AN INVESTIGATION OF GENDER DIFFERENCES IN THE PERCEPTION AND ENACTMENT OF LEADERSHIP RELATIONSHIPS IN TEAMS

by

HAYLEY MICHELLE TRAINER

(Under the Direction of Dorothy R. Carter)

ABSTRACT

The enduring gap between men and women in the attainment of positions of leadership has been largely investigated using a social role approach, which attributes women's lower prevalence in positions of leadership to perceived incongruities between women's social roles and traditional leadership attributes. However, the gender socialization literature suggests an alternative explanation: The distinct group 'cultures' experienced by boys and girls in childhood may result in different expectations about how leadership is structured in teams in adulthood. Leveraging research on gender socialization in groups, leadership and followership identity formation, and informal leadership emergence, I propose that men and women tend to differ in terms of their perception of leadership structures in teams, such that women are more likely to perceive leadership as shared and distributed than are men. In a series of three studies, I examine the nature of gender-based differences in the perception of leadership relationships in teams. In Study 1, I use a mixed-methods approach to evaluate whether men and women differ in terms of their implicit definitions of leadership and perceived leadership structure. In Study 2, I evaluate whether women are more likely to grant leadership to

others and whether men are more likely to be granted leadership in their professional networks, controlling for network dependencies and relational tendencies, using an organizational sample of top and middle managers. Finally, in Study 3, using an experimental design, I test whether women are more likely to perceive leadership as distributed and/or decentralized than are men, controlling for the team scenario. Together, the results of my studies demonstrate that women tend to perceive a greater number of leaders and leadership relationships and tend to grant leadership to a greater degree, as compared to men, suggesting that women tend to perceive leadership as more shared.

INDEX WORDS: Shared Leadership, Leadership Networks, Leadership Emergence, Leadership in Teams, Gender and Leadership

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CHAPTER 1

INTRODUCTION

As corporations and governments push to include more women at all levels of leadership, organizational scholars have become increasingly interested in understanding why women are still much less likely to occupy both formal and informal positions of leadership than men (Badura et al., 2018; Carli & Eagly, 1999; U.S. Bureau of Labor Statistics, 2023). Despite the implementation of widespread policies that prohibit sex discrimination in the workplace and an increasing number of women in the workforce, a gender gap in leadership attainment has endured (Ely, Ibarra, & Kolb, 2011; Lau et al., 2023), with women occupying 31% of executive leadership positions within the U.S., even as their overall representation in the U.S. workforce has climbed to 47% (U.S. Bureau of Labor Statistics, 2023).

Research on the gender gap in leadership has primarily employed a social role theory perspective (Eagly, 1987; Eagly & Karau, 1991; Wood & Eagly, 2012) and its subsequent extensions (e.g., Gender-Agency/Communion-Participation (GAP) Model; Badura et al., 2018) to explain the lower prevalence of women in leadership positions. Social role-based approaches suggest that women's lack of representation in leadership positions is driven by a self- or other-perceived incongruity with leadership roles, resulting in (1) a lower likelihood that women will identify with and seek out leadership roles and/or (2) direct or indirect discrimination against women who pursue or obtain positions of leadership. Social role explanations for the leadership gender gap are akin to

trait-based views of leadership (Day & Zaccaro, 2007; Spector, 2016; Zaccaro, 2007), which assume that leadership is driven by a collection of personal attributes of the *leader*. Indeed, research stemming from trait-based views of leadership often focus on identifying individual differences (e.g., gender) that differentiate 'leaders' from 'non-leaders' across situations (Judge et al., 2002).

However, in addition to the interpersonal roles girls and boys assume, the gender socialization literature also emphasizes that boys and girls are also socialized within different leadership structures in groups. That is, starting in early childhood, children show a preference for same-sex playmates, resulting in 'two cultures' of gender-segregated playgroups that reinforce the differences in behavior between boys and girls (Maccoby, 1990, 1998). Boys' groups are generally characterized by larger sizes, hierarchical structures, and a focus on competition and dominance (Benenson, 1990; Pettit et al., 1990). Boys' groups tend to engage in physical, active, and competitive games, and leadership is typically centralized around the most physically assertive boys (Pellegrini & Smith, 1998; Rose & Rudolph, 2006). In contrast, girls' groups are often smaller, with less rigid hierarchies and more focus on cooperative play and social relationships (Eisenberg & Lennon, 1983). Girls' play more frequently involves pretend games (Jones & Glenn, 1991) and often prioritize relationship building, emotional closeness, and influence *equality*.

Repeated exposure to these different types of group leadership structures in early childhood may contribute to the development of different expectations about leadership structures in adulthood. Specifically, whereas men may tend to understand leadership as a centralized phenomenon—with leadership authority residing in the hands of one or a few

key individuals—women may be more likely to believe that leadership is a shared and distributed phenomenon in groups. Indeed, prior research on gender differences in group socialization (Maccoby, 1998; Mehta et al., 2016; Mehta & Strough, 2009; Underwood & Rosen, 2009), leadership styles (Eagly & Johnson, 1990; Eagly & Karau, 1991; Mano-Negrin & Sheaffer, 2004), and perceptions (Joshi, 2014; Martin & Halverson, 1981; Paustian-Underdahl, Walker, & Woehr, 2014) suggest that women may be more likely than men to believe that leadership can be a dynamic, distributed, and reciprocated phenomenon.

Importantly, in addition to social role-based explanations for gender-based leadership gaps in organizations, differences in men's and women's assumptions about how leadership is structured in groups may help to explain the pervasive gaps we see in women's attainment of leadership positions. For instance, a woman—who was socialized in small, decentralized groups where leadership was shared or rotated among members—may assume that granting leadership *to* another person (i.e., following) will not preclude others from granting leadership to *her* (i.e., leading; DeRue & Ashford, 2010). In contrast, a man—who was socialized in large, centralized groups where leadership was focused around one or a few individuals—might assume that granting leadership to others will limit his opportunities to lead in the future. Moreover, a man might assume that receiving followership from others indicates that he is *the* leader and all other group members are 'followers.' These differences in perceptions, behavioral tendencies, and assumptions could help explain why (1) women are more likely to grant leadership to others and, therefore, (2) are less likely to be perceived as leaders *by* others (e.g., especially men), a finding that has been supported by a number of studies (Braun et al.,

2017; Koenig et al., 2011; Shein, 1973, 1975). Indeed, as researchers have begun to reconceptualize leadership as a relational phenomenon that can be shared or distributed among multiple group members simultaneously, or over time (DeRue & Ashford, 2010; Uhl-Bien & Marion, 2011), the gender socialization literature can provide new insights into the different 'rules of engagement' that boys and girls learn with regard to leadership relationships.

Understanding whether gender differences exist in the perception and enactment of how leadership is shared or distributed is critical, as a number of studies have demonstrated that shared leadership—where leadership influence is distributed across multiple team members—can result in more effective team functioning (e.g., Carson, Tesluk, & Marrone, 2007; D'Innocenzo, Mathieu, & Kukenberger, 2016). By leveraging the strengths and expertise of multiple individuals, shared leadership can foster more adaptive, high-performing teams (Hoch, 2013; Imam & Zaheer, 2021). If women are more likely than men to engage in shared leadership, as is suggested by some prior research (e.g., Eagly & Johnson, 1990; Eagly, Johannesen-Schmidt, & Van Engen, 2003), then this could provide an explanation as to why gender-diverse teams (and, in particular, teams with at least one woman) tend to have stronger team cohesion and collective decision-making (Woolley et al., 2014; Yang et al., 2022). However, in hierarchical, male-dominated organizational contexts, the tendency to engage in shared leadership may also have unintended consequences. If leadership is predominantly recognized through traditional, centralized models, women's inclination to share leadership may limit their visibility and advancement into senior roles. Investigating these gendered tendencies can

help organizations design leadership development strategies that both harness the benefits of shared leadership and ensure equitable opportunities for leadership development.

The Present Study

In this dissertation, I leverage research on gender socialization in groups (Leaper, 1994; Maccoby, 1990, 1998), leadership and followership identity formation (Badura et al., 2018; DeRue, Ashford, & Cotton, 2009; Neubert & Taggar, 2004), and informal leadership emergence (Badura, Galvin, & Lee, 2022; Carter et al., 2015; DeRue & Ashford, 2010; Ensari et al., 2011; Foti & Hauenstein, 2007) to propose that men and women tend to maintain different assumptions about how leadership will be structured in groups. That is, whereas women may tend to assume that leadership will be shared, distributed, and reciprocated in groups, men might assume that leadership will be centralized in the hands of one or a few individuals. In turn, these different assumptions would underpin how men and women *perceive* leadership activities in groups and *approach* participation in leadership relationships.

In the remainder of this chapter, I summarize relevant literature and articulate my research question and specific hypotheses. Chapter 2 provides a summary of the three studies I propose to test my ideas. Specifically, Studies 1 and 2 evaluate the extent to which gender-based differences exist with regard to perception and enactment of leadership structures in groups. Study 1 (Chapters 3 and 4) employs a mixed-methods approach involving structured interviews and surveys to examine the foundations of gender-based differences in leadership schemas (both definitional and structural) and assess whether men and women differ in terms of their recollections of leadership structures in previous team experiences. Study 2 (Chapters 5 and 6) considers whether

men and women differentially approach participation in leadership relationships by determining whether women are more willing to engage in *followership* than men. Lastly, Study 3 (Chapters 7 and 8) employs an experimental methodology to investigate whether men and women differ in their perceptions of group leadership structures when observing the same stimuli (i.e., vignettes). Together, these three studies are designed to extend current understanding of how men and women differ in terms of their perception and enactment of leadership relationships in teams.

Background and Theory

Organizational research on the gender gap in leadership (e.g., Badura, Galvin, & Lee, 2022; Hanna et al., 2021; Hogan, Curphy, & Hogan, 1994; Luria et al., 2019; Cox, Madison, & Eva, 2022; Yukl, 1989) is often situated within the broader literature on 'leader emergence' which has sought to identify the traits, cognitions, and behaviors that underlie an individual's likelihood of assuming positions of leadership (Judge et al., 2002; Murphy, 1941; Paunova, 2015). This line of research has identified numerous attributes associated with leader emergence, including personality traits (e.g., narcissism, extraversion, conscientiousness; Anderson et al., 2001; Anderson & Kilduff, 2009; Anderson et al., 2020; Bendersky & Shah, 2013; Brunell et al., 2008; Judge et al., 2002; Lord et al., 1986); task-relevant behaviors, skills, and abilities (e.g., Cheng et al., 2022; Henrich & Gil-White, 2001; Thomas & Hirschfeld, 2015); and physical characteristics (e.g., Blaker et al., 2013; Lukaszewski et al., 2016; Neubert & Taggar, 2004; Spisak et al., 2014). These attributes are assumed to increase the probability that certain individuals will *attempt* to pursue positions of leadership and/or increase the probability that other individuals will *accept* leadership from a particular person.

Building on this trait-based approach, research on the gender gap in leadership has often leveraged a *social role perspective* to articulate why women may be less likely to attempt to pursue positions of leadership and/or why people may be less likely to accept leadership from a woman than from a man (Eagly & Karau, 2002; Rudman & Glick, 2001). Social role theory posits that gender differences in behavior arise from societal expectations regarding the distribution of men and women into different social roles (Eagly & Wood, 2012). This perspective suggests that women's lack of attainment of leadership positions is driven by a self- or other-perceived lack of fit or congruity with leadership roles (i.e., "think manager-think male"; Eagly & Karau, 2002; Heilman, 1983, 1995; Rudman & Glick, 2001), resulting in, at best, a lower likelihood that women will identify with and seek out leadership roles (Hofstede, 2001; Powell & Butterfield, 2017) and, at worst, direct or indirect discrimination against women who pursue or obtain positions of leadership (Heilman, 2012; Rudman & Glick, 2001; Ryan & Haslam, 2004). Although social role theory-based explanations have found wide empirical support, they build on a predominantly 'personological' or 'leader-centric' approach to understanding how one's gender impacts the likelihood that one will become a leader. In other words, social role theory and its more recent extensions (e.g., Gender-Agency/Communion-Participation (GAP) Model; Badura et al., 2018) focus on how women approach leadership roles and/or how others will perceive a woman who occupies a leadership role. The presumption is that leadership is an individual, rather than a relational or collective, phenomenon.

However, in recent decades, researchers have begun to view leadership emergence as a fundamentally *relational* process that is co-constructed by (at least) two

individuals choosing to adopt leadership and/or followership roles in relation to one another (DeRue & Ashford, 2010; Hollander, 1992; Meindl, 1995; Uhl-Bien, 2006; Uhl-Bien et al., 2014). Although much of the leadership literature has conceptualized followers as an undifferentiated group of individuals who are influenced by a charismatic leader (Bass & Avolio, 1993; Conger, Kanugo, & Menon, 2000), social psychologists have long recognized that followership is not merely a lack of leadership (Hollander, 1992; Hollander & Webb, 1955). The follower role is an active position in which a person willingly grants leadership to others and collectively works with leaders and fellow followers to achieve shared goals (Baker & Gerlowski, 2007), and organizational researchers have begun to recognize the equally important role of followership in the enactment of leadership (Sims & Weinberg, 2022). Indeed, multiple group members may take on leadership and followership roles, and these emergent leadership relationships can shift over time and across task domains (Carson, Tesluk, & Marrone, 2007; Contractor et al., 2012; Pearce & Conger, 2003).

Given that leadership is a fundamentally relational phenomenon, the relational schemas that men and women are socialized to possess are likely to be critical for understanding gender differences in leadership perception. That is, the implicit rules and expectations that guide relational behavior beginning in early childhood through the process of gender socialization are likely to have a substantial impact on the ways in which men and women perceive the emergence and distribution of leadership relationships. Indeed, researchers have found that early socialization has a profound and lasting impact on men’s and women’s interpersonal behaviors and expectations for

others' interpersonal behaviors (Martin & Ruble, 2010; Ruble, Martin, & Berenbaum, 2006).

The gender socialization literature helps to articulate how men and women tend to develop norms and expectations regarding leadership. Beginning in early childhood, boys and girls naturally gravitate towards others of their own sex, leading to the creation of separate social groups with distinct cultures and styles of interaction (Maccoby, 1990, 1998). For example, Martin and Fabes (2001) observed that in a sample of preschoolers studied over a six-month period, more than 70% of children's playmate choices were accounted for by their gender. Boys tend to form larger social groups than girls (Eder & Hallinan, 1978; Lever, 1978; Omark, Omark, & Edelman, 1975; Waldrop & Halverson, 1975) and more often engage in between-group competition involving dominance hierarchies and role differentiation to a greater degree than girls (Lever, 1978). Girls' social groups, conversely, tend to be more focused on dyadic relationships (Benenson, Apostoleris, & Parnass, 1997; Eder & Hallinan, 1978) and involve higher levels of emotional support, intimate exchanges, and help in problem-solving (Maccoby, 1990; Parker & Asher, 1993; Rose & Asher, 1999; Savin-Williams, 2012). Girls' social groups tend to be characterized by greater equality in the reciprocal give-and-take involved in relationships (Geary et al., 2003; Markovits, Benenson, & Dolenszky, 2001), resulting in less status differentiation among group members.

The differing play styles and interaction patterns that boys and girls experience during childhood play are not trivial; they lay the foundation for sustained gender differentiation into adulthood. Indeed, an important implication of these gendered cultures is that they are self-reinforcing, resulting in a gender segregation cycle whereby

more time spent with same-sex peers reduces comfort with other-gendered peers (Field & Martin, 2016; Leaper, 1994; Maccoby, 1998). This cycle limits the opportunities for children to practice behaviors outside gender norms, narrowing the breadth of norms and expectations for relational behavior that children bring into adulthood. Even into the late teenage years and early twenties, young men and women continue to display gender segregation in time spent with others (DiDonato & Strough, 2013).

Despite the extensive research on gendered group cultures in childhood and young adulthood, the implications of these differences in the experiences boys and girls have had in groups for how men and women behave and perceive one another in the workplace are relatively unexplored. One implication of the 'two cultures' in which boys and girls learn to interact in childhood is that men and women may carry on these divergent 'rules of engagement' with regard to leadership and influence in group settings. Gendered socialization in groups is likely to affect the leadership structure schemas that individuals use to determine how to initiate and reciprocate leadership-related interactions within groups. Men and women are socialized to view leadership differently, both in terms of what it means to be a leader (Antelo, Prilipko, & Sheridan-Pereira, 2010; Kenny & Livi, 2009; Linimon, Barron III, & Falbo, 1984; Marchiondo, Myers, & Kopelman, 2015) and how leadership is distributed in teams and organizations (Brashears, Hoaglanda, & Quintane, 2016).

Although several studies have demonstrated that men and women differ in terms of the structure of their leadership networks (Woehler et al., 2021; Neubert & Taggar, 2004; van Emmerik, 2006), it remains unclear whether these differences result from a discrepancy in the 'true' structure of their relationships or whether they are due to

differences in the perception of what it means to be a leader. Similarly, although researchers have proposed that individuals vary in terms of their perception and cognition regarding the structure of leadership relationships (DeRue, Nahrang, & Ashford, 2015; Wellman, 2017), the role of gender in shaping this social process has not been well explored.

Research Question and Hypotheses

In this dissertation, I suggest that men and women may be entering the workplace with different assumptions about how leadership can and/or should be structured in groups. On the one hand, women are socialized to assume that leadership is often a shared and distributed phenomenon. Therefore, women might be more likely to assume that *following* others will not prevent them from being seen as leaders. On the other hand, men are socialized to view leadership through a 'winner take all' lens. Therefore, men might be more likely to assume that following others *will* preclude them from occupying leadership positions in the future. My overarching research question considers these gender-based differences in leadership schemas.

Research Question: Are women more likely than men to perceive leadership as a shared/distributed phenomenon?

I propose to address this research question empirically in several ways. First, I will examine whether women tend to hold broader, more inclusive definitions of leadership than men. Gender differences in implicit definitions of leadership could provide a potential explanatory mechanism through which women perceive leadership to be more shared or distributed (i.e., if a greater number of traits/behaviors 'count' as leadership behaviors for women, then the likelihood that multiple individuals are enacting

leadership within a team is higher for women than for men). Research on gender differences in implicit leadership theories (ILTs) has found that although both men and women tend to identify the traits of sensitivity, dedication, charisma, attractiveness, intelligence, strength, and creativity as being prototypical of leaders, and tyranny and masculinity as being anti-prototypical of leaders (Offermann & Coats, 2018; Offerman, Kennedy, & Wirtz, 1994), gender differences in the relative importance of certain leadership traits do exist. Women tend to describe an ideal leader as being more honest, sincere, and understanding (Epitropaki & Martin, 2004), whereas men tend to value assertiveness and competitiveness in leaders to a greater degree (Deal & Stevenson, 1998). Female students expect more consideration and problem solving from leaders than do men (Frost, 2016). Additionally, sensitivity and knowledgeableness may be more central to women's leadership prototypes, whereas creativity and courageousness may be more important for men's prototypes (Swanson et al., 2020). Together, these findings suggest that men may tend to consider task-oriented traits and behaviors as more central to their implicit definitions of leadership, and women may tend to weight relational-oriented traits and behaviors as more central to their implicit definitions of leadership.

Although men and women may hold similar leadership prototypes, the ways in which they are reinforced to behave in a leadership context differs substantially. Women (but not men) are penalized for engaging in non-androgynous (i.e., solely feminine or masculine) leadership styles (Kark, Waismel-Manor, & Shamir, 2012) and are rewarded for displaying both communal and agentic leader behaviors (Johnson et al., 2008; Rose & Tost, 2010). This 'double bind' phenomenon, whereby a careful balance of both agentic and communal leadership behaviors are required for women to succeed, is likely to shape

women's schemas regarding what it takes to be an effective leader (Carli & Eagly, 2011; Hoyt, 2010), resulting in women perceiving both masculine (i.e., agentic, competitive) and feminine (i.e., collaborative, democratic) leadership styles to be equally valued.

Hypothesis 1: Women's definitions of leadership include a more diverse range of leadership traits and behaviors than men's definitions of leadership.

The differences in how men and women are socialized to perceive what behaviors and traits constitute leadership will influence how they grant opportunities to others to lead and, in turn, the likelihood that they will be granted leadership by others in the group. DeRue and Ashford (2010) propose that individuals who hold a hierarchical structure schema will tend to see leadership as zero sum, whereby granting leadership to another person implies the adoption of a follower identity for oneself and vice versa. In contrast, when individuals hold a shared leadership structure schema, they are likely to have a more fluid social exchange of leadership grants and claims, and granting leadership to another does not automatically exclude oneself from claiming a leader identity (DeRue & Ashford, 2010; DeRue, Ashford, & Cotton, 2009). In fact, leadership grants may be seen as an important interpersonal resource that forms a part of social exchange in groups. People who tend to believe leadership is a shared phenomenon may grant leadership more broadly to others with the expectation that these grants will be reciprocated in the future (Carson, Tesluk, & Marrone, 2007; Fletcher & Käufer, 2003).

A shared leadership structure schema promotes leadership as a mutually enacted and reciprocal process, whereas a hierarchical leadership structure schema views leadership as a mutually exclusive influence process (DeRue & Ashford, 2010; DeRue, Nahrgang, & Ashford, 2015; De Soto, 1960). This implies that in mixed-gender contexts,

men—who are likely to hold a more hierarchical 'winner-takes-all' leadership schema—will tend to accumulate more leadership grants but are unlikely to grant leadership to others, whereas women—who tend to hold shared leadership schemas in which leading and following are not mutually exclusive—are more likely to grant leadership to others but may receive fewer grants in return. In addition to the composition of the groups, dominant gender norms in organizations—shaped by the organizational culture—are likely to highlight leadership granting as a relinquishing of leader identity, whereas women may view granting as a means of building relationships and leadership capital. These dynamics may contribute to the observation that women are often less likely to emerge as leaders in corporate, male-dominated settings.

Hypothesis 2: Women are more likely to grant leadership to others.

After investigating whether men and women differ in terms of their likelihood to grant leadership to others, I then assess whether men and women differ in terms of the structure of leadership relationships that they tend to perceive. Prior research has demonstrated that all-female groups exhibit a preference for and tendency toward decentralized leadership structures, as compared to all-male or gender balanced groups (Berdahl & Anderson, 2005; Woolley et al., 2023), suggesting that the group norms and expectations for leadership structuring may differ for men and women. Toward these ends, I draw from the literature on shared and collective leadership (Carson, Tesluk, & Marrone, 2007; Contractor et al., 2012; Pearce & Conger, 2002) to identify different approaches for operationalizing 'shared' leadership in groups: (1) number of leaders; (2) network density; (3) network decentralization; and (3) dyadic reciprocity. My hypotheses

consider whether men and women's perceptions of leadership distribution differ with regard to these four metrics.

One way to operationalize shared leadership is to ask individuals to report on the total *number of leaders* in the team (Bergman et al., 2012; McIntyre & Foti, 2013; Xu, Wu, & Evans, 2022). A count of the number of leaders in a team provides a straightforward and intuitive measure of shared leadership, capturing the extent to which leadership responsibilities are distributed rather than concentrated in a single individual. This approach aligns with conceptualizations of shared leadership that emphasize the dispersion of influence among multiple team members rather than the presence of a single, hierarchical leader. Additionally, using a count-based measure allows for easy comparisons across teams and provides a clear numerical representation of leadership distribution, facilitating both theoretical and practical interpretations.

Calculating the *network density* of leadership relationships among group members is a second metric that has been used to operationalize shared leadership in a group (Carson, Tesluk, & Marrone, 2007). Research on leadership as a network often assumes that leadership relationships are dyadic and directed (i.e., team member A leads team member B), and that leaders can vary in terms of the number of individuals that they lead (i.e., team member A leads team members B, C, and D), and each of these relationships can be unidirectional or reciprocal (i.e., team member B also leads team member A) (Carter et al., 2015; Cullen-Lester & Yammarino, 2016; Zhu, Liao, Yam, & Johnson, 2018). These complexities are not captured by a simple count of the number of perceived leaders in a team. Leadership density is calculated as the percentage of leadership relationships within the team out of the total number of possible leadership relationships,

given the team size. Therefore, this metric accounts for variability in the number of individuals that a leader leads, as well as any reciprocal leadership relationships. A density score of 1 indicates that all team members are leading each other, whereas a density score of 0 indicates that no leadership is occurring among team members. Although density reflects the overall amount of leadership occurring within a team, it does not capture the structural organization of those leadership relationships within the team (i.e., distributed vs. centralized). A third approach to operationalizing shared leadership is *network centralization,* which indicates the extent to which leadership authority is distributed among multiple group members rather than emanating from a single individual within the team (Borgatti, Everett, & Johnson, 2013). Centralization is particularly important because it helps distinguish between teams where leadership is broadly shared versus teams where, despite high leadership activity, a small subset of individuals dominate the leadership structure. In a leadership claiming network, maximally centralized outgoing ties would resemble a star, with ties going from a single leader to all other team members, whereas a maximally decentralized network would have an equal number of ties emanating from all team members.

A fourth approach to measuring shared leadership is to assess the degree to which leadership is *reciprocated* among team members. Drawing on DeRue and Ashford's (2010) claiming and granting framework, this approach could be used to assess an *individual's* involvement in shared leadership (i.e., team member A grants leadership to and claims leadership from team member B) or to measure the extent to which leadership is reciprocated in a *team* (i.e., the number of reciprocal leadership ties occurring in the team out of the number of possible reciprocal ties, given the number of team members).

Although this approach has not previously been used to operationalize shared leadership, it provides a potentially useful method for examining the phenomenon of dual leader and follower identities, which have been described theoretically but not yet tested empirically (Contractor et al., 2012; Jaser, 2021; Sy & McCoy, 2014). As explained by Allen et al. (2022), "Research needs to better represent the mutual influence processes of leaders and followers and explore when followers actually enact leadership and when, how, and why leaders engage in followership. . . . We need more of this type of research" (p. 578). Operationalizing shared leadership as the presence of reciprocal leadership and followership ties would address this call for research.

In summary, counting the number of leaders as well as calculating network density, decentralization, and reciprocity are all distinct ways of operationalizing shared leadership in a group. Each of these metrics captures a different but complementary aspect of shared leadership: the number of recognized leaders reflects the extent to which leadership is broadly distributed, density indicates the overall level of leadership activity, decentralization reveals the degree to which leadership influence is spread across multiple individuals rather than concentrated in a few, and reciprocity assesses the extent to which leadership is mutually recognized among team members. Together, these measures provide a robust framework for examining how leadership is enacted within teams.

Given that I hypothesize that women are more likely to perceive shared forms of leadership than men, I propose that women's perceptions of leadership exhibit properties that are more aligned with the four shared leadership metrics:

Hypothesis 3: In comparison to men's perceptions of team leadership structures, women's perceptions of team leadership structures: include more leaders (H3a) and exhibit greater density (H3b), decentralization (H3c), and reciprocity (H3d).

CHAPTER 2

OVERVIEW OF STUDIES

In this dissertation, I have developed and tested a set of hypotheses that progressively examine the nature of gender differences in the perception of leadership structures in teams. Through a series of three studies, I evaluate gender differences in perceptions of leadership relationships at the dyadic and group levels, leveraging a social network perspective (Carter et al., 2015) to examine how gendered cognition impacts individual leadership perceptions and behaviors and the emergent structure of leadership networks in teams. In Study 1, I employ a mixed-methods approach to test evaluate whether men and women differ in terms of their definitions of leadership (Hypothesis 1) and their perceptions of the structure of the leadership in teams (Hypothesis 2). Participants in Study 1 completed a background survey and a two-part interview. The first section of the interview involved answering questions about their understanding of what it means to be a leader and how they define leadership in both behavioral and trait-based terms. In the second section of the interview, a critical incidents approach was used to elicit a recent and memorable team situation in which participants had personally participated. Participants described the situation and were then led through the process of creating a leadership network diagram in which they indicated the structure and directionality of leadership relationships in their team situation.

Study 2 builds on the findings of Study 1 and provides ecological validity by testing whether men and women differ in terms of their actual leadership granting

behaviors. Study 2 evaluates the tendencies for men and women to grant leadership to others, and to be granted leadership themselves, in an organizational sample comprising top- and middle-level managers. Using a social network approach that controls for endogenous network dependencies, individual differences in formal leadership roles, dyadic social-relational tendencies, and formal reporting relationships, this study will provide a test of whether gender impacts the likelihood that men and women will grant leadership to others and/or be granted leadership by others.

The final investigation, Study 3, addresses a key limitation of Studies 1 and 2, which is that men and women may differ in terms of the types of teams and leadership contexts in which they tend to participate. Study 3 addresses this limitation by leveraging an experimental design in which participants read vignettes describing a team conversation. After completing a background survey, participants were randomly assigned to one of two conditions. In the first condition, participants read a vignette that described a team in which leadership was highly centralized around a single individual. In the second condition, participants read a vignette that described a team in which leadership was shared among multiple individuals. Both vignettes used gender-neutral actor names and contained the same number of team members, the same types of leadership behaviors, and the same number of speaking turns per person; the experimental manipulation was the extent to which leadership was shared among multiple team members. This study provides high internal validity in assessing gender differences in the perception of leadership relationships and structures.

CHAPTER 3

STUDY 1 METHODS

Participants

Participants for Study 1 were recruited through the Psychology Department research pool at a large southeastern research university. Prospective participants were given a brief summary of the nature of the study and what would be asked of them if they chose to participate. Participants received research credit hours commensurate with the time that they spent participating in the study in exchange for their participation. A total of 63 participants completed both the survey and the interview portions of the study. Participants ranged in age from 18 to 23 (M = 19.8, SD = 1.2), and 31 (49.2%) identified themselves as Women (32 (50.8%) identified as Men; none identified as Other/Third Gender).

Procedure

Study 1 included a survey and a structured interview. Prior to the interview, participants were sent an online survey that included self-report measures of personality and demographics.

During the interview portion of the study, participants were first asked to respond to several questions aiming to capture their understanding and perception of leadership. They were asked to define the terms "leader" and "leadership," and to describe the attributes, behaviors, and characteristics they associate with a leader.

Subsequently, participants were prompted to recall a memorable team context. Participants were encouraged to delve into details, explaining the situation, the team members involved, and the specific dynamics of leadership within that team. Following their narrative, participants were instructed to diagram the leadership in the team situation they had described. They were given a blank sheet of paper and asked to represent each team member as a circle with the individual's initials in the middle. They were then instructed to illustrate the leadership relationships within the team by drawing arrows from one team member to another, demonstrating the direction of reliance for leadership. Participants were also instructed to indicate the gender of each individual in their diagram and to differentiate who the network was a formal leader versus an informal leader. See Appendix A for the full interview guide.

Measures

Background Survey. The main demographic variable considered from the survey was gender. Other demographic variables like age and race were collected but not utilized in the analysis. Other measures included social dominance orientation (Ho et al., 2015), motivation to lead (Chan & Drasgow, 2001), self-monitoring (Snyder & Gangestad, 1986), implicit leadership theories (Epitropaki & Martin, 2004), agency/communion (Abele et al., 2008), multitasking preference (Poposki & Oswald, 2010) team role experience and orientation (Mathieu et al., 2015), and propensity to trust (Frazier, Johnson, & Fainshmidt, 2013).

Interview. The interviews were recorded and transcribed using Otter AI, a speech to text transcription service. All transcriptions were manually reviewed and edited as needed to ensure accuracy. A team of undergraduate research assistants coded the

transcriptions using deductive thematic analysis (Braun & Clarke, 2006). Five coders were trained to identify and differentiate between leadership traits and behaviors, using the framework developed by DeRue and colleagues (2011). Training continued until the codes selected by each coder reached sufficient agreement (Braun & Clarke, 2006). Once coders were trained, they used a two-step process to code for leadership behaviors and traits. First, coders identified each occurrence of a behavior or trait description in the transcript. Second, coders applied a single code to each behavior or trait according to the definitions included in DeRue et al., (2011) framework: Leader traits are characterized as *demographics* (e.g., gender, age, ethnicity, height, weight, education, social status), *task competence* (e.g., intelligence, conscientiousness, openness to experience, emotional stability, technical knowledge, leadership self-efficacy), or *interpersonal attributes* (e.g., extraversion, agreeableness, communication skills, emotional intelligence, or political skills). Leader behaviors are categorized as *task-oriented* (e.g., initiating structure, contingent reward, management by exception-active, boundary spanning, directive), *relational-oriented* (e.g., consideration, empowerment, participative, development, enabling, servant leadership), *change-oriented* (e.g., transformational, charismatic, inspirational), or *passive leadership* (e.g., management by exception-passive, laissez-faire).

Leadership Network Drawings. The leadership diagrams created by participants were first translated into leadership granting matrices (in which an arrow going from one individual to another indicates the presence of a leadership granting tie, indicated by a value of 1 in the matrix). Network density and degree centralization was calculated for

each matrix, using the *statnet* package in R (Handcock et al., 2003).

CHAPTER 4

STUDY 1 DATA ANALYSIS AND RESULTS

The purpose of this study was to examine gender differences in the diversity of language used to describe leadership behaviors and traits, as well as differences in network structure characteristics. Descriptive statistics for the key variables in these analyses, including measures of leadership trait and behavior diversity, and network metrics such as degree centralization, density, total ties, and proportions of formal and informal leadership roles, are presented in Table 1. Both the mean (with standard deviation) and median (with interquartile range) values are shown because not all variables were normally distributed.

Hypothesis 1: Gender Differences in Relational and Task-Oriented Language

To assess whether women tend to identify a more diverse range of leadership traits and behaviors than do men, I used the Shannon Diversity Index (*H*) to quantify the diversity of leadership traits and behaviors identified by participants, with higher values indicating greater diversity in the traits and behaviors reported. This measure accounts for both the richness (number of unique traits and behaviors identified) and evenness (the distribution of responses across these categories) within each individual's responses. *H* scores were calculated for each participant for leadership traits and leadership behaviors separately.

Due to the small sample size and violation of the assumption of normality[1], Mann-Whitney U tests were used to evaluate differences in the leadership trait and behavior *H* scores for men and women. The *H* scores for leadership behaviors did not significantly differ between men and women ($W = 586$, $p = 0.22$). Similarly, the *H* scores for leadership traits showed no significant difference between men and women ($W = 399.5$, $p = 0.18$).

As a supplemental analysis, I also tested whether men and women differ in terms of the proportion of leadership behaviors and traits identified that are relational versus task-oriented. I found that men's definitions of leadership contained a significantly higher proportion of task-oriented leadership behaviors compared to women ($W = 334$, $p = 0.03$). However, there was no significant difference in the proportion of task-oriented leadership traits between men and women ($W = 518$, $p = 0.77$), nor in the proportion of relational-oriented leadership behaviors ($W = 602.5$, $p = 0.14$) or relational-oriented leadership traits ($W = 502.5$, $p = 0.93$).

These findings suggest that although men and women described leadership behaviors and traits with similar levels of diversity, men may be more likely to emphasize task-oriented behaviors. No other significant gender differences were observed in the language used to describe leadership traits or behaviors. Therefore, Hypothesis 1 was not supported.

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[1] The assumptions of normality and homogeneity of variance were assessed prior to further analysis for the leadership behavior *H* scores and leadership trait *H* scores. For the leadership behavior *H* scores, results of the Shapiro-Wilk test indicated that the assumption of normality was met for men ($W = 0.95$, $p = 0.19$) but not for women ($W = 0.92$, $p = 0.02$), and results of Levene's test showed no significant difference in variances between groups ($F(1,62) = 0.15$, $p = 0.70$). For the leadership trait *H* scores, the Shapiro-Wilk test suggested a deviation from normality for both men ($W = 0.93$, $p = 0.04$) and women ($W = 0.84$, $p < 0.001$), but Levene's test indicated that the variances were homogenous across groups ($F(1,62) = 1.05$, $p = 0.31$).

Hypothesis 3: Gender Differences in Perceptions of Shared Leadership

Mann-Whitney U tests were also used to evaluate differences in perceptions of shared leadership, as results of Shapiro-Wilk tests indicated that not all of the variables were normally distributed for both men and women[2]. In terms of network size, men and women did not differ in terms of the number of individuals reported in their teams (W = 549.5, p = 0.46). However, the average number of leaders reported by men and women did differ significantly, with women tending to report a greater number of leaders than men (W = 643.5, p = 0.02). Together, these results suggest that although men and women are reporting similarly sized networks, women tend to identify a greater number of individuals as leaders in their networks than do men. This finding supports Hypothesis 3a.

Although women tend to report a greater number of leaders in their networks, there are no statistically significant differences between men and women in terms of the density (W = 490.5, p = 0.95) or centralization (W = 478, p = 0.81) of their reported leadership networks, indicating that Hypotheses 3b and 3c are not supported. Additionally, no gender differences were found for the number of reciprocal ties in men's and women's leadership networks (W = 503.5, p = 0.91) nor for the proportion of all ties that are reciprocal (W = 488, p = 0.90); therefore, Hypothesis 3d was not supported.[3]

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[2] The assumptions of normality and homogeneity of variance were assessed prior to further analysis for network size, number of leaders, density, centralization, number of reciprocal ties, and proportion of reciprocal ties. For all variables except centralization (men: W = 0.96, p = 0.30, and women: W = 0.97, p = 0.40), normality assumptions were violated for both men and women. Variances were equal for men and women across all variables. Given the violations of normality in most cases, Mann-Whitney U tests were used for further analysis of these variables.

[3] There was a request from a member of my committee to limit the analysis to only participants whose reported teams were relatively balanced in terms of gender makeup. However, out of 63 participants, only 17 (27%) reported gender-heterogeneous teams (defined as containing between 40% and 60% female and male nodes). Therefore, the analysis could not be replicated within this smaller sample size while maintaining sufficient power.

Conclusion

The findings from Study 1 provide some initial evidence that men and women may differ in terms of their perception of the degree to which leadership is shared within teams, although the breadth of their implicit definitions of leadership does not appear to be an explanatory mechanism for this difference. No statistically significant differences were found in the Shannon diversity index scores for men and women in terms of their use of relational-oriented and task-oriented language to describe leadership behaviors and traits. However, women's reported leadership networks tended to include a greater number of leaders. No gender differences were found in the density, centralization, or reciprocity of men's and women's self-reported leadership networks. Together, these results provide some evidence that although men and women tend to rely on similar implicit definitions of leadership, women tend to perceive a greater number of people as being leaders.

Although the mixed-methods approach used in this study resulted in rich data to linguistically and visually represent men's and women's implicit definitions of leadership, the study presents several limitations that should be taken into account when interpreting its findings. First, the college-aged students that participated in the study have limited leadership experience compared to working adults, which may affect the depth and variety of leadership experiences reported, limiting generalizability. Additionally, the study's sample size of 63 participants limits statistical power which may hinder the detection of small effects. Finally, relying on participants' self-reported leadership networks does not allow us to differentiate between *actual* and *perceived* gender differences in network structures. That is, do women actually tend to work in

teams with a greater number of leaders, or do they perceive these differences regardless of the actual team context? Studies 2 and 3 will address these limitations and attempt to extend these results using an organizational sample of perceived leadership granting networks and a controlled experimental design with a substantially larger sample size, respectively.

CHAPTER 5

STUDY 2 METHODS

Participants & Procedure

I test Hypothesis 2 using an archival dataset involving survey responses from top- and middle-management level employees at a small private southeastern college. Employees were organized into teams consisting of one top-level executive team (led by the CEO), six senior-level teams (led by senior executive leaders), and four mid-level teams (led by business leaders). Eighty-six individuals were identified as members of the top and middle managerial levels within the organization during a preliminary interview with the college president and HR representative. Demographics for all identified members were provided by the HR representative, including gender, age, race, tenure, team membership, formal role, and supervisor name. Participants were asked to complete a survey consisting of questions about their informal leadership relationships.

A total of 69 individuals completed the survey (80% response rate); of these, 17 respondents—all members of the same team—were excluded from the final analysis because their team size was substantially larger than the others (27 members vs. a range of 4 to 9 members for all other teams). Therefore, 52 individuals were retained for the analysis presented below. Participants were grouped into 10 teams, with an average team size of 6.4 members (SD = 1.7). Twenty-seven of the respondents (52%) were female, and 85% were White (10% Black, 2% Multiracial). Organizational tenure ranged from 0

to 38 years, with a median tenure of 8 years. The median age of participants was 50 years, with a range of 22 to 75 years.

Measures

Leadership reliance. Leadership granting was measured using a sociometric (i.e., 'round robin') approach, which is consistent with relational theories of leadership (e.g., DeRue & Ashford, 2010; Uhl-Bien, 2006).

Gender. Participants' gender was obtained from the organization's human resources representative.

Controls. Formal upward reporting relationships (i.e., relationships linking direct reports to their supervisors) and formal role (i.e., middle manager, business manager, executive leader, or CEO) were included as controls. Both controls were obtained from the organization's human resources representative.

CHAPTER 6

STUDY 2 DATA ANALYSIS AND RESULTS

Hypothesis 2: Gender Differences in Leadership Granting

To test my hypotheses that women are more likely to grant leadership to others (H2), as compared to men, I used a class of inferential models of network emergence known as *p** or Exponential Random Graph (ERG) models (Robins, Pattison, & Wang, 2009; Wasserman & Faust, 1994). These models are often used to understand the antecedents of leadership and other social relations in organizational research (Carnabuci et al., 2018; Chrobot-Mason, Gerbasi, & Cullen-Lester, 2016; Kalish & Luria, 2016; White, Currie, & Lockett, 2016), as relational data involves conditional dependence among network ties (i.e., the occurrence of one tie between nodes may be dependent on the existence of other ties between nodes; Carter et al., 2015; Contractor, Wasserman, & Faust, 2012; Robins et al., 2007; Lusher et al., 2013). To account for the non-independence of relational data collected in this study and control for the influence of endogenous and exogenous tendencies of leadership relationships (Carter et al., 2015; Lusher, Koskinen, & Robins, 2012), ERG models were used to test the hypothesis that women are more likely than men to grant leadership to others.

ERG models operate under the assumption that micro-foundational tendencies (Barney & Felin, 2013) underlie the emergence of a particular higher-order network structure, and these micro-level tendencies can be depicted as specific network patterns or 'structural signatures'. Thus, ERG modeling involves first determining how frequently

the hypothesized structural signatures appear in the observed network, then calculating parameter values for each structural signature through the simulation of a distribution of random networks, and finally comparing these simulated network parameters to the observed network to determine if the structural signature occurs more or less often than would be due to random chance. Parameter estimates in ERG models are analogous to coefficient estimates in traditional regression models. Each parameter estimate signifies the effect of a particular structural signature, controlling for all other structural signatures in the model, and a parameter is statistically significant if it is at least twice as large as its standard error.

Table 3 lists the parameters included in the ERG models to test H2. This table also summarizes which model(s) each parameter is included in and provides the interpretation of a positive and statistically significant parameter estimate. All ERG models were created and tested using the *ergm* version 4.3.2 package in R (Krivitsky, Hunter, Morris, & Klumb, 2023).

To ensure that the hypothesized effect was contributing to a robust and parsimonious understanding of the underlying leadership granting dynamics, I tested four ERG models and compared their fit statistics. The first model served as a baseline and assessed the tendency for ties between nodes to occur by chance (i.e., edges). Building on the baseline model, the second model incorporated other structural (or endogenous) effects present in leadership granting networks, including the tendency for mutual exchange (i.e., reciprocity) and the tendency for ties to occur between nodes if the two nodes have at least one other tie to a node in common (i.e., triadic closure). The third model added a number of exogenous parameters (i.e., characteristics of individuals or

relationships external to the network). The tendencies for direct reports to grant leadership to their direct managers (i.e., formal reporting structure), for individuals with higher-ranking formal roles in their organization to receive a greater number of incoming leadership ties (i.e., formal role in-degree), and for same-gender individuals to grant leadership to each other (i.e., gender homophily) were included as exogenous control parameters in this model.

Finally, the full model evaluates the hypothesized effect (i.e., gender out-degree) as well as the tendency for men to receive more incoming leadership granting ties (i.e., gender in-degree) as a final control parameter, given that men are generally more likely than women to be perceived as leaders (Badura, Galvin, & Lee, 2021; Badura, Grijalva, Newman, Yan, & Jeon, 2018). The hypothesized parameter tests whether women are more likely to send outgoing leadership granting ties than are men (i.e., gender out-degree).

Given that this analysis is based on a near-complete network, the standard concerns of power analysis in traditional survey-based research are less applicable. The leadership granting network analyzed in this study consists of $n = 52$ nodes and $m = 304$ edges, resulting in a sparsity of 88.5% (or a density of 11.5%). Large-scale networks are often highly sparse, with densities often below 1% (Snijders, 2006; Krivitsky, 2012). However, the network's moderate size ($n = 52$) makes this density typical and acceptable for ERG model analysis. Statistical power in ERG models is distinct from regression-type analyses, where power depends on sample size. Instead, power in ERG models depends on the ability to simulate networks within a substantial region of the network space, given the fixed set of nodes in the observed network (Krivitsky & Kolaczyk, 2015; Cranmer et

al., 2020). To address the relatively higher density of this network, an *edges* term was included to account for baseline tie formation, and goodness-of-fit diagnostics confirmed that the model adequately represented the observed network structure (see Table 4). The ability to achieve good model fit demonstrates sufficient statistical power for this analysis, even with the network's moderate sparsity (Cranmer et al., 2020).

Additionally, the number of edges provides an adequate number of observations relative to the parameters estimated, ensuring reliable inference and model convergence (Hunter et al., 2008). The network's size and density fall within the range commonly analyzed in ERG models, where statistical power is influenced by the number of edges and variability in network structure (Goodreau et al., 2009). Goodness of fit diagnostics confirmed the model's ability to represent the observed network, further supporting the adequacy of the sample size for this analysis.

Results

The results of the ERG model are shown in Table 4. In assessing model fit, the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) values both decline when moving from the baseline model to the full model. This suggests that the additional complexity of the full model is justified by its improved fit to the data (Burnham & Anderson, 2002). In assessing the full model, Markov Chain Monte Carlo (MCMC) diagnostics reveal that autocorrelations decline as the lag increases, indicating a good mixing of chains (Gelman et al., 2013). For most of the network parameters, the Geweke diagnostic statistics were close to zero, and the joint *p*-value from the Geweke diagnostic was 0.0023, suggesting convergence. With regard to goodness of fit, all observed parameters were well within the range of their respective parameters in the

simulated network, with Monte Carlo *p*-values close to 0.5, demonstrating good model fit (Hunter, Goodreau, & Handcock, 2008).

The edges parameter was significant (Estimate = -5.11, $p < .001$), indicating a baseline tendency for leadership ties to be granted at a relatively low rate. Reciprocity was also positively associated with leadership granting (Estimate = 0.94, $p < .001$), suggesting that individuals who grant leadership to others are likely to have leadership granted to them in return. Additionally, triadic closure was highly significant (Estimate = 2.00, $p < .001$), implying that leadership nominations tend to cluster within interconnected subgroups.

Results showed that individuals in formal leadership roles were more likely to receive leadership nominations (Estimate = 0.25, $p < .01$), suggesting that formal authority continues to shape perceptions of leadership within the network. Similarly, the formal reporting network parameter was highly significant (Estimate = 4.70, $p < .001$), indicating that employees are more likely to recognize their direct superiors as leaders.

Gender in-degree centrality was significant and negative (Estimate = -0.42, $p < .001$), indicating that men are more likely to receive leadership nominations compared to women. This aligns with prior research demonstrating that men are more likely to be identified as leaders (Koenig et al., 2011; Rudman & Glick, 2001; Shein, 1973).

Notably, gender homophily was not significant (Estimate = 0.13, $p = 0.28$), indicating that individuals did not disproportionately grant leadership to same-gender peers beyond what would be expected by chance. This suggests that while gender plays a role in the likelihood of being recognized as a leader (and in the likelihood of granting

leadership to others, as discussed in the following paragraph), leadership attributions are not strongly gender-segregated[4].

With regard to the hypothesized effect, the full model results show a positive and statistically significant parameter estimate for gender out-degree, indicating that women are statistically significantly more likely to grant leadership to others than are men (Estimate = 0.47, $p < .001$), providing support for Hypothesis 3. Converting these parameter estimates to odds ratios, I find that women are about 34% less likely to receive incoming leadership ties and about 60% more likely to send outgoing leadership ties to others than are men, controlling for endogenous (i.e., reciprocity, triadic closure) and exogenous (i.e., formal role in-degree, formal reporting network, gender in-degree, gender homophily) effects.

Conclusion

Building on Study 1's finding that women perceive a greater number of leaders in a team setting, Study 2 extends this insight by showing that women are also more likely to actively grant leadership to others, suggesting that their broader perception of leadership translates into behavioral tendencies that shape leadership dynamics within teams. In an organizational sample of top- and middle-level managers, I use a social network approach to evaluate whether men and women differ in terms of their tendencies to grant leadership to others (H2). The results of this study shed light on the organizational implications of gender differences in leadership structure perceptions,

[4] Additional descriptive analyses demonstrated that among women, 58% of out-going leadership granting ties were directed toward men and 42% toward women. Similarly, men directed 62% of their out-going leadership granting ties to men. These results suggest that both men and women are more likely to grant leadership to men, although the bias is slightly more pronounced among men, in line with prior research suggesting that men are more prone to favor same-gender peers when identifying leaders (Bosak & Sczesny, 2011; Koch, D'Mello, & Sackett, 2015).

namely, that men and women may be operating using different ‘rules of engagement’ when it comes to granting leadership to others.

The difference in leadership granting behavior between men and women may contribute to the leadership gap in attainment of formal positions of leadership, as women’s greater tendency to grant leadership to others may inadvertently limit their own visibility and recognition as leaders. In hierarchical organizations where leadership is traditionally associated with centralized authority and individual prominence, women who engage in shared leadership may be perceived as less assertive or less suited for leadership roles, reinforcing gendered leadership stereotypes (Badura et al., 2018; Carli & Eagly, 1999). This dynamic can lead to fewer leadership attributions for women, reducing their likelihood of being identified as high-potential leaders and subsequently selected for promotions or executive roles. Moreover, because leadership recognition is often a critical factor in career advancement, men—who may be more likely to consolidate leadership authority—could benefit disproportionately from these structures, further entrenching existing gender disparities in leadership attainment. Despite organizational efforts to promote gender equity, these subtle yet persistent biases continue to create barriers for women seeking to ascend to top leadership positions (U.S. Bureau of Labor Statistics, 2023).

CHAPTER 7

STUDY 3 METHODS

Participants

The participants in this study were recruited from Prolific, an online participant recruitment platform. Online research recruitment platforms like Prolific are widely used to conduct social science research, particularly when aiming to access a diverse population (Bohannon, 2016; Paolacci & Chandler, 2014; Turner et al., 2020). A growing body of research has demonstrated that online participant recruitment platforms—and Prolific in particular—not only replicate well-known lab experiments with reliability but also maintain consistency in survey responses (Hauser & Schwartz, 2016; Peer et al., 2017). Prolific has been shown to reach a diverse and representative population (Pallan & Schitter, 2018) and produce high quality data (Douglas, Ewell, & Brauer, 2023).

For this study, participants were required to speak English as a first language, reside in the United States, and be 18 years of age or older. Because gender is a primary variable of interest in this study, sampling was intentionally balanced in terms of gender to ensure that equal numbers of men and women completed the study. Participants were compensated based on the average rate for studies of similar length on Prolific at the time of deployment.

I conducted a power analysis for multiple regression with three predictors using the *pwr* package in R (Champely et al., 2020) to determine the necessary sample size to detect a small effect size ($f^2 = .02$) using a 0.05 significant level and statistical power of

0.8. The results of this power analysis indicated a sample size of 550 would be sufficient to detect a small effect in the regression models described in the data analysis for this study.

A total of 718 participants completed the survey. Sixty-five responses were removed due to failure of an attention check question that asked respondents to select "Slightly agree". Because gender is a focal variable in this analysis, another 65 participants were excluded who either did not report their gender or reported that their gender was "Other". The total remaining participant count was 587.

Of the remaining 587 participants, 296 (50.43%) were female, with an average age of 38.58 (*SD* = 13.02). Four hundred and forty respondents (74.96%) identified as "White/Caucasian, Anglo, European American; not Hispanic". Three hundred and fifteen (53.66%) were employed full-time; of those that were employed full-time, the average self-reported job level (on a scale of 1 = entry level position to 10 = top-level executive position) was 4.89 (*SD* = 2.69). Three hundred and forty-four (58.60%) reported that they currently hold or have held a managerial position; of those, 48 (13.95%) have held a managerial position for 15 or more years, 34 (9.88%) for 10 to 15 years, 91 (26.45%) for 6 to 10 years, and 171 (49.71%) for 0 to 5 years.

The descriptive statistics and pairwise Pearson correlations for all study variables are included in Table 5.

Procedure

After registering for the study, participants completed a background survey, which included demographic measures (i.e., gender, age, race, education). Participants were then randomly presented with one of two vignettes describing a team meeting. The

vignettes were in the form of transcripts, which describe the speaking turns of each team member over the course of a team meeting. Gender-neutral names were chosen for each team member to control for the potential influence of actor gender on leadership attributions (Badura, Galvin, & Lee, 2022; Eagly & Karau, 1991). Both vignettes contained a total of 16 speaking turns, with each team member speaking an equal number of times (four each). Additionally, both vignettes contained four speaking turns depicting leadership behaviors, two task-focused behaviors (i.e., initiating structure, boundary spanning) and two person-focused behaviors (i.e., consideration/empowerment, motivation) (Fleishman, Mumford, Zaccaro, Levin, Korotkin, & Hein, 1991; Yukl, 2012). However, the two vignettes differed in terms of the number of team members engaging in leadership behaviors. In the centralized leadership network condition, one team member had all four speaking turns that reflected each of the four leadership behaviors. In the decentralized leadership network condition, each of the four team members had a speaking turn reflecting one of the leadership behaviors. The full vignette transcripts are included in Appendix B.

Participants were instructed to read the transcript carefully and in its entirety. After reading the vignette, participants then proceeded to the next page to answer a set of questions related to the team meeting, including manipulation check items and leadership attributions.

Measures

Background Survey. Participants completed a background survey to provide information on a number of demographic variables, including age, gender, race/ethnicity, highest completed level of education, college major or area(s) of prior training, English

as a first language, employment status, previous employment status, average hours of work per week, job title, job level, experience in leadership roles, yearly salary, combined household income, relationship status, and whether or not they have children. Other measures included social dominance orientation (Ho et al., 2015), motivation to lead (Chan & Drasgow, 2001), self-monitoring (Snyder & Gangestad, 1986), implicit leadership theories (Epitropaki & Martin, 2004), agency/communion (Abele et al., 2008), multitasking preference (Poposki & Oswald, 2010) team role experience and orientation (Mathieu et al., 2015), and propensity to trust (Frazier, Johnson, & Fainshmidt, 2013).

Manipulation Check Items: Leadership Behavior Attributions. To confirm that the manipulation successfully represented a centralized or decentralized leadership context to participants, participants were asked to indicate which of the actors in the vignette engaged in each of four leadership behaviors: initiating action, delegating tasks, displaying consideration and concern, and motivating and inspiring (DeRue et al., 2011). Participants were allowed to select all that apply. The variable used in the manipulation check analysis was calculated as the number of unique actors identified as engaging in at least one leadership behavior.

Perceived Number of Leaders. Participants were also asked to indicate who they perceived as a leader during the team meeting. Participants were given a list of the four actors in the vignette and asked to select all that apply. The variable used in testing Hypothesis 2a was calculated as the number of actors identified as a leader.

Leadership Network Structure: Density, Centralization, and Reciprocity. Using responses to the questions 'Who was a leader during the team meeting? (select all that apply)' and 'Who did [selected team member] lead during the team meeting? (select all

that apply),' I constructed adjacency matrices to represent the perceived leadership network for each participant. Specifically, directed adjacency matrices were created such that when a participant indicated that actor A led actor B, this was represented as a directed edge from A to B ($A \rightarrow B$), signifying an outbound leadership tie from A to B. I then used these matrices to calculate network density, out-degree centralization, and the proportion of reciprocal ties for each participant.

CHAPTER 8

STUDY 3 DATA ANALYSIS AND RESULTS

Manipulation Check

To assess whether the leadership condition influenced participants' leadership behavior attributions, I conducted a linear regression analysis modeling the number of actors identified as engaging in leadership behaviors (e.g., leadership behavior attributions) based on leadership condition (centralized vs. decentralized), controlling for participant gender and the interaction between gender and condition. Results indicate a significant main effect of condition ($\beta = 0.46$, SE = 0.10, $p < .001$), such that participants in the decentralized team scenario reported more leadership behavior attributions than those in the centralized leadership scenario. This finding suggests that the leadership vignettes serve as a strong situation, shaping perceptions of shared leadership and reinforcing the manipulation's intended effect.

Participant gender did not have a significant main effect on leadership attributions ($\beta = -0.12$, SE = 0.10, $p = .22$), nor was there a significant interaction between gender and condition ($\beta = 0.15$, SE = 0.14, $p = .26$). These results indicate that men and women do not differ in terms of their likelihood to identify leadership behaviors within each condition, and both men and women in the decentralized leadership context reported a greater number of leadership behavior attributions than did men and women in the centralized leadership context.

These findings confirm that the experimental manipulation successfully influenced perceptions of leadership distribution, controlling for gender, supporting the use of the vignettes to represent centralized and decentralized team leadership networks.

Hypothesis 3: Gender Differences in Perceptions of Shared Leadership

To test Hypothesis 3a, I examined whether gender was associated with the number of leaders identified by participants, controlling for condition. Results from the linear regression model (see Table 6) indicate that gender had a marginally statistically significant effect on the number of leaders identified ($\beta = -0.15$, SE = 0.08, $p = 0.07$), suggesting that women were more likely than men to attribute leadership to a greater number of individuals. Condition and the interaction term were not significantly associated with the number of leaders identified, indicating that the leadership structure (centralized vs. decentralized) did not meaningfully influence how many actors participants perceived as leaders. Additionally, the non-significant interaction suggests that the relationship between gender and leadership attributions did not depend on leadership condition, implying that women's greater tendency to attribute leadership to multiple individuals was consistent across both centralized and decentralized contexts. These findings suggest that regardless of the leadership context, women are more likely to perceive a greater number of leaders than are men.

To assess Hypothesis 3b, I tested whether gender predicted perceptions of leadership network density. The regression analysis showed a significant negative effect of gender on density ($\beta = -0.04$, SE = 0.02, $p = 0.04$), indicating that women perceived leadership networks as denser compared to men. Condition and the interaction term were not significantly related to network density.

For Hypothesis 3c, I examined whether men and women differed in terms of their perception of leadership network out-degree centralization. Neither gender ($\beta = 0.03$, SE = 0.20, $p = 0.18$), condition ($\beta = -0.00$, SE = 0.20, $p = 0.96$), nor their interaction ($\beta = -0.04$, SE = 0.03, $p = 0.17$) significantly predicted perceived centralization. Thus, no support was found for Hypothesis 3c.

Lastly, Hypothesis 3d tested whether gender was associated with the proportion of leadership ties that were reciprocal. Condition was a significant predictor of reciprocity ($\beta = 0.01$, SE = 0.00, $p < 0.01$). Gender and the interaction term were not significantly related to reciprocity.

Taken together, these findings provide partial support for Hypothesis 3. Specifically, women were more likely than men to attribute leadership to a greater number of individuals (H3a) and perceived leadership networks as denser than men did (H3b). However, there was no evidence that gender influenced perceptions of network centralization (H3c) or reciprocity (H3d), although condition was associated with the latter. In conjunction with the manipulation check analysis, these results suggest that while men and women may be equally adept at identifying leadership behaviors, women tend to perceive leadership as more distributed in teams than do men.

Conclusion

Study 3 builds on the findings from Study 1 and Study 2, namely, that women tend to identify a greater number of actors as leaders, potentially driven by their broader definition of leadership (particularly with regard to relational leadership behaviors) and tend to grant leadership to a greater number of people. Employing an experimental design that manipulates the degree to which leadership is distributed within teams, Study 2

provides a more controlled investigation of how men and women differ in terms of their perceptions of the structure of leadership in teams. The findings from Study 3 indicate that women tend to perceive more shared leadership—operationalized as a greater number of leaders (H3a) and a denser leadership network (H3b)—than men, controlling for the actors' gender (through gender-neutral names kept constant across study conditions), the objective leadership structure (centralized vs. decentralized), and the number and types of leadership behaviors (two task-focused behaviors (i.e., initiating structure, boundary spanning) and two person-focused behaviors (i.e., consideration/empowerment, motivation)). However, two additional operationalizations of shared leadership (i.e., a less centralized leadership network (H3c), and more reciprocal leadership relationships (H3d)) were not found to differ between men and women with the same controls. Together, these results suggest that that although women and men are equally likely to identify leadership behaviors aligned with the network structure (manipulation check analysis), women tend to perceive leadership as more shared (i.e., include more leaders (H3a) and exhibit greater density (H3b)), although they do not differ in terms of their perception of network centralization (H3c) or reciprocity (H3d)).

A potential explanation for why perceptions of leadership network centralization (H3c) and reciprocity (H3d) were not found to differ between men and women is that although women may be more open to recognizing multiple leadership contributions, they may still anchor their judgments on one or more dominant actors in the scenario, reducing variability in the structural components of shared leadership (i.e., centralization and reciprocity) while still allowing for variance in the perception of the total number of

leaders (and leadership relationships, i.e., density). This is supported by the fact that although leadership behaviors were evenly distributed across actors in the decentralized condition, both men and women in this condition identified Alex most often as a leader[5], compared to the other actors. This is likely because Alex had the longest speaking turn in terms of number of words, which has been found to be predictive of leader emergence (e.g., Jones & Kelly, 2007; MacLaren et al., 2020). The tendency for both genders to anchor onto Alex as the primary leader in the decentralized condition suggests that although women identified a greater number of leaders overall—leading to higher network density—the overall structure of leadership remained centered around a dominant figure. As a result, the number of leaders (H3a) and leadership relationships (H3b, density) differed significantly between men and women, but because both groups appeared to anchor onto the same 'primary' leader (Alex), variability in leadership distribution (H3c, centralization) and mutual recognition (H3d, reciprocity) was limited.

[5] Among men in the decentralized condition, 40% identified Alex as a leader, 30% identified Sam, 22% identified Morgan, and 9% identified Cameron. Among women in the same condition, 42% identified Alex as a leader, 27% identified Sam, 24% identified Morgan, and 8% identified Cameron.

CHAPTER 9

GENERAL DISCUSSION

This dissertation highlights the role of gender in shaping the perception and enactment of leadership relationships in teams. My work extends previous research on gender differences in leadership that leverage a social role perspective (Day & Zaccaro, 2007; Spector, 2016), challenging the prevailing trait-based view by considering the role of gender and the group environment in which leadership schemas are developed and enacted (Türetgen, Unsal, & Erdem, 2008; Zaccaro, Green, Dubrow, & Kolze, 2018). Leveraging the gender socialization literature (Maccoby, 1990, 1998; Mehta et al., 2016; Mehta & Strough, 2009; Underwood & Rosen, 2009), I argue that the 'two cultures' that boys and girls experience in childhood play an important role in the norms and expectations that men and women bring to team interactions (Brands & Mehra, 2016; Eagly, Johannesen-Schmidt, & van Engen, 2003; Ibarra, 1993; Woehler et al., 2021). Specifically, given that women are socialized in groups with leadership structures that are flatter, denser, and more interconnected—whereas men are socialized in groups with more centralized, hierarchical and stable leadership structures—I test whether men and women differ in terms of their perception of and engagement in shared leadership. In a series of three studies, I address the primary research question: Are women more likely than men to perceive leadership as a shared/distributed phenomenon?

In Study 1, using a mixed-methods interview approach within a sample of college students, I evaluate whether women tend to recognize a more diverse range of leadership

traits and behaviors as constituting leadership and, using the critical incidents technique, whether women tend to report more shared leadership in a team in which they have participated (operationalized in terms of number of leaders, density, centralization, and reciprocity). Results from Study 1 indicate that although men and women do not appear to differ in terms of their implicit definitions of leadership, women tend to identify a greater number of leaders within their self-reported teams (although no differences were found in network density, centralization, or reciprocity).

Study 2 builds on these findings by assessing actual leadership granting behaviors in an organizational sample of top- and middle-level managers. Using a social network approach, this study tests whether men and women differ in their likelihood of granting leadership to others or being granted leadership themselves, controlling for network dependencies, formal roles, and relational factors. Results of ERG modeling indicates that women are more likely to grant leadership to others, suggesting that women's likelihood to perceive a greater amount of leadership occurring in teams may translate into behavioral tendencies to grant leadership to others more often, as compared to men.

Study 3 addresses potential contextual differences by experimentally manipulating team leadership structures. Participants were randomly assigned to read vignettes depicting either a centralized or decentralized team leadership structure and then reported their perceptions of leadership. This final study demonstrates in a large, experimentally-controlled context that women are more likely to identify a greater number of leaders and leadership relationships (i.e., greater network density) than are men, across both more centralized and more decentralized leadership contexts. However, no gender differences were found in terms of men's and women's perceptions of

leadership centralization or reciprocity, which may be explained by participants ‘anchoring’ onto one or a small number of actors, therefore reducing variability in perceptions of the more structural aspects of shared leadership (i.e., centralization and reciprocity).

Together, these three studies demonstrate that women tend to perceive a greater amount of leadership occurring within teams than do men. Across different methodological approaches—interviews using the critical incidents technique, leadership network analysis, and controlled experiment—the findings consistently indicate that women are more likely than men to perceive leadership as a shared phenomenon, identifying a greater number of leaders in both self-reported and experimental contexts. This tendency appears to translate into behavior, as evidenced by women’s greater likelihood of granting leadership to others in organizational settings. However, despite these differences in leadership recognition and granting, men and women do not differ in their perceptions of structural leadership attributes such as centralization and reciprocity. The findings suggest that while gendered socialization influences the extent to which leadership is seen as distributed, both men and women may anchor onto a small number of dominant leaders within a group, limiting variation in the overall structural perception of leadership. Collectively, these studies extend research on gender and leadership by suggesting that men and women may operate under different 'rules of engagement' when it comes to the amount of leadership they perceive as occurring within a team, although they may not differ in their perception of how that leadership is structured (i.e., centralization and reciprocity).

Key Contributions to Leadership Theory

This dissertation makes several contributions to leadership research and theory. First, I contribute to the literature on leadership emergence by demonstrating that gender plays a critical role in shaping individuals' perception of leadership and leadership granting behaviors. The leadership emergence literature has historically focused on how traits of *leaders* (e.g., extraversion, dominance) influence leader emergence (Judge et al., 2002; Lord et al., 1986), but in line with a growing body of research investigating how group and relational processes impact leadership emergence (Badura, Galvin, & Lee, 2022; Johns, 2024; Wellman, 2017), I suggest that the experience and expectations of *followers* (in particular, their gender and gender socialization) impact who is likely to emerge as a leader in a team. By shifting the focus from leader-centric traits to the role of follower perceptions and socialization processes, this dissertation expands the leader emergence literature by highlighting how gendered expectations shape not only who is recognized as a leader but also the broader structure of leadership within teams, reinforcing the need for a more relational and context-sensitive approach to studying leadership emergence.

Second, this work contributes to the growing body of research conceptualizing leadership as a social network (e.g., Carter et al., 2015; Lord et al., 2017; Zhu et al., 2018) by highlighting a methodological implication of using self-reported leadership networks to represent and investigate leadership relationships in collectives. In particular, the findings from Study 2 indicate that men and women may respond differently to round-robin sociometric measures of leadership relationships, even if they are equally adept at identifying leadership behaviors (Study 3). Both in evaluating their own networks (Study 2) and observing others' networks (Study 3), women appear to have a

tendency to identify a greater number of individuals as leaders. This should be taken into account in any analysis of ego or sociocentric leadership networks, and future work should further investigate whether sociometric measures (particularly measures of leadership relationships) are invariant across genders and other relevant demographic groups.

Finally, this research builds on and extends existing scholarship on gender and leadership by moving beyond trait-based and role-congruity perspectives to consider how gendered socialization shapes the perception and enactment of leadership within teams. Prior research has largely focused on how gender differences in leadership emerge from implicit biases, stereotypes, and access to leadership opportunities (Eagly & Karau, 2002; Heilman, 2012), often emphasizing the barriers women face in attaining leadership roles. Responding to calls to situate leadership within teams (Kozlowski, Mak, & Chao, 2016), this dissertation integrates insights from the gender socialization literature (Eagly & Wood, 1999; Maeda & Yoon, 2011) and social network approach to leadership (Carter et al., 2015) to examine how men and women differ in their cognitive schemas for leadership, influencing both their perceptions of who holds leadership in a team and their behaviors in granting leadership to others. By incorporating a network-based approach, this work reveals that gender differences in leadership perceptions are not just a matter of stereotype-driven evaluations of individual leaders but are also embedded in the broader structures of how leadership is recognized and distributed within teams.

Implications for Practice

A key practical implication of this research is that gendered assumptions about leadership structure may contribute to the persistent gender gap in leadership attainment.

Women, having been socialized in decentralized, shared leadership environments, may be more likely to grant leadership to others, assuming this will not diminish their own leadership opportunities. In contrast, men—socialized in more centralized leadership structures—may view leadership as a zero-sum game, where granting leadership to others limits their own chances of emerging as a leader. As a result, women's greater tendency to distribute leadership may inadvertently make them less likely to be perceived as leaders, particularly by men who expect leadership to be concentrated among a few individuals. To mitigate this, organizations should increase awareness of these implicit biases, promote shared leadership models that value collaborative leadership contributions, and implement leadership development programs that encourage both men and women to recognize and reward engaging in shared leadership.

Another practical implication of this research is that organizations should reconsider how they identify and evaluate leadership potential to ensure that leadership recognition is not biased toward centralized, hierarchical models that may disadvantage women. Given that women are more likely to perceive and enact leadership in a more distributed manner, traditional leadership selection processes—such as peer nominations, performance evaluations, or assessments—may systematically undervalue women's leadership contributions if they do not conform to dominant, top-down leadership expectations (Bosak & Sczesny, 2011; Fernandez-Mateo & Fernandez, 2016; Gipson, Pfaff, Mendelsohn, Catenacci, & Burke, 2017). To address this, organizations should implement more holistic leadership assessment frameworks that account for relational and shared leadership behaviors, such as mentoring, facilitation, and collaboration, rather than focusing solely on directive leadership. Additionally, training programs that educate

hiring managers and selection assessment professionals on diverse leadership styles (including shared leadership styles such as democratic and participative leadership) could help ensure that leadership potential is recognized more equitably across genders and produce a more inclusive leadership pipeline.

Limitations & Future Directions

Although this dissertation provides some important contributions to our understanding of gender differences in the perception and enactment of leadership, several limitations should be noted. Across all three studies, the samples used for data collection affect the generalizability of its findings. Study 1, which relies on a college student sample, may not reflect how leadership schemas develop in professional settings where individuals have more experience observing and enacting leadership, as well as more experience working in gender-heterogenous teams. Additionally, the small sample size of 63 participants may have limited the statistical power of Study 1, making it more difficult to detect subtle gender differences in leadership perceptions and network structures, potentially contributing to the null results for Hypothesis 1 (implicit leadership definitions) and partially supported results for Hypothesis 2 (shared leadership). Study 2, conducted with leaders at a small private college, offers some ecological validity but results may not generalize to corporate environments, where leadership may be more hierarchical and efficiency-driven. The use of a single leadership network that is relatively small (52 nodes with an 11.5% density) may have also limited the power to detect weaker effects (Vega Yon, 2023), although the high response rate within a complete network and the successful ERGM estimation provide strong evidence that the dataset was sufficient to detect meaningful patterns of leadership granting behaviors.

Finally, Study 3's experimental vignette design provides strong internal validity but does not fully capture the complexities of real-world team interactions, where leadership emerges dynamically over time, although the large sample size (587 respondents) provided ample statistical power to detect effects.

A second limitation of this research is that, while I proposed that early childhood socialization shapes expectations about how leadership should be structured, I did not directly measure participants' socialization experiences or the extent to which they were exposed to the 'two cultures' (Maccoby, 1990, 1998) discussed in the literature review. As a result, the observed gender differences in leadership perception and granting behaviors may be influenced by other aspects of gender beyond socialization, such as implicit biases, workplace norms, or broader cultural expectations. Future research could address this gap by employing longitudinal designs that track the impact of early childhood socialization on leadership perceptions and behaviors over time, providing stronger causal evidence for the role of early social experiences in shaping leadership schemas.

A third limitation of this research is its binary and static treatment of gender (male vs. female), which does not account for the leadership experiences of non-binary, gender-fluid, gender-nonconforming, or transgender individuals. Despite growing recognition of gender diversity and its relevance to leadership research (Fassinger, Shullman, & Stevenson, 2010), research on gender-nonconforming individuals in the leadership literature remains extremely limited, leaving a significant gap in our understanding of their leadership experiences and perceptions (see Talis, 2023, for further discussion). Future research should investigate how the experience of non-binary individuals in early

childhood impacts their development of expectations about how leadership is structured in adulthood.

Finally, although I suggest that women's higher likelihood of granting leadership to others may result in negative career outcomes, I do not directly measure these outcomes. Future research should examine the long-term career implications of gendered leadership perceptions, as these differences may contribute to cumulative disadvantages for women in leadership attainment and career progression. Longitudinal network analysis (Snijders, 2005) could provide valuable insights into how leadership perceptions and granting behaviors shape leadership emergence trajectories over time, revealing whether women's broader leadership recognition reinforces existing disparities over time. Such approaches could also identify key intervention points that could be used to create targeted mentorship programs or leadership development initiatives aimed at supporting women's leadership attainment.

Conclusion

The findings from this dissertation suggest that women are more likely than men to perceive leadership as a shared phenomenon and to grant leadership to others, suggesting that gendered assumptions about how leadership is structured may shape how individuals engage in leadership within teams. Across three studies, I find that women tend to perceive leadership as more shared and have a higher propensity to grant leadership to others, as compared to men, indicating that men and women may enter the workplace with differing assumptions and expectations about how leadership is structured. This research contributes to a deeper understanding of the role that gender

plays in the co-creation of leadership in teams, suggesting that there may be gendered 'rules of engagement' that shape the perception and enactment of leadership in teams.

These differences in leadership perceptions and behaviors have important implications for both team functioning and individual leadership outcomes. Prior research suggests that shared leadership—where leadership influence is distributed across multiple team members—can enhance team effectiveness, collaboration, and innovation (e.g., Carson, Tesluk, & Marrone, 2007; D'Innocenzo, Mathieu, & Kukenberger, 2016; Drescher et al., 2014; Hoch, 2013; Small & Rentsch, 2011). Women's greater tendency to distribute leadership may, therefore, be beneficial in fostering more cohesive and high-performing teams. However, in male-dominated organizational contexts that traditionally emphasize hierarchical leadership structures, this tendency may put women at a disadvantage. By frequently granting leadership to others rather than consolidating their own leadership authority, women may be less likely to be recognized as formal leaders or advance into senior leadership roles. The findings from this dissertation emphasize the need for organizations to critically examine how leadership is recognized and rewarded to ensure that leadership potential is not overlooked simply because it is enacted differently by men and women.

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TABLES

Table 1
Descriptive statistics for leadership and network measures by gender

	Women (n = 31)		**Men** (n = 32)	
Metric	**Median (IQR)**	**Mean (SD)**	**Median (IQR)**	**Mean (SD)**
Shannon Diversity Index (*H*) Score (Behaviors)	2.08 (0.51)	2.10 (0.12)	1.95 (0.61)	1.98 (0.14)
Shannon Diversity Index (*H*) Score (Traits)	1.79 (0.47)	1.85 (0.15)	1.95 (0.50)	1.91 (0.14)
Proportion of Relational Behaviors *Out of total behaviors*	0.43 (0.29)	0.40 (0.23)	0.31 (0.33)	0.31 (0.21)
Proportion of Relational Traits *Out of total traits*	0.60 (0.35)	0.54 (0.28)	0.55 (0.27)	0.55 (0.26)
Proportion of Task-Oriented Behaviors *Out of total behaviors*	0.50 (0.23)	0.52 (0.23)	0.67 (0.30)	0.64 (0.22)
Proportion of Task-Oriented Traits *Out of total traits*	0.40 (0.35)	0.46 (0.28)	0.40 (0.35)	0.42 (0.24)
Degree Centralization	0.23 (0.20)	0.23 (0.14)	0.22 (0.25)	0.24 (0.15)
Density	0.30 (0.16)	0.32 (0.18)	0.26 (0.24)	0.32 (0.19)
Count of Ties	8.50 (10.25)	12.09 (13.01)	6.00 (5.50)	7.94 (5.70)
Count of Bidirectional Ties	0.00 (2.50)	3.44 (9.81)	0.00 (2.00)	1.50 (3.70)
Proportion of Bidirectional Ties	0.00 (0.16)	0.19 (0.35)	0.00 (0.29)	0.15 (0.26)
Count of Nodes	6.00 (2.50)	6.59 (3.12)	5.00 (3.00)	6.13 (3.01)
Proportion of Female Nodes *Out of total nodes*	0.80 (0.47)	0.74 (0.25)	0.20 (0.43)	0.24 (0.26)
Proportion of Leader Nodes *Out of total nodes*	0.50 (0.36)	0.57 (0.25)	0.50 (0.41)	0.49 (0.24)
Proportion of Formal Leader Nodes *Out of total leader nodes*	0.58 (0.67)	0.59 (0.40)	0.45 (1.00)	0.48 (0.42)
Proportion of Informal Leader Nodes *Out of total leader nodes*	0.42 (0.67)	0.41 (0.40)	0.50 (1.00)	0.51 (0.41)

Table 2

Descriptive statistics and bivariate correlations for individual-level variables included in test of Hypothesis 2

	Variable	Range	*M*	*SD*	1.	2.	3.	4.	5.
1.	Leadership Network Indegree	[1,13]	5.85	6.48					
2.	Leadership Network Outdegree	[0,25]	5.85	2.66	0.32*				
3.	Formal Reporting Network Indegree	[0,7]	0.88	2.01	0.46**	0.27			
4.	Formal Reporting Network Outdegree	[0,2]	0.88	0.43	0.06	-0.03	-0.40**		
5.	Formal Role (CEO: 3, Executive Leader: 2, Middle Manager: 1)	[1,3]	1.42	0.52	0.42**	0.16	0.54**	-0.01	
6.	Gender (Male: 0, Female: 1)	[0,1]	0.51	0.50	-0.21	0.18	-0.13	0.01	-0.11

Note. $N = 52$ individuals assembled into 10 teams comprising a multiteam system in the top managerial levels of a small college in the Southern United States; *$p<.05$, **$p<.01$; Pearson correlations reported for relationships among continuous variables; Biserial correlations reported for relationships among dichotomous and continuous variables.

Table 3
Exponential Random Graph (ERG) models and parameters

Model	Network parameter	Interpretation
Baseline effect	*edges*	Occurrence of a leadership granting tie between two individuals
Structural effects	Reciprocity (*mutual*)	The likelihood of individual A granting leadership to individual B, given that individual B grants leadership to individual A
	Triadic closure ***(****gwesp*)	The likelihood of individual A granting leadership to individual B, given that individual B grants leadership to individual A and both individuals A and B grant leadership to individual C
Exogenous controls model	Formal reporting structure (*edgecov.reportnet*)	The tendency of direct reports to grant leadership to their formal managers
	Formal role in-degree (*nodeicov.role*)	The tendency of individuals at higher levels within the organization, as opposed to lower levels, to receive a greater number of incoming leadership granting ties
	Gender homophily (*nodematch.gender*)	The tendency of individuals to grant leadership to those of the same gender
Full model	Gender in-degree (*nodeicov.gender*)	The tendency of men, as opposed to women, to receive a greater number of incoming leadership granting ties
	Gender out-degree (*nodeocov.gender*)	**The tendency of women, as opposed to men, to send out a greater number of outgoing leadership granting ties**

Table 4
ERG model results

	Baseline model	Structural effects model	Exogenous controls model	Full model
Edges	-2.04*** (0.06) [-2.16, -1.92]	-4.66*** (0.21) [-5.08, -4.25]	-5.05*** (0.23) [-5.50, -4.61]	-5.11*** (0.24) [-5.58, -4.63]
Reciprocity		0.82*** (0.22) [0.39, 1.25]	0.84*** (0.22) [0.40, 1.27]	0.94*** (0.23) [0.49, 1.38]
Triadic closure		2.11*** (0.20) [1.71, 2.50]	2.01*** (0.21) [1.61, 2.42]	2.00*** (0.20) [1.60, 2.40]
Formal role in-degree			0.27** (0.09) [0.09, 0.46]	0.25** (0.10) [0.06, 0.43]
Formal reporting network			4.70*** (0.56) [3.60, 5.80]	4.70*** (0.59) [3.54, 5.87]
Gender homophily†			0.07 (0.12) [-0.16, 0.31]	0.13 (0.12) [-0.11, 0.36]
Gender in-degree†				-0.42*** (0.11) [-0.65, -0.20]
H2: Gender out-degree†				**0.47*** (0.13) [0.22, 0.72]**
N	2652	2652	2652	2652
AIC	1891	1613	1451	1436
BIC	1897	1631	1486	1483

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.
†Gender is coded such that Female = 1 and Male = 0.

Table 5

Means, standard deviations, and correlations among demographic and study variables

Variable	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.
Demographic Variables										
1. Age	38.58	13.04								
2. Job Level	4.88	2.68	0.32**							
Study Variables										
3. Gender *(Female: 0, Male: 1)*	0.50	0.50	-0.1*	-0.05						
4. Condition *(Centralized: 0, Decentralized: 1)*	0.50	0.50	-0.07	-0.08*	0.01					
5. Number of Leadership Behaviors Identified	2.90	0.86	0.00	0.03	-0.02	0.31**				
6. Number of Leaders Identified	1.48	0.71	0.09*	-0.06	-0.08	0.11**	0.2**			
7. Network Density	0.29	0.16	0.10*	-0.06	-0.1*	0.09*	0.14**	0.82**		
8. Network Out-Degree Centralization	0.59	0.17	-0.03	0.01	0.02	-0.05	-0.17**	-0.77**	-0.39**	
9. Proportion of Reciprocal Leadership Ties	0.01	0.04	0.01	-0.06	-0.05	0.16**	0.22**	0.57**	0.67**	-0.35**

* $p < 0.05$; ** $p < 0.01$

Table 6

Results of linear regression models testing the association between condition and gender on the number of leaders identified (H3a), leadership network density (H3b), leadership network out-degree centralization (H3c), and proportion of leadership ties that are reciprocal (H3d)

	Outcome Variable			
	H3a: Number of Leaders	**H3b: Density**	**H3c: Out-degree Centralization**	**H3d: Reciprocity**
Predictor	β (SE)	β (SE)	β (SE)	β (SE)
Intercept	1.48 (0.06)***	0.29 (0.01)***	0.58 (0.01)***	0.01 (0.00)**
Condition *(Centralized:0, Decentralized: 1)*	0.12 (0.08)	0.02 (0.02)	0.00 (0.20)	0.01 (0.00)***
Gender *(Female: 0, Male: 1)*	-0.15 (0.08)*	-0.04 (0.02)**	0.03 (0.20)	-0.00 (0.00)
Condition X Gender	0.09 (0.12)	0.01 (0.03)	-0.04 (0.03)	-0.00 (0.01)
Model Fit	R^2 = 0.02 Adjusted R^2 = 0.01 $F(3, 578) = 3.75$**	R^2 = 0.02 Adjusted R^2 = 0.02 $F(3, 578) = 3.52$**	R^2 = 0.01 Adjusted R^2 = 0.00 $F(3, 578) = 1.45$	R^2 = 0.03 Adjusted R^2 = 0.02 $F(3, 578) = 5.73$***

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

APPENDIX A

Study 1 Interview Guide

Good morning/afternoon/evening, is this [participant's name]?

Hi. My name is [researcher's name], and I'll be conducting your interview today. Thank you for agreeing to participate. This interview will take approximately 20-30 minutes to complete. Questions that I will ask during the interview pertain to your experiences working on a team. Your participation is completely voluntary. This means that you do not have to participate in this interview unless you want to.

There are no risks associated with participating in this interview. Any information that you provide will be kept strictly confidential. In any reports or research publications, we will only be providing data in summary form. Therefore, your responses cannot in any way be traced back to you.

Again, your participation is completely voluntary and you may end the interview at any time or skip any questions that you don't want to answer. Also, as you may remember, you will be receiving research participation credit through the Psychology Research Pool.

Finally, I would like to record the interview. This will help me to keep track of your answers and confirm the accuracy of the information you provide once the interview is over. I will not share your recorded information with anyone or individually identify you in any way. Once we finish the interview, the information included on the recording will be transcribed and audio recordings will be destroyed after transcriptions have been cross-checked for accuracy.

I will now give you a few minutes to read through the consent form. Please take your time and let me know if you have any questions. At the end of the consent form, please indicate whether or not you'd like to continue with the study. Let me know when you're finished.

[Send link to consent form]

[Begin recording]

Before I begin this structured interview, I want to briefly describe the format. I will ask you a variety of open-ended questions. Please *just* respond to the questions that I ask, providing as much detail as you can. If there are additional details that you would like to provide, I will ask for feedback and comments at the end of the interview.

Are there any questions that I may answer before we get started?

[RESEARCHER: When all questions are answered, continue]

DEFINING TEAMS AND LEADERSHIP

First, I'm going to ask you some questions about your perception of teams and leadership.

1. How do you define a "team"?
2. How do you define a "leader"?
3. How do you define "leadership"?
4. When you think of a leader, what attributes do you think of? What is this person like?
5. What sorts of behaviors does a leader engage in?
6. Do you think that leadership is a characteristic of the individual or of the job position that someone holds? For example, is someone who is a manager of a store a leader?

EXPERIENCE IN TEAMS AND LEADERSHIP ROLES

Ok, now we would like to ask you a few questions about your experience working in teams.

1. Over the past two years, have you been a member of any sports teams, community groups, or student clubs?
    1. [If yes]: Could you please describe each one?
    2. How long have you been a member of each of these teams?
    3. What is your role in each of these teams?
2. Over the past two years, have you had a full or part-time job?
    1. [If yes]: How many hours per week do you work there?
    2. How long have you worked there?
    3. How many people do you work closely with?
    4. Would you describe you and your coworkers as a "team"?
3. Have you ever been a leader in any of these teams?
    1. [If yes]: In which teams?
    2. Were there any other leaders in that team?
        1. [If yes]: Could you describe your relationship to those other leaders? How did you work together?

SPECIFIC TEAM SITUATION & LEADERSHIP DESCRIPTION

Tell me about a team context that is very memorable to you. This could be memorable because things went really great or because things went really poorly. Try to think of a specific experience, for example, when you were trying to make an important decision together.

1. Please name all of the team members involved in this experience. First names or initials are fine.
2. Ok, now describe the experience in as much detail as possible.
3. Who would you describe as a leader in this situation?

Ok, now we're going to have you draw a diagram of the specific team situation you just described. To do so, you're going to be using the whiteboard function in Zoom.

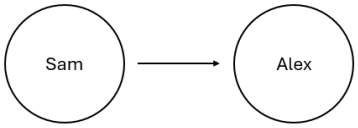
[RESEARCHER: Open the whiteboard function in Zoom]

The diagram should show each team member involved in the situation as a circle with the team member's name written in the middle, like this:

[RESEARCHER: Draw the example below to demonstrate]

Ok, now you're going to draw the leadership relationships in that situation. Draw an arrow going from one team member to another to indicate that that team member provided leadership to the other person in that situation, like this:

[RESEARCHER: Draw the example below to demonstrate]



[RESEARCHER: Close out of the whiteboard function]

Ok, now it's your turn. Open the whiteboard function in Zoom by clicking the "Share Screen" button. Then select "Whiteboard". [give them some time to play around with the whiteboard]
Now you'll be able to draw circles for all of the team members involved in the situation you described and write their first names in the center of each circle.

Ok, now you're going to draw the leadership relationships in that situation. Draw an arrow going from one team member to another to indicate that that team member provided leadership to the other person in that situation, like this:

[RESEARCHER: Give the participants a few minutes to draw the circles]

That looks great! Can you talk me through what you were thinking when you drew each of the arrows? What about these relationships constituted leadership?

[RESEARCHER: Allow participants to describe the leadership relationships. Ask clarifying questions. Make sure they describe each of the leadership relationships they drew.]

Ok, now could you go through and indicate the gender of each of the people in your diagram?
Draw a star if the person is male and a plus sign if the person is female.

[RESEARCHER: Give the participants a minute to draw the stars and plus signs]

Ok, final step. Please indicate whether each of the leaders in your diagram are formal or informal leaders. Formal leaders are people in positions of authority (like a team captain or a supervisor), and informal leaders are people that lead and influence others but do not hold formal leadership positions. Draw a square next to people who are formal leaders and a hashtag next to people who are informal leaders.

[RESEARCHER: Give the participants a minute to draw the squares and hashtags]

CONCLUSION

1. Is there anything else you'd like to tell me about this team or the leadership involved?
2. Ok, this is the end of the interview. Thank you so much for your participation in this study! Do you have any questions?

[RESEARCHER: When all questions are answered, continue].

1. Ok, thank you again for coming in today! Feel free to email me if you have any questions after you leave. My contact information is on the Sona website.

APPENDIX B

Study 2 Vignettes

Instructions. In both conditions, participants first read the following instructions.

A group of four students are working on a final project together for their Economics capstone class. They just met for the first time as a group to discuss their plans for the project. Below is the transcript of their conversation from this first meeting.

Please read this transcript carefully and in its entirety. Then, when you're done reading, proceed to the next page to answer a few questions about the team meeting.

Centralized condition. In the centralized condition, participants were presented with the following vignette (leadership behaviors are bolded).

Sam: "Hi guys, I'm Sam. Let's get started figuring out how we're gonna tackle this project." (Initiating Action)

Alex: "I definitely feel that. I'm planning on applying for grad programs next semester, so I need this project to include with my applications."

Morgan: "Cameron: You and I worked on the effects of cutting unemployment compensation on unemployment rates last year for our macro class. Why don't we just do the same thing for this?"

Alex: "That works for me."

Cameron: "I don't think that's a good idea. Honestly, I don't have a lot of time to commit to this project because I play D1 soccer, and we have our championship game coming up next month. I'm doing what I can to get through this."

Morgan: "OK. Anyone else have ideas?"

Alex: "Not really."

Sam: "Morgan, it seems like you're really interested in unemployment. If that's what you're passionate about, let's stay focused on that general topic." (Consideration/Concern)

Morgan: "That would be great! I've already done a lot of research on the factors that impact the labor market, so we'd already be a few steps ahead."

Cameron: "I'm OK with that."

Alex: “I might not be able to contribute much right now because I’m busy with my other classes, but I could do the presenting.”

Sam: “That’s OK, Alex. Let’s start assigning tasks then. Morgan: Can you try to figure out a more specific topic related to unemployment? And Alex: You can work with Morgan to do more background research on the labor market for our final report. Cameron: You can write up the final report.” (Delegating Tasks)

Cameron: “I’ve never written an economics report before, but I guess I could learn.”

Sam: “Why don’t we work on it together, then? I have some experience with writing econ reports from my other classes, so I think we could figure it out together.”
(Motivating/Inspiring)

Cameron: “Thanks Sam, that sounds great."

Morgan: “Awesome! Thanks, guys.”

Decentralized condition. In the decentralized condition, participants were presented with the following vignette (leadership behaviors are bolded):

Sam: “Hi guys, I’m Sam. Let’s get started figuring out how we’re gonna tackle this project.” (Initiating Action)

Alex: “I definitely feel that. I’m planning on applying for grad programs next semester, so I need this project to include with my applications."

Sam: “Same here.”

Morgan: “Cameron, you and I worked on the effects of cutting unemployment compensation on unemployment rates last year for our macro class. Why don’t we just do the same thing for this?”

Alex: “That works for me.”

Cameron: “I don’t think that’s a good idea. Honestly, I don’t have a lot of time to commit to this project because I play D1 soccer, and we have our championship game coming up next month. I’m doing what I can to get through this.”

Morgan: “I don’t really have any other ideas.”

Alex: “Me neither.”

Cameron: "Morgan, it seems like you're really interested in unemployment. If that's what you're passionate about, let's stay focused on that general topic." (Consideration/Concern)

Morgan: "That would be great! I've already done a lot of research on the factors that impact the labor market, so we'd already be a few steps ahead."

Sam: "I'm ok with that."

Alex: "Perfect! Let's start assigning tasks then. Morgan, can you try to figure out a more specific topic related to unemployment? And Sam, you can work with Morgan to do more background research on the labor market for our final report. I'll be the presenter because I'm really good at public speaking. Cameron: You can write up the final report." (Delegating Tasks)

Sam: "I'm good with that."

Cameron: "I've never written an economics report before, but I guess I could learn."

Morgan: "Why don't we work on it together, then? I have some experience with writing econ reports from my other classes, so I think we could figure it out together." (Motivating/Inspiring)

Cameron: "Awesome! Thanks, guys."