” Grant, 2007), and for the pure enjoyment of completing work tasks. This suggests that researchers may also want to consider other explanations beyond simply rational self-interest or other-orientation to gain a better understanding of helping in the workplace, particularly in team contexts.

Additionally, this research has implications for the measurement of shared leadership. The interactive effects of team prosocial motivation and surface-level diversity (racial and gender) were only observed when shared leadership was operationalized as density and not centralization or the coefficient of variation. As noted by Carson and colleagues, “utilizing network density as a measure of shared leadership appropriately reflects the extent to which leadership influence is distributed among a relatively high or relatively low proportion of team members” (Carson et al., 2007, p. 1220). This suggests that researchers should carefully consider how shared leadership is operationalized in investigations as the type of
operationalization may lead researchers to draw different conclusions about the relationships between shared leadership and other constructs of interest.

Based on the exploratory findings, managers should focus their efforts on enhancing prosocial motivation in work teams, as maintaining high levels of concern for others may bring about higher levels of shared leadership within the team. Interventions that are designed to induce higher levels of prosocial motivation, such as increasing the number of opportunities for team members to connect with potential beneficiaries of their work, expanding the work impact of the team on potential beneficiaries, perspective taking, and composing teams with members high on prosocial motivation (Grant, 2007; 2012; Grant & Berry, 2011), are helpful in developing a prosocial culture and may help facilitate shared leadership within work teams. Further, given that this study also demonstrated a positive association between team intrinsic motivation and shared leadership, it is important to note that managers can design work contexts to foster intrinsic motivation while in the process of fostering prosocial motivation. For instance, providing workers with meaningful tasks should not only lead to higher levels of intrinsic motivation (Hackman & Oldham, 1976), but greater opportunities to impact others, which should also foster higher levels of prosocial motivation (Grant, 2008). Therefore, managerial actions aimed at increasing prosocial and intrinsic motivations have the potential to increase shared leadership.

**Limitations**

Although the present study has several strengths (i.e., multiple operationalizations of shared leadership and surface-level diversity, multisource
data, multi-method approach) it is not without its limitations. First, the majority of teams in this study were composed of undergraduate students enrolled in introductory business classes, which may limit the generalizability of the exploratory findings to more traditional work teams. However, this study took place within assessment centers, which represent a high fidelity work context and have been considered a viable option for studying leadership behaviors (Thornton & Cleveland, 1990). More importantly, this context allowed team prosocial motivation to be manipulated, which afforded the ability to offer causal inferences regarding the effects of team prosocial motivation on team emergent states and shared leadership. Future research should still seek to replicate exploratory findings in settings with greater external validity (i.e., field settings).

Second, although it may be appropriate to study leadership and team dynamics in an assessment center context, there are several potential limitations to studying such phenomena within this type of assessment center. The first potential limitation is that the relatively short nature of the team meetings may not have allowed team members adequate time to demonstrate leadership behaviors and for all team emergent states to emerge. Future research should examine the effects of team prosocial motivation on emergent states in a longitudinal setting to allow sufficient time for team dynamics to emerge. Second, given that participants were assessed on an individual basis for this assessment center, the individual performance context may have influenced the emergence of team processes and emergent states in this study. Participants may have been more focused on receiving a favorable assessment of their individual skills than on achieving team
goals, which could have affected behavior and processes at the individual (competition between team members) and team level (empowerment and psychology safety scores). Regarding the third potential limitation of the study setting, participants also completed other assessment exercises (speech, inbasket) beyond the leaderless team discussions that took three hours in total to complete. This may have impacted team members’ motivations in this study. Participants also received a myriad of other documents separate from the study materials. With this in mind, participants may have been overloaded with information which could have impacted the strength of the study manipulation. Participants may have prioritized other information (e.g., importance of moving into foreign markets) over key study information (e.g., focus on benefiting the lives of Iliad employees).

Finally, it is worth mentioning that the manipulation for this study failed to induce significant mean differences on team members’ levels of prosocial motivation. As a result, this study is limited in being able to offer causal inferences regarding the experimental effects of team prosocial motivation on shared leadership. Stated differently, it is difficult to discern whether the team prosocial motivation manipulation actually does not affect shared leadership or whether the lack of support for the team prosocial motivation-shared leadership relationship is because the study manipulation failed.

**Future Directions**

In light of the study findings, there are several potentially fruitful avenues for future research. First, while this research captured a global measure of shared
leadership, other researchers have examined specific types of shared leadership (e.g., shared transformational leadership, Wang et al., 2014). Team prosocial motivation may be more related to some forms of shared leadership (e.g., shared servant leadership) than others (e.g., shared transactional leadership). Future research should seek to examine the effects of team prosocial motivation on specific forms of shared leadership.

Moreover, there may be other mechanisms (e.g., team cognition) that mediate the team prosocial motivation-shared leadership relationship. Recent research findings suggest that the cooperation facet of agreeableness—a measure of other-orientation similar to prosocial motivation—is significantly related to team mental model similarity (Fisher et al., 2012). Team members who share a desire to impact the lives of others may also develop shared knowledge structures as a basis for coordinated action, which could result in higher levels of shared leadership. However, an empirical investigation of this proposition is needed.

Further, future research should also consider the effects of other boundary conditions (e.g., task interdependence, team temporal stability, authority differentiation) on the team prosocial motivation-shared leadership relationship. Team members’ shared desire to benefit others may depend upon the nature of the task, team members’ knowledge of how long the team will be together, and how much decision making power the team possesses.

Finally, this study primarily focused on the antecedents of shared leadership in traditional face-to-face teams; however, virtual work arrangements and telework have become increasingly more common in organizations (e.g.,
Leonard, 2011). As such, it is also important to consider various factors (e.g., communication mode) that may lead to shared leadership for work teams with virtual work arrangements.

**Conclusion**

The changing nature of work has made it difficult for a single leader to perform all of the leadership responsibilities within a team and these changes point to the need for more distributed forms of leadership. Gaining a better understanding of the drivers of shared leadership should help organizations facilitate more distributed forms of leadership in work teams and positively impact team effectiveness. Although this study failed to provide support for the experimental effects of team prosocial motivation on emergent states and shared leadership, this study showed that team trait prosocial motivation, team impression management motives, and team intrinsic motivation predicted shared leadership. This study also found that team surface-level diversity (racial and gender diversity) moderated the effects of team prosocial motivation on shared leadership, with team trait prosocial motivation leading to higher levels of shared leadership when team racial diversity is high and when team gender diversity is low.
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Appendix A

CEO Search Meeting Instructions
Date: February 13, 2015

To: Mohammed Al-Kalby, Vice President of Elementary Textbooks

From: Helen Stockard, Executive Assistant to Mr. Spencer

Re: CEO Search Meeting

You have recently received the resumes and the assessment results for the candidates interested in Iliad’s CEO position. Those candidates include Miller, Eaton, Tucker, Johnson, Cunningham, Hilton, and Williams. Mr. Spencer is leaving it up to the Vice Presidents to select the top three candidates and rank them in order of preference. The top three will then be invited for daylong interviews at our headquarters.

This memo confirms your meeting from 12:25-12:50 in Room #1, on February 16, to evaluate the candidates for the CEO position. This meeting will begin promptly, so arrive on time. So that you are prepared for the meeting, please bring along the resumes of the candidates, as well as any other materials that you may need. This decision is for input to the committee tabulating the candidate selection information.

What is needed from your group is one decision. You do not need to submit a memo. However, at the end of your meeting, please have one member of your group speak directly to the camera and identify your top three candidates. An example would be “We recommend these candidates – Miller 1st, Eaton 2nd, and Tucker 3rd.” Then, you can adjourn your meeting.

Thank you.
Appendix B

Customer Service Initiatives Meeting Instructions
Date: February 9, 2015

To: Mohammed Al-Kalby, Vice President of Elementary Textbooks

From: Helen Stockard, Executive Assistant to Mr. Spencer

Re: Customer Service Initiatives Meeting

Two recent sources indicate a need for Iliad, Inc. to improve customer service to our external customers. The most recent Book Publisher’s Industry Organization Customer Service Rankings and the Iliad Annual Customer Satisfaction Survey showed declines. These declines pose a serious threat to our future expansion plans.

Due to the company’s ongoing commitment to exceed customer expectations, the Board of Directors has approved funds to support as many of the QAT’s initiatives as management deems important for improving customer service. There is money available for as many initiatives as are necessary but the money should be prudently distributed.

This memo confirms your meeting from 1:25-1:50 in Room #2, on February 16 to select customer service initiatives. Bring any information that you may find helpful in arriving at this decision (specifically the Quality Assurance Team’s ‘QAT’ Organizational Initiatives sheet). This meeting will begin promptly, so arrive on time.

What is needed from your group is one group decision. You do not need to submit a memo. However, at the end of your meeting, please have one member of your group speak directly to the camera and identify your selected initiatives by the corresponding number on the QAT list. An example would be “We approve
items #2, 4, 6, 8”. Then, you can adjourn your meeting.

Your input to this important Iliad issue is appreciated.
Appendix C

Prosocial Motivation Manipulations
High Prosocial Motivation Manipulation for Customer Service Exercise

Addendum

From: Mr. Spencer
Re: Important Info on Customer Service Initiatives

After each person states their assessment center ID, one member of the team should speak directly to the camera and read the following statements aloud to the team:

As you may have gleaned from the Customer Service Initiatives memo, there is a dire need to improve our customer service to our external customers. The declines in customer service rankings not only pose a serious threat to our future expansion plans, they don’t reflect who we are at our core. It appears that we have lost sight of what is most important to us—benefiting the lives of others. As one employee recently told me, “We have to get back to our roots. If we don’t change, our customers’ feelings about us won’t change. I’m worried. We need fresh ideas to improve our relationships with our customers. More than that, what we really need is help. We are at our wits’ end. We can’t do it by ourselves.”

As you can see, Iliad employees could really use some help from your team. Your team should focus on showing concern for the employees of Iliad by selecting initiatives that can improve customer service and thus protect the livelihood of each employee. By caring about the well-being of the employees, together, you and your team can make a difference in the lives of Iliad employees.

Iliad employees will be greatly indebted to you for your help.
Low Prosocial Motivation Manipulation for Customer Service Exercise

Addendum

From: Mr. Spencer
Re: Important Info on Customer Service Initiatives

After each person states their assessment center ID, one member of the team should speak directly to the camera and read the following statements aloud to the team:

As you may have gleaned from the previous Customer Service Initiatives memo, Iliad leaders are unsatisfied with our current customer service rankings. We must improve our relationships with our external customers. As another company leader told us, “We are on the verge of entering into a whole new world of possibilities for this company. If we can just improve our customer service, revenue and market expansion will follow suit.”

Your team should focus on selecting initiatives that can improve customer service and generate more revenue for the organization. By selecting initiatives in which the company can grow both financially and in service capability, your team puts the organization in a better position to move into foreign markets.

I look forward to hearing more about the initiatives your team selected.
After each person states their assessment center ID, one member of the team should speak directly to the camera and read the following statements aloud to the team:

As you may have gleaned from the previous CEO Search Meeting memo, Iliad desperately needs to fill the CEO position. I can’t stress enough how important this decision is for our organization and our employees. As one longtime employee told us, “I’ve worked for some great CEOs and I’ve worked for some CEOs I would like to forget. The difference was in how they treated the workers. The great CEOs really cared about the employees while the others seemed to care less. If we select the wrong CEO we will see good workers leave this company and we can’t afford that. I’m concerned. This decision will mean so much for Iliad employees. If we want to get this decision right, we will definitely need some help.”

As you can see, Iliad employees could really use some help from your team. Your team should focus on showing concern for the employees of Iliad by selecting the top candidates for the position and thus protect the welfare of Iliad employees. By caring about the well-being of the employees, together, you and your team can make a difference in the lives of Iliad employees.

Iliad employees will be greatly indebted to you for your help.
Addendum

From: Mr. Spencer
Re: Important Info on CEO Search

After each person states their assessment center ID, one member of the team should speak directly into the camera and read the following statements aloud to the team:

As stated in the previous CEO Search Meeting memo, you and your team have received all of the necessary information to evaluate the candidates for the CEO position. In making your decisions, remember that Iliad prides itself on exceeding company goals for revenue and profit. By selecting the top candidates for the CEO position, you can help ensure that the company will continue to thrive financially. As another company leader told us, “This company should hire someone who is simply unsatisfied with our current business success. That is how we will continue to stay on top.”

Therefore, your team should select the top candidates for the position and thus assist the organization in increasing its revenue and profit.

I look forward to hearing about your team’s selection decisions in greater detail.
Appendix D

Manipulation Check Measure
Appendix D

Manipulation Check Measure

Using the scale provided below, answer the following questions about each team meeting.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Somewhat Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

**Pilot Customer Service Exercise Items**

1) To what extent do you agree that the team was instructed to select initiatives to improve the welfare of others?

2) To what extent do you agree that the team would be concerned with helping others through their initiatives?

**Pilot Executive Selection Items**

3) To what extent do you agree that the team was instructed to select candidates in order to improve the welfare of others?

4) To what extent do you agree that the team would be concerned with helping others through their selection decisions?

Using the scale provided below, rate each of the following statements regarding the motivations driving your management team's final decisions.

**Customer Service Exercise**

1) My management team was engaged in this meeting because we wanted to improve the welfare of others through our initiatives.

2) In my management team meeting, we were concerned with helping others through our initiatives.

**Executive Selection**

3) My management team was engaged in this meeting because we wanted to improve the welfare of others through our selection decisions.

4) In my management team meeting, we were concerned with helping others through our selection decisions.
Appendix E

Debriefing Statement
Appendix E

DEBRIEFING STATEMENT

The information listed below must remain confidential and should not be shared with anyone outside of this study.

The term “prosocial motivation” is often used by researchers to describe an individual’s desire to benefit others (e.g., wanting to help a coworker or friend in need). When team members collectively share a desire to benefit others the team is likely to function more effectively. The current study seeks to investigate how team members’ shared desire to benefit others influences group behavior.

During this experiment, members were randomly assigned to 1 of 2 conditions (low vs. high team prosocial motivation condition). Participants in the high prosocial motivation condition read statements about how Iliad was in dire need of help selecting a senior-level manager and generating new customer service initiatives, whereas participants in the low prosocial motivation condition read statements about how Iliad was not in need of help with such issues. Participants were not given information about this manipulation during the consent process because group members would have likely approached the discussions differently if they had prior knowledge of the manipulation.

If you would like to learn more about the study in question, you can contact Tyree Mitchell at tmitch21@depaul.edu or consult these references:


If you have questions about your rights as a research subject they can contact Susan Loess-Perez, Director University’s Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu.

Thank you for participating in this study!
Appendix F

Team Psychological Safety Coding Sheet
Appendix F: Psychological Safety Coding Sheet

Team Number: _________________  Meeting: _________________

Coder Initials: _________________  Final Group Decision: _________________

<table>
<thead>
<tr>
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<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>Very Little</td>
<td>Somewhat</td>
<td>A moderate Amount</td>
<td>To a great extent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team Psychological Safety</th>
<th>Exemplars</th>
<th>Comments (mark video time)</th>
<th>Final Rating (1-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological Safety: members’ shared beliefs that the internal environment within the team is safe for interpersonal risk taking. Teams with high levels of psychological safety:</td>
<td>“So I agree with everything except recruitment improvements. That focuses on the employee group in general but not necessarily current employees. I’m not sure if it’s what we want.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admit mistakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask for help</td>
<td>“I see where you’re coming from but I would think that they would want someone who has been recently exposed to leadership. Being a freelancer, I’m not sure he’s had that experience working with board members.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice dissenting views</td>
<td>(regarding a candidate the team likes) “I don’t know about him, his resume seems like he’s so busy…so not focused…it was a complete turn off for me.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix G

Team Empowerment Coding Sheet
Appendix G: Team Empowerment Coding Sheet

Team Number: _________________  Meeting: ________________

Coder Initials: _________________

<table>
<thead>
<tr>
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<th>4</th>
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</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>Very Little</td>
<td>Somewhat</td>
<td>A moderate Amount</td>
<td>To a great extent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team Empowerment</th>
<th>Exemplars</th>
<th>Comments (mark video time)</th>
<th>Final Rating (1-5)</th>
</tr>
</thead>
</table>
| **Impact:** the extent to which members view their behavior as making a difference, or the extent to which they perceive their behavior affects work outcomes. | • “When picking our top three choice we should pick the candidates with these experiences (like Johnson) because they will greatly benefit the company.”
• “We want to improve customer service, therefore (choosing that initiative) will give our company a huge advantage.” | | |
| **Meaningfulness:** the congruence between members’ work goals and values, or the degree to which members care about a work task. | • “I just want us to be mindful that we are looking at every single area in order to make a right decision.”
• “It’s important to choose wisely because it’s a big decision.” | | |
| **Autonomy:** the degree of control members have over work tasks and processes, and emphasizes choice in beginning and regulating action. | • (With regard to choosing between two initiatives) “I mean we could choose both since we have enough money for everything.”
• “So do we want to submit our type 5 initiatives? We could choose 4 or 5. There’s no limit to what we can choose.” | | |
Potency: members’ perceptions regarding their ability to perform work tasks at a high level.

- “I think we made some good decisions...”
Appendix H

Shared Leadership Measure
Appendix H

Assessment Center ID: _________________

Shared Leadership Measure

Using the scale provided below, rate to what extent you relied on each of your team members for leadership.

<table>
<thead>
<tr>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Member Name or ID</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
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<tr>
<td>4.</td>
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<tr>
<td>5.</td>
</tr>
</tbody>
</table>
Appendix I

Demographic Items
Appendix I

Demographic Items

Assessment Center ID: _________________

1. What is your age? _________

2. What is your GPA? _________

3. Please indicate the race/ethnicity with which you most identify:
   a. White/Caucasian
   b. Asian/Pacific Islander
   c. Black/African American
   d. Hispanic
   e. Other:____________________________________

4. Please circle your gender:
   a. Female       b. Male
Appendix J

Individual Prosocial Motivation Measure
Appendix J

Individual Prosocial Motivation Measure

Respond to the statements below in light of the question, “Why are you motivated to complete your coursework?” Please indicate on the scale from 1-7 your level of agreement or disagreement with the following statements (1 = Strongly Disagree, 7 = Strongly Agree).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Somewhat Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1) Because I care about benefiting others through my work.
2) Because I want to help others through my work.
3) Because I want to have a positive impact on others.
4) Because it is important to me to do good for others through my work.
Appendix K

Individual Intrinsic Motivation Measure
Appendix K

Individual Intrinsic Motivation Measure

Respond to the statements below in light of the question, “Why are you motivated to complete your coursework?” Please indicate on the scale from 1-7 your level of agreement or disagreement with the following statements (1 = Strongly Disagree, 7 = Strongly Agree).

<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Neither Agree nor Disagree</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1) Because I enjoy the work itself.  
2) Because it’s fun.  
3) Because I find the work engaging.  
4) Because I enjoy it.
Appendix L

Impression Management
Appendix L

Impression Management Measure

An organizational citizenship behavior (OCB) is a voluntary behavior aimed toward individuals and/or the organization that is virtuous and altruistic in nature (e.g., assisting others with their duties). Please indicate on the scale from 1-6 how important each motive statement would be in your decision to engage in an OCB (1 = Not at all important, 6 = Extremely Important).

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all important</td>
<td>Unimportant</td>
<td>Somewhat Unimportant</td>
<td>Somewhat Important</td>
<td>Important</td>
<td>Extremely Important</td>
</tr>
</tbody>
</table>

1) To avoid looking bad in front of others. 1 2 3 4 5 6
2) To avoid looking lazy. 1 2 3 4 5 6
3) To look better than my co-workers. 1 2 3 4 5 6
4) To avoid a reprimand from my boss. 1 2 3 4 5 6
5) Because I fear appearing irresponsible. 1 2 3 4 5 6
6) To look like I am busy. 1 2 3 4 5 6
7) To stay out of trouble. 1 2 3 4 5 6
8) Because rewards are important to me. 1 2 3 4 5 6
9) To impress my co-workers. 1 2 3 4 5 6
10) Because I want a raise. 1 2 3 4 5 6