Leadership Emergence: Do Males Always Dominate?

by

Victoria E. Robson

Thesis submitted to the Faculty of

Virginia Polytechnic Institute and State University

In partial fulfillment of the requirements for the degree of

Master of Science

In

Psychology

Roseanne J. Foti, Ph.D., Chair

John J. Donovan, Ph.D.

Neil M.A. Hauenstein, Ph.D.

April 4th, 2003

Blacksburg, VA 24060

Keywords: Leadership Emergence, Gender, Personality

LEADERSHIP EMERGENCE: DO MALES ALWAYS DOMINATE?

By

Victoria E. Robson

Roseanne J. Foti, Chairperson

Psychology

(ABSTRACT)

The purpose of the present study was to investigate leadership emergence in mixed sex groups. Prior research has demonstrated that females have difficulty emerging as leaders in mixed sex groups. Thirty mix sex groups (two males, one female, and one female confederate) were asked to participate in a small group activity and then completed a series of scales to assess leadership emergence and inferred leadership traits. It was found that a female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy emerged as the leader more frequently than males low in either one or two of those same three traits. In addition, the female confederate was seen as possessing more leadership traits than males low in either one or two of those traits. Implications for these results are discussed.

Acknowledgments

I would like to thank my advisor, Roseanne Foti for her continued guidance and encouragement on this project. I would also like to thank the members of my committee, John Donovan, and Neil Hauenstein for their invaluable insights and feedback.

I would like to thank my parents for their continued interest in my education. Without their many contributions, the research process would have been much more difficult.

Thank you to my research assistants, Amber, Laurie, and Leah for their dedication to this project. This project could not have been completed without your hard work.

To my cohort, Yvette, Matt, and Leifur, thank you for making the past three years so much more enjoyable.

Finally, thank you to my very best friend. Thank you for always having confidence in me. Your unconditional love and endless support has helped me achieve this accomplishment.

Table of Contents

List of Tables

Introduction

Psychologists have long been interested in studying leadership emergence. Due to the increasing use of groups in organizations and schools, it is critical that researchers study why certain individuals are more likely to emerge as leaders. Researchers have studied leadership emergence from a wide variety of perspectives. To date there are nearly a dozen distinct theoretical approaches to explaining leadership emergence (Northouse, 2001; Jago, 1982). One of the oldest and empirically well supported is the trait approach. This approach argues that leaders are different from followers in regard to the personality characteristics they possess. Although there are no specific sets of traits that are agreed on by all researchers, some of the traits that have been shown to correlate with leadership emergence are intelligence, extroversion, self-confidence, determination, dominance, self-monitoring, and masculinity (Bass, 1990). Although prior research has studied many different traits, the present study will focus only on intelligence, dominance, and generalized self-efficacy. An abundance of evidence exists which demonstrates the strong relationship between these three traits and leadership emergence (Foti & Hauenstein, 2001; Hegstrom & Griffith, 1992; Judge, Bono, Ilies, & Gerhardt, 2002; Keeney & Marchioro, 1998; Lord, De Vader, & Alliger, 1986; Nyquist & Spence 1986; Smith & Foti, 1998; Taggar, Hackett, & Saha, 1999).

Leadership emergence has essentially been studied in laboratory settings. Early studies focused primarily on all male groups. However, due to the increase in the number of women entering the work force in the last twenty-five years (Carli & Eagly, 2001), leadership studies have begun to include females as well. The results of mixed sex leadership studies have revealed a bias toward male leaders. In mixed sex groups, males emerged more frequently than females as the leader (Eagly & Karu, 1991). This finding is true even when females possessed the traits that

have been shown to predict leadership emergence (Hall, Workman, & Marchioro, 1998; Hegstrom & Griffith, 1992; Nyquist & Spence, 1986).

A number of reasons have been put forth to account for women's difficulty in emerging as leaders. One explanation is that individuals hold a masculine leadership prototype (Brenner Tomkiewicz, & Schein, 1989; Heilman, 2001; Martell, Parker, Emrich, & Crawford, 1998). That is, individuals believe that the typical leader is male. Another explanation is that females do not exhibit enough of the behaviors that contribute to leadership emergence. In groups, males perform more of the task-related behaviors that are associated with leadership (Anderson & Blanchard, 1982; Eagly & Johannesen-Schmidt, 2001; Eagly & Steffen, 1984; Hutson-Comeaux & Kelly, 1996). A third explanation that has been put forth is task expertise. The majority of leadership studies have used a masculine task, such as ranking the importance of items for surviving a crash landing on the moon or in the desert. The use of such tasks might result in group members believing that males possess more knowledge about the task and thus should be the leaders of the group (Karakowsky & Siegel 1999; Wentworth & Anderson, 1984).

Unlike many studies on the trait approach, this study adopted the pattern approach to studying traits. That is, instead of focusing on simple bivariate correlations between each trait and leadership emergence, individuals were grouped into personality patterns based on their standing on all three traits. In this approach, the pattern (person) was the basic unit of observation, not each individual trait. To date there are no leadership emergence studies that have applied the pattern approach to mixed sex groups.

Thus, the focus of the present study was to apply the pattern approach of studying leadership emergence to mixed sex groups. In the present study, the personality patterns of the group members were manipulated while employing a task that was equally appropriate for males

and females both in terms of content and the task demands. This study will aid in a further understanding of how the trait effect interacts with gender composition. Specifically this study sought to identify the conditions under which females will be more likely to emerge as leaders. When engaged in a task that is equally appropriate for males and females, females who are high in intelligence, dominance, and self-efficacy were expected to be more likely to emerge as leaders when they are in a group with males who are low in two of the three traits.

Trait Approaches to Leadership

One of the first approaches to studying leadership was identifying personality traits and behaviors that were related to leadership (Jago, 1982). Early researchers believed that there was a core set of traits that discriminated leaders from followers. This approach to studying leadership dominated the field until Stogdill (1948) and Mann (1959) challenged it. Stogdill (1948) reviewed prior studies on leadership and concluded that there was no universal trait(s) that differentiated leaders from followers. Stogdill (1948) stressed the importance of situational factors rather than traits in leadership emergence. A leader with specific traits in one situation may not necessarily be a leader in a different situation. In addition, Mann's (1959) review of personality traits and leadership perception found a rather low correlation between personality traits and leadership. The reviews of Stogdill (1948) and Mann (1959) greatly altered researchers' perspectives toward the importance of individual differences in leadership emergence and resulted in a reduction in the amount of research conducted in this area as well, at least for a number of years.

Lord, De Vader, and Alliger (1986) believed that the findings presented in Stogdill's and Mann's review were interpreted too negatively. That is, despite a number of significant findings, Stogdill (1948) and Mann (1959) focused only on the failures of the trait approach to account for

some issues in leadership emergence. For example, Stogdill concluded that there was no one trait that distinguished leaders from followers based on findings of variable correlations between traits and leadership emergence across studies. However, upon closer examination of the studies concerning, for example, intelligence and leadership emergence, it was found that the highest correlation was .90 and the average correlation was .28 (Stogdill, 1948). This finding arguably indicated that intelligence and leadership emergence are related. In addition, Mann's review focused on the low median correlation between personality traits and leadership, instead of recognizing that in regard to intelligence and leadership emergence 99 percent of the significant correlations were in the positive direction (Lord et al., 1986). Clearly this finding indicated a consistent positive trend for intelligence and leadership emergence as well.

Further support for the view that traits can be useful indicators of leadership emergence has been found using validity generalization methodologies. Lord et al. (1986) reanalyzed Mann's data using this approach and found that the traits of intelligence, dominance, and masculinity-femininity were significantly associated with leadership perceptions. In addition, they found that in regard to intelligence and dominance the majority of variance across studies was due to artifacts. Their findings suggested that some traits were associated with leadership perceptions and that the trait approach is in fact a valid means for studying leadership emergence.

Along with Lord et al. (1986), Kenny and Zaccaro (1983) also renewed researchers' interest in the trait approach. Kenny and Zaccaro (1983) reanalyzed Barnlund's (1962) findings using the quantitative methods that Kenny (1981) called the "social relations model." The social relations model is a methodology for establishing an individual's true level of leadership across raters and groups, correcting for rater bias and error of measurement. They found that between

49 -82 percent of the variance in leadership could be attributed to a stable characteristic (i.e., a trait). Taken together, Lord et al. (1986) and Kenny and Zaccaro (1983) provided evidence that the trait approach to leadership is not only valid, but also useful in understanding leadership emergence. Within the last fifteen years, many studies have found evidence for stable individual differences in leadership emergence (Hogan, Curphy, & Hogan, 1994; Kirkpatrick & Locke, 1991; Lord et al., 1986; Smith & Foti, 1998; Zaccaro, Foti, & Kenny, 1991).

One individual difference that has received considerable attention and support is intelligence. There is now a significant body of research suggesting that intelligence is related to leadership emergence (Lord et al. 1986; Smith & Foti, 1998; Taggar et al. 1999). A meta-analysis conducted by Keeney and Marchioro (1998) concluded the relationship between intelligence and leadership emergence to be _ = .32. As mentioned earlier, Mann (1959) found that 99 percent of the significant correlations between leadership and intelligence were in the positive direction, and Stogdill (1948) found an average correlation between intelligence and leadership to be .28. There is a wealth of evidence that demonstrates a consistent relationship between intelligence and leadership emergence.

Along with intelligence, social dominance has been widely studied and routinely found to relate to leadership emergence (Carbonell, 1984; Lord et al., 1986; Mann, 1959; Megaree 1969; Smith & Foti, 1998). Individuals who are high in social dominance are seen as capable of influencing others, confident, and forceful (Hegstrom & Griffith, 1992). A meta-analysis conducted by Judge, Bono, Ilies, and Gerhardt (2002) found the relationship between dominance and leadership emergence to be _ = .37. Nyquist and Spence (1986) found that dominance levels did predict leadership emergence. In same sex dyads, the partner highest in social dominance became the leader 73 percent of the time. In addition, Hegstrom and Griffith (1992) also found

that in same sex dyads, the partner highest in social dominance was significantly more likely to emerge as the leader than the partner lower in dominance. After re-examining Mann's (1959) data, Lord et al. (1986) found a significant relationship between dominance and leadership perceptions. They also found that 80 percent of the variance in the correlations between dominance and leadership ratings could be explained by methodological factors. This finding alone suggested that social dominance is a fairly consistent predictor of leadership.

A third trait of interest is general self-efficacy. Unlike intelligence and social dominance, general self-efficacy has not received as much attention. Although self-efficacy originally referred to an individual's expectations concerning his ability to perform a specific task, it is also now thought of as a more global construct that is consistent across many tasks. Shelton (1990) defined general self-efficacy as a "global trait, relatively stable, that changes over time with an accumulation of success and failure experiences" (p.992). Viewed in this manner, a number of researchers (e.g., Tipton & Worthington, 1984 and Sherer, 1982) found that individuals high in global self-efficacy put forth more effort and persevered for a greater length of time on a variety of tasks than those lower in global self-efficacy. Individuals high in general self-efficacy have higher self-confidence, greater persistence, and display more effort on tasks. These characteristics have resulted in individuals high in self-efficacy emerging as leaders more often than those low in self-efficacy. Smith and Foti (1998) and Foti and Hauenstein (2001) found that self-efficacy along with intelligence and social dominance are important traits in predicting leadership emergence. In addition, Chemers, Watson, and May (2000) found that among cadets leadership efficacy was significantly related to leadership ratings by peers and supervisors.

Implicit Leadership Theories

The relationship between traits and leadership emergence may, in part, be explained by implicit leadership theories. According to implicit leadership theory, people hold a general belief about the traits and behaviors that are related to leadership (Foti, Fraser, & Lord, 1982; Lord, Foti, & Phillips, 1982; Lord, Foti, & De Vader 1984). That is, individuals hold their own prototypical view of the characteristics that comprise a leader. People use their implicit leadership theories in deciding if an individual is a leader. Simply stated, if an individual matches the person's prototype of a leader, then he or she will likely be perceived as a leader. Traits serve as the means for indicating to the follower whether an individual is a leader. Individuals will emerge as leaders to the extent they are perceived as possessing the prototypical traits of a leader.

The traits that have been found to be the most prototypical of leaders are intelligence, decisiveness, determination, extroversion, and aggression (Foti, Fraser, & Lord, 1982; Gerstner & Day, 1994; Kenney, Schwartz-Kenney, & Blascovich, 1996; Lord et al., 1984; Offerman, Kennedy, & Wirtz, 1994). Individuals who are believed to posses these characteristics are more likely to be perceived as a leader. Nye and Forsyth (1991) provided evidence that an individual's reaction to a leader is influenced by his or her implicit leadership theory. Nye and Forsyth (1991) assessed subjects' individual differences in leadership prototypes (i.e., their implicit view of a leader). They classified subjects' leadership prototypes along three dimensions: (1) dominance/submission, (2) friendly/unfriendly, and (3) instrumentally controlled/emotionally expressive. Afterwards, subjects read a performance evaluation about either a task-oriented leader or a socioemotional leader and rated the leader on perceived effectiveness. The results revealed that the leader was seen as more effective when the leader's behavior matched the

subject's prototype. Specifically, subjects who emphasized friendless rated the socioemotional leader more positively than the task-oriented leader. On the other hand, subjects who emphasized unfriendliness rated the task-oriented leader more favorably than the socioemotional leader.

Lord, Foti, & De Vader (1984) provided additional evidence that the individuals' implicit leadership theories do affect their leadership perceptions. Lord et al. (1984) had subjects read a vignette about a manager. The vignettes portrayed a manager engaging in leadership behaviors considered either prototypical, neutral, or anti-prototypical. Prototypical behaviors depicted in the vignettes included: emphasizing goals, providing information, specifying problems, and talking frequently. Anti-prototypical behaviors depicted in the vignettes included: admitting mistakes, withholding rewards, criticizing harshly, and neglecting details. Finally, neutral behaviors depicted in the vignettes included: seeking information, seeking suggestions, explaining actions, clarifying attitudes, and preventing conflicts. After reading the vignette, subjects rated the managers on their leadership perceptions and behavioral expectations. There were significant differences on the dependent measures for the subjects who read the prototypical and anti-prototypical vignettes. Specifically, subjects who read the prototypical vignette are more likely to perceive the manager as a leader. The prototypicality of the manager's behavior influenced subjects' leadership perceptions.

In addition, Lord et al. (1984) also found that the prototypicality of the manager's behavior influenced subjects' behavioral expectations. Subjects rated the extent to which the manager would be expected to engage in 25 behaviors. The behaviors were categorized into four prototypicality levels: highly prototypical, prototypical, neutral, and anti-prototypical. Lord et al. (1984) found that the prototypicality of the manager's behavior did have significant effects on the type of behavioral expectations. Subjects indicated higher behavioral expectations for both

the highly prototypical manager and the prototypical manger as compared to the anti-prototypical manager. Interestingly, findings showed that behavioral expectations were not influenced by whether the behavior had actually been exhibited. That is, if the behaviors were consistent with the prototypicality of the manager, they were rated accordingly, regardless of whether the manager had exhibited the behaviors. The results of Lord et al. (1984) showed not only that the individuals' implicit leadership theories influence their leadership perceptions, but also their behavioral expectations as well. It appears that when individuals are asked to make a judgment about whether a leader will perform specific behaviors, they rely on their prototypes.

Hall, Workman, and Marchioro (1998) also provided evidence for the influence of implicit leadership theories on the subjects' leadership perceptions. Hall et al. (1998) had subjects participate in four-person mixed sexed groups in which the group was required to complete two tasks. Upon completion, subjects were asked to rate each of the group members on two measures of leadership emergence. In addition, subjects rated their perceived competence of other members of the group. Subjects rated how capable each group member would likely be in performing sixteen different behaviors. Hall et al. (1998) found that sex had a main effect on leadership perceptions. Males were more likely to emerge as leaders than females. However, Hall et al. (1998) also found that the relationship between sex and leadership emergence was mediated by perceived capabilities. Specifically, males were more likely to be perceived as being dominant, ambitious, and extroverted than females and these capabilities directly influenced leadership emergence. As discussed previously, the characteristics of dominance, ambition, and extroversion have been rated as being prototypical of leaders.

In the Hall et al. (1998) study, group members only interacted for approximately twenty minutes. Given this limited interaction, it is unlikely that the subjects had enough information to

assess each other's capabilities accurately. Therefore, it seems likely that when the subjects were asked to rate their group members on their perceived capabilities, they relied on the gender of the individual. Males were seen as possessing leadership capabilities, which in turn lead to them to being perceived as leaders.

Pattern Approach

Traditional research in leadership emergence has adopted a variable approach. That is, researchers have been primarily interested in bivariate correlations between individual differences in levels of specific traits and ratings of leadership emergence. An alternative approach to identifying individual differences in leadership emergence is the person or pattern approach. This approach seeks to differentiate among individuals based on their standing on a set of traits. According to Smith and Foti (1998) there are three characteristics of the pattern approach. First, variables that are relevant to the domain of interest are chosen based on theory and past research. Second, every individual is characterized based on these variables. In pattern approach studies, individuals are typically characterized as having either a high or low standing on each of the variables. For example, an individual who is high in intelligence, high in dominance, and low in self-efficacy would be labeled a high, high, low (HHL). Third, individuals are grouped based on their standing on these variables and attempts are made to distinguish among individuals based on these subgroups. The pattern approach has been successful in distinguishing among individuals in a variety of domains. Gibbs (1982) identified four patterns of personality among female delinquents. Goeke, Tosi, and Eshbaugh (1993) identified eight personality profiles among male felons. In addition, McMahon and Davidson (1985) found distinctive personality profiles for individuals suffering from depression and anxiety.

The pattern approach has been used in the study of leadership as well. McClelland and Boyatzis (1982) identified a leadership motive pattern among non-technical managers. The leadership motive pattern consisted of a moderate need for power, a low need for affiliation, and a high activity motivation. This pattern was significantly related to managerial success after eight and sixteen years. Sorrentino and Field (1986) studied four-person work groups that met for five weeks. Each member of the group was characterized as having either a high or low need for affiliation and either a high or low need for achievement. The groups were comprised so that each member differed from every other member on their combination of achievement and affiliation motives. The results showed that those members who were high in need for achievement and affiliation received the highest leadership ratings. In addition, those low in need for achievement and affiliation received the lowest leadership ratings.

Smith and Foti (1998) also applied the pattern approach to studying individual differences in leadership emergence. They characterized subjects on three variables: intelligence, dominance, and self-efficacy. Subjects either had high or low levels of each these traits. Four-person groups (all male) were comprised such that one member was high in all traits (HHH), one member was low in all traits (LLL), and the other two members possessed one of the remaining six patterns (HHL, HLH, LHH, LLH, LHL, HLL). The results revealed that subjects high in all three traits (HHH) emerged as the leaders significantly more frequently than any other combination of traits. In addition, individuals low in all three traits (LLL) emerged significantly less frequently as leader than all other individuals.

Results from McClelland and Boyatzis (1982), Sorrentino and Field (1986), and Smith and Foti (1998) provided evidence that the pattern approach is a valid means for identifying individual difference in leadership emergence. In all three studies, leaders significantly differed

from other individuals based on a specific pattern of individual differences. By using the pattern approach to studying traits, more information was gained about the leader. For example, Smith and Foti (1998) found that the pattern of intelligence, dominance, and general self-efficacy accounted for 45 percent of the variance in leadership emergence scores.

Gender Difference in Leadership Emergence

Research has shown that women emerge as leaders less frequently than men. A meta-analysis of gender and leadership emergence conducted by Eagly and Karau (1991) found a small to moderate effect size of .31 in favor of males for broad (i.e., not specifically a task or social measures of leadership). Nyquist and Spence (1986) illustrated females' difficulty in emerging as leaders. Nyquist and Spence (1986) assessed male and female subjects' dominance level. Subjects were paired up into either a mixed sex or same sex dyad. As reviewed above, social dominance has been shown to be a valid predictor of leadership emergence. In same sex dyads, the partner high in dominance emerged as the leader 73 percent of the time. In mixed sex dyads, in which the male was high in dominance and the female was low in dominance, the high dominant male emerged as the leader 90 percent of time. However, in mixed sex dyads in which the female was high in dominance and the male was low in dominance, the high dominant female emerged as the leader only 35 percent of the time. Hegstrom and Griffith (1992) found similar results. In mixed sex dyads, males and females were equally like to emerge as the leader when females were high in dominance and males were low in dominance. Also, in mixed sex dyads in which the male and female were equal in regard to dominance (i.e., both were high or low in dominance), males emerged as the leader more frequently than females. Thus, even when women have the advantage (i.e., a high dominant female being paired with a low dominant male) they still do not emerge as the leader more frequently than males.

Leadership prototypes. Women have difficulty emerging as leaders in mixed sex group for many reasons. One explanation is leadership prototypes. There is research to show that peoples' prototype of a leader is masculine. Traits such as aggression, confidence, and dominance, which are judged as being highly prototypical of a leader, are considered to be masculine traits (Cann & Siegfried, 1987; Heilman, 2001). Individuals believe that men are more likely to possess such traits. Schein (1973, 1975) found that male and female managers perceived a successful manager as one who possesses traditionally masculine characteristics. This finding was also replicated fifteen years later by Brenner, Tomkiewicz, & Schein (1989), who also found a similar overlap in characteristics that described a "typical male" and a "successful manager." Martell, Parker, Emrich, & Crawford (1998) had male mangers rate how typical a series of behaviors were for male middle managers and for female middle managers. The results revealed that the behaviors classified as characteristic of leadership ability were rated as more typical of a male middle manager than of a female middle manager. Not only were women perceived as exhibiting fewer leader typical behaviors than men, they also were viewed as less inspirational, decisive, energetic, and courageous. Deal and Stevenson (1998) also reported similar findings. They found that overall, female managers were rated less favorably than male managers. In addition, they found that male undergraduates were less likely than female undergraduates to characterize female managers as ambitious, intelligence, assertive, authoritative, dominant, and competent. Finally, Ridgeway (2001) found that individuals believe that women are less competent and less worthy of holding leadership positions.

Taken together, the studies reviewed above provide strong evidence that individuals believe that males are more likely than females to possess and exhibit the necessary characteristics for leadership. Such findings, when combined with the evidence that demonstrates

individuals' leader prototypes influence their reactions to a leader and their likely acceptance of a person as a leader (Lord et al., 1984; Nye & Forsyth, 1991), make clear why males would likely emerge as leaders more frequently than females.

Leadership behaviors. Although there is evidence showing that women are not typically associated with traits that are related to leadership, there are other explanations for women's difficulty in emerging as leaders. Some evidence suggests that there is also a sex difference in leadership behaviors that contributes to females' problem in becoming leaders (Carli 1982 as cited in Hutson-Comeaux & Kelly1996; Anderson & Blanchard, 1982). In regard to leadership behavior, there appears to be two types: task-oriented behaviors and socially oriented behaviors (Stein & Heller, 1979; Carli & Eagly, 1999; Eagly & Johannesen-Schmidt, 2001). Task-oriented behaviors are activities that assist the group in reaching their goals. Task-oriented behaviors make a direct contribution to the group's goal. Some examples of task-oriented behaviors are problem identification, problem-solving attempts (giving suggestions, opinions and information), and initiating structure (Carli & Eagly, 1999; Eagly & Johannesen-Schmidt, 2001). In contrast socially oriented behaviors are those that that seek to establish and maintain satisfactory interpersonal relations among the group members. Examples of socially oriented behaviors include showing solidarity, releasing tension, and consensus seeking (Stein & Heller, 1979; Carli & Eagly, 1999).

Research has shown that the number of task-oriented behaviors one makes in a group is correlated with leadership emergence. Specifically, the more task-oriented behaviors performed the more likely one is to emerge as a leader (Stein & Heller, 1979). It appears as though there is an overall tendency to define leadership in terms of task contributions. There is evidence showing that in mixed sex and same sex groups, men perform more task-oriented behaviors than

females and females perform more socially oriented behaviors than males (Anderson & Blanchard, 1982; Eagly & Johannesen-Schmidt, 2001; Hutson-Comeaux & Kelly, 1996). Since task-oriented behaviors are correlated with leadership emergence and males commit more task-oriented behaviors it is not surprising that males emerge as a leader more frequently than females.

Task Expertise. A third explanation for the bias against female emergent leaders is task expertise (Eagly & Karu, 1991). The majority of tasks employed in leadership research have been male biased (Wentworth & Anderson, 1984). It stands to reason that the type of task used would moderate the relationship between sex and leadership emergence. Some examples of masculine tasks that have been used are playing a game of logic, a computer simulation game, or discussing how to survive a disaster. Two examples of feminine tasks are sewing plastic buttons onto a panel and deciding how a friend should spend inheritance money meant for a wedding. Some neutral tasks that have been used in leadership studies are ranking ideas for their effectiveness in reducing crimes on campus and discussing strategies for getting accepted into graduate school. Wentworth and Anderson (1984) did find that the perceived gender orientation of the task affected leadership emergence. Wentworth and Anderson (1984) had four-person mixed sex groups complete a neutral, a masculine, or a feminine task. The results demonstrated that females are more likely to emerge as a leader when the task is feminine than when the task was masculine. Specifically, in the feminine task condition, females emerged as the leader 60 percent of the time, whereas in the masculine task condition females emerged as the leader only 10 percent of the time. Although the results showed that females were more likely to emerge as a leader when the task was feminine, the effects of gender incongruence appeared to be more detrimental to females. Females emerged as the leader only 10 percent of the time when the task

was masculine; however, males emerged as the leader 40 percent of the time when the task was feminine. Karakowsky and Siegel (1999) also examined the effects of gender orientation of the task on leadership. Their results were similar to Wentworth and Anderson (1984). Karakowsky and Siegel (1999) found that group members whose gender was incongruent with the perceived gender orientation of the task displayed lower levels of leadership. Both Wentworth and Anderson (1984) and Karakowsky and Siegel (1999) provided evidence that the gender orientation of the task is an important moderating factor in the relationship between sex and leadership emergence.

Summary

Research has demonstrated that there are stable individual differences in leadership emergence. This study examined leadership emergence through the use of a pattern approach in mixed sex groups. The evidence reviewed above demonstrates that traits do predict leadership emergence. Despite the fact that this finding is well established, further research in this area was necessary to clarify how traits interact with the gender composition of the group. Research has shown that when the gender composition of the group includes both males and females, females had difficulty emerging as the leader, despite possessing the necessary traits.

The reviewed studies suggested at least three possible explanations why females are less likely to emerge as leaders. First, the findings reviewed demonstrated that individuals' prototype of a leader is male and that prototype influences leadership emergence. Although procedures might exist to manipulate leader prototype, this was not the focus of the present study. A second reason that females are less likely to emerge is that females do not exhibit as many task contributions as males. Research has shown that individuals who displayed more task contributions were more likely to emerge as the leader. However, this finding may be an artifact

of the type of tasks used in many previous studies. That is, most of the previous studies employed tasks that require more task-oriented behaviors for successful performance. There is evidence that females contribute socially oriented behaviors and when such behaviors were defined as leadership, females were rated higher. In the present study, a task that requires both task-oriented and socially oriented behavior was employed to examine its effect on leadership emergence among females. The third possible explanation for why females are less likely to emerge is due to the gender orientation of the task used in previous experiments. Many previous studies employed tasks that have been perceived as more appropriate for males than females. In the present study, a task was used that was perceived to be gender neutral in both content and the leadership behaviors necessary for successful completion. It was important to use a task equally appropriate for males and females and for which success requires both task-oriented and socially oriented behaviors. If males were still more likely to emerge as leaders in this study (after controlling for potential bias in task content and demands), it seems probable that such emergence would be a function of their personality pattern and the followers' leader prototype.

Hypotheses

The present study examined leadership emergence through the use of a pattern approach in mixed sex groups using a task that was designed to be gender neutral in both content and the leadership behaviors necessary for successful completion. Four primary hypotheses were tested in this study.

The research reviewed demonstrated the influence of leadership prototypes on leadership emergence and that those prototypes were generally masculine. Due to the strong nature of masculine leadership prototypes, it was hypothesized that even when a male is low in one of the traits in question he will still emerge as the leader. Due to the salience of gender (i.e., masculine)

in leadership prototypes, it is believed that a male high in two of the traits and low in the third would still be a better match to individuals' leadership prototype than a female high in all three traits. Baumgadner, Lord, & Maher (1991) found that when males and females performed approximately the same behavior, males were more likely to be perceived as the leader due to their easier match to leader prototypes. When interacting with a male high in two of the traits, research suggested that participants would assume the presence of the missing leadership trait (Lord & Emrich, 2001). That is, participants would perceive the person as possessing the third trait because it is consistent with their leader prototype. In addition, a meta-analysis by Eagly & Karu (1991) found that men were more likely to emerge as leaders when the length of the interaction was short, as is true of laboratory studies. This finding combined with the strong nature of masculine leadership prototypes led the researchers to believe that high pattern females would not emerge more frequently than males low in only one trait.

1) Males who were high in any *two* of the following traits: intelligence, dominance, and self-efficacy, but low in the third trait, would receive higher leadership ratings than a female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy.

It was believed, however, that when a male is low in two traits there is not sufficient evidence available to categorize the male as a leader. Being low in two of the traits violates individuals' implicit leadership theories. It was hypothesized that females high in all three traits would be a better match to individuals' leadership prototypes than males high in only one trait.

2) A female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy would receive higher leadership

ratings than males who were high in only *one* of the following traits: intelligence, dominance, and self-efficacy, but low in the other two.

In addition to examining leadership emergence, the present study sought to investigate whether individuals who emerge as leader are also seen as possessing more leadership traits. Lord et al. (1984) found that the prototypicality of the manager's behavior influenced subjects' behavior expectations. Subjects had higher behavioral expectations for prototypical managers as compared to the non-prototypical mangers. In addition, Hall et al. (1998) suggested that once individuals were categorized as leaders, unobserved capabilities might be attributed to them. It was expected that leadership traits would be attributed to group members who would emerge as leaders in the present study as well.

3) Males who were high in *two* of the following traits: intelligence, dominance, and self-efficacy, but low in the third trait would be perceived as possessing more leadership traits than a female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy.
4) A female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy would be perceived as possessing more leadership traits than males who were high in *one* trait, but low in the other two.

Method

Participants

The initial sample included approximately 392 undergraduate students. After screening participants on their level of intelligence, dominance, and self-efficacy the final sample consisted of 90 (60 males and 30 females) who were called in to participate in the group problem-solving

task. All participants received extra credit for their participation.

Individual Difference Measures[1]

Shipley-Hartford. The Shipley-Hartford (see Appendix A) was used as a measure of intelligence. This test is composed of two parts an abstraction test (20 items) and a vocabulary test (40 items). The Shipley-Hartford is scored by assigning two points for each abstraction item and one point for each vocabulary item answered correctly. The possible scores ranges from 0 to 80. This scale is known to correlate well (r = .90) with WAIS IQ (Sins & Simmons, 1959) and the Wonderlic (r = .80; Frisch & Jessop, 1989). In this sample, coefficient alpha for the Shipley-Hartford was .85 for the abstraction test and .68 for the vocabulary section.

Dominance. The dominance subscale of the Personality Research Form was utilized as a measure of dominance. The scale contains 16 items with which participants indicate their agreement (2 points) or disagreement (1 point). The possible scores range from 16 (low dominance) to 32 (high dominance). This scale has exhibited strong internal consistency of .85 and a two week test-retest reliability of .88 (Jackson, 1974). The internal consistency for this scale in this sample was .83.

Generalized Self-Efficacy Scale. The Generalized Self-Efficacy Scale (Sherer et al., 1982) was used as a measure of general self-efficacy. This scale was designed to measure self-efficacy that is not specific to a certain task or situation. The scale measured a broad set of expectations that an individual brings into a novel situation. The scale contained 30 items, of which 17 are scored for generalized self-efficacy. Participants responded to the 17 scored items

[1] A pilot study was conducted to ensure that participants believed that these three traits (intelligence, dominance, and self-efficacy) were necessary for successful completion of the task. Participants read through a description of the task and were asked to indicate on a (1) to (5) scale how much of each trait was required for successful completion of the task. A one sample t-test was conducted comparing the means for each of the three traits to the test value 2.0. This value was chosen because it represented "very little" on the rating scale. Results demonstrated that the amount of intelligence ($t(21) = 10.56$, $p<.01$), dominance ($t(21) = 8.19$, $p<.01$), and self-efficacy ($t(21) = 19.14$, $p<.01$)was significantly higher than 2.0.

on a scale from (1) “strongly disagree” to (5) “strongly agree.” The possible scores ranged from 17 (low generalized self-efficacy) to 85 (high generalized self-efficacy). Previous researchers have shown that this scale is a valid measure of general self-efficacy (Sherer et al., 1982; Sherer & Adams, 1983; Waller & Bates, 1991). The internal consistency for this scale in this sample was .87.

Task

Participants participated in a problem-solving task known as “Lost in Summer Camp” (see Appendix B). This task was mirrored after the well known “Lost on the Moon” and “Lost in the Desert” exercises. Participants read through fifteen crises going on at a summer camp. They were asked individually to rank order the crises in order of their importance. Once the individual rankings were complete, the entire group ranked ordered the items. Since both males and females go to summer camp as children, it was believed that this task was neither biased towards males nor females. A pilot study was conducted to ensure that this task was perceived as gender neutral. Participants read through the Summer Camp task and were asked to indicate on a one to five scale how much expertise or prior knowledge they believed males (females) possessed that would help them perform the task. A paired t-test was conducted comparing the two means. The results yielded no significant differences between males (M =3.48, SD = .68) and females (M = 3.67, SD = .62) on their perceived level of expertise ($t(21) = 1.67$, $p = .110$).

Design

The original sample of 392 participants completed the Shipley-Hartford, the dominance subscale of the Personality Research Form, and the General Self-Efficacy Scale on the Internet. Male participants were classified into one of six possible personality patterns (HHL, HLH, LHH, HLL, LHL, and mixed) based on their standings in intelligence, dominance, and general self-

efficacy, in that order. Designation of high and low was based upon a median split of each variable. Special efforts were made not to select individuals close to the median. For example, the median on the dominance measure was 26. Those who scored a 24 and below were categorized as low and those who scored a 28 and above were classified as high. A 95% confidence interval around the mean for each trait was calculated to ensure that those who were categorized as high were significantly different than those who scored at the median who were significantly different than those who were classified as low. Males were classified as a mixed personality pattern if they scored at the median on at least one of the three measures or if they scored low on all three measuresIn regard to female participants, only those that scored at the median on at least one of three measures participated in the focal study.

Groups. From the original sample, 90 participants (60 males and 30 females) completed the problem-solving (summer camp) task. Participants were assigned to mixed sex groups with four people (two males, one female, and one female confederate) in each group. All thirty groups contained the high pattern female confederate, a mixed female, and a mixed male. In sixteen of the groups the other second male members' personality pattern was low in one trait, and high in the other two (LHH, HLH, or HHL). In the remaining fourteen groups, the second male members' personality pattern was low in two traits and high in the other one (HLL or LHL).

HHH female. In this study, the HHH female was a trained confederate. This was done to ensure the consistency of the leadership behaviors exhibited by this pattern across all the groups. In every group the confederate exhibited specific leadership behaviors that are consistent with a HHH female. The type and amount of behaviors exhibited by the confederate was determined from watching four videotapes of groups that included an actual high pattern female (i.e., an HHH female). Based on the videotapes, it was determined that approximately 25 leadership

behaviors were typically performed by the high pattern females. In addition, the types of leadership behaviors performed by the female confederate (e.g., persuading others, acknowledging contributions) were also based on averages across the types of behaviors observed on the four videotape. The confederate memorized the list of behaviors that needed to be executed. She was instructed to perform the behaviors at some time throughout the task. That is, the order in which she performed the behaviors varied from group to group, but the total number of behaviors stayed constant. This flexibility was important so the confederate's behavior would be natural within the context of the group. Some examples of the behaviors performed included: offering compromises, acknowledging other group member contributions, and making suggestions to move the group along.

Dependent Measures

General Leadership Impression. Leadership emergence was measured by the General Leadership Impression (GLI; See Appendix C). The GLI is comprised of 5 items in which participants respond on a five-point scale ranging from (1) "nothing" to (5) "extreme amount". Participants rated the other group members on the GLI. An example of an item from the GLI is "How much did this member contribute to the effectiveness of the task?" A composite variable was created, consisting of the sum of the other three group members' rating of each individual's leadership. The possible scores ranged from 15 (low leadership) to 75 (high leadership). In previous studies, this scale has exhibited strong internal consistency of .88 (Lord et al., 1984; Smith & Foti, 1998; Zaccaro et al., 1991). Internal consistency for this was sample .96.

Inferred Leadership Traits Scale. A new scale, referred to in this study as the Inferred Leadership Traits Scale (see Appendix D), was employed to examine the extent to which participants perceive leaders as possessing traits associated with leadership. The scale was

constructed using items taken from the Battery of Interpersonal Capabilities (Hall et al. 1998) and adding three additional items (intelligence, decisiveness, and determination) designed to assess leadership traits. Participants received a modified version of the Battery of Interpersonal Capabilities including the additional items with anchors re-worded to be more appropriate for the measurement of characteristics rather than capabilities. Participants rated each group member on the 19 items using a scale ranging from (1) "not characteristic at all" to (7) "very characteristic." The Inferred Leadership Traits Scale was created using seven items (dominance, ambition, decisiveness, determination, extraversion, intelligence, and confidence) selected from the set of items given to the participants. These seven traits were selected because they have been shown to be prototypical of leaders. Scores were calculated by summing the ratings of the seven items across all three raters in the group. The possible scores ranged from 21 (no perceived leadership traits) to 147 (many perceived leadership traits.). Coefficient alpha for this scale was .87.

Procedure

Three hundred and ninety two participants completed the Shipley-Hartford test, the dominance subscale of the Personality Research Form, and the General Self-Efficacy Scale on the Internet. Subjects accessed the measures by logging onto the Psychology Department's website where links were presented to students who wished to participate in online studies for extra credit. Based on their scores on these measures, participants were classified into personality patterns. Participants were called back between two weeks to four weeks later to participate in the problem-solving task (focal study). Participants participated in four-person (two males, one female, and the HHH female confederate) mixed sex groups. Participants were given detailed instructions on the task, emphasizing that the group must come to a decision about each ranking upon which all group members agreed, and that the rankings could not be based on a majority

decision. Each task session lasted about 40 minutes, with the group discussion part taking approximately 25 minutes. Upon completion of the task, participants rated the other group members on the measure of leadership perception (GLI) and rated the other group members on the modified Battery of Inferred Capabilities. After completing these measures, participants were debriefed on the purpose of the study and thanked for their participation.

Results

Table1 presents the descriptive statistics for the three measures used in the mass screening study. Table 2 contains the correlation matrix for the three measures. Participants included in the focal study were selected from the mass screening sample. Table 3 presents the descriptive statistics for participants who participated in the focal study broken down by personality pattern.

For the purpose of this study leadership emergence was operationalized as each participants' GLI rating summed across the 5 items and across the raters in the group. To test hypothesis 1, a independent groups t-test was conducted comparing the means on the GLI ratings for the high pattern female confederate and males low in one trait, but high in the other two (i.e., LHH, HLH, HHL). The means and standard deviations on the GLI ratings by pattern are presented in Table 4. As can be seen in Table 4 and contrary to hypothesis 1, the high pattern female confederate ($\underline{M}$ = 61.74, $\underline{SD}$ = 3.42) emerged as the leader more frequently than males low in only one trait ($\underline{M}$ = 44.06, $\underline{SD}$ = 12.98), ($\underline{t}(30) = 5.27$, $\underline{p}<.01$). Thus, hypothesis 1 was not supported. In addition, the effect size was calculated (d = 1.82) To test hypothesis 2, an independent groups t-test was conducted comparing the means on the GLI ratings for the high pattern female confederate and males low in two traits, but high in the other one (i.e., LHL, HLL). In support of hypothesis 2, the high pattern female confederate ($\underline{M}$ = 63.36, $\underline{SD}$ = 4.43)

emerged as the leader more frequently than the males low in two traits (M = 50.50, SD = 9.30), (t(26) = 4.67, p<.01). In addition, the effect size was calculated (*d* = 1.71).

To test hypothesis 3, an independent groups t-test was conducted comparing the means on the Inferred Leadership Scale for the high pattern female confederate and males low in one trait, but high in the other two (i.e., LHH, HLH). The means and standard deviations on the Inferred Leadership Scale by pattern are presented in Table 5. As can be seen in Table 5, contrary to hypothesis 3, the high pattern female confederate (M = 115.13, SD = 5.20) was perceived as possessing more leadership traits than males low in only one trait (M = 98.0, SD = 15.91), (t(30) = 4.09, p<.01)). Thus, hypothesis 3 was not supported. In addition, the effect size was calculated (*d* = 1.41). To test hypothesis 4, an independent groups t-test was conducted comparing the means on the Inferred Leadership Scale for the high pattern female confederate and males who were low in two traits, but high in the third trait (i.e., LHL, HLL). In support of hypothesis 4, the high pattern female confederate (M = 115.29, SD = 7.0) was perceived as possessing more leadership trait than the males low in two traits (M = 102.0, SD = 14.46), (t(26) = 3.09, p<.01). In addition, the effect size was calculated (*d* = 1.13).

Additional Analyses

Additional analyses were conducted to examine whether the high pattern female confederate emerged as the leader more frequently than the other two members (mixed female and mixed male) of the group. In groups containing males low in one trait, the high pattern confederate female emerged more frequently than the mixed females (t(30) = 7.65, p<.01) and the mixed males (t(30) = 8.16, p<.01). For groups with males low in two traits, the high pattern female confederate also emerged more frequently than the mixed females (t(26) = 7.44, p<.01) and mixed males (t(26) = 5.89, p<.01).

Analyses were also conducted to investigate whether the high pattern female confederate was perceived as possessing more leadership traits in comparison to the other two members (mixed female and mixed male) of the group. In groups containing males low in one trait, the high pattern confederate female was perceived as possessing more leadership traits than the mixed females ($t(30) = 6.75$, $p<.01$) and mixed males ($t(30) = 6.21$, $p<.01$). For groups containing males low in two, the high pattern confederate female was also viewed as possessing more leadership traits than the mixed females ($t(26) = 6.41$, $p<.01$) and mixed males ($t(26) = 4.60$, $p<.01$).

In addition, analyses were performed to examine whether leadership ratings (GLI) mediated the relationship between personality pattern and inferred leadership traits. Hypotheses three and four essentially proposed that individuals who emerged as leaders would also be seen as possessing more leadership traits. In order to test for mediation, inferred leadership traits (dependent variable) was first regressed onto pattern (independent variable). The results revealed that personality pattern was a significant predictor of inferred leadership traits ($R^2 =. 36$, $p<.01$). Next, leadership ratings (mediating variable) were regressed onto personality pattern. The results demonstrated that personality pattern accounted for significant variance in leadership ratings ($R^2 = .431$, $p<.01$). Finally, inferred leadership traits were regressed onto both personality pattern and leadership ratings. The relationship between personality pattern and inferred leadership traits was still significant, although reduced when leadership ratings were included in the model (see Table 6). This pattern of results indicated that leadership traits partially, but not completely, mediated the relationship between personality pattern and inferred leadership traits.

Discussion

The purpose of the present study was to investigate leadership emergence in mixed sex

groups. Specifically, this study sought to investigate how leadership behaviors based on multiple personality traits interacted with the gender composition of the group in predicting leadership emergence. Prior research demonstrated that females have difficulty emerging as leaders in mixed sex groups. This study sought to identify the conditions under which females would be more likely to emerge as leaders. It was believed that a female confederate exhibiting behaviors consistent with females high in intelligence, dominance, and self-efficacy would be more likely to emerge as leaders when they were in a group with males low in two of the three traits.

Findings & Conclusions

Hypothesis 1. It was first hypothesized that males low in one trait would emerge as leaders more frequently that the high pattern female confederate. However, contrary to this prediction, the exact opposite occurred. The high pattern female confederate emerged as the leader more frequently than males low in one trait. This finding is not consistent with prior research. Although there are no known studies that have employed the use of a confederate to examine leadership emergence in mixed sex groups, there are studies that have examined the relationship between gender, personality variables, and leadership emergence. As can be recalled, Nyguist and Spence (1986) found that in mixed sex dyads, when the female was high in dominance and the male low in dominance, the high dominant females only emerged as the leader 35 percent of the time. Hegstrom and Griffith (1992) found similar results. In mixed sex dyads, males and females were equally likely to emerge as the leader when females were high in dominance and males were low in dominance. In addition, Hall et al. (1998) found that in mixed sex groups, males and females were equally likely to emerge when males were low in self-monitoring and females were high in self-monitoring. The results of Nyquist and Spence (1986), Hegstrom and Griffith (1992), and Hall et al. (1998) demonstrated that even when women have

the advantage (i.e., a high dominant or self-monitoring female being paired with a low dominant or self-monitoring male) they still have difficulty emerging as the leader. However, this was not the case in the present study. The high pattern confederate emerged more frequently than males low in one trait

One possible explanation for this finding lies within leadership prototypes. Research has demonstrated that individuals hold a general belief about the traits and behaviors that are related to leadership. In addition, research has shown that individuals generally believe that males possess the traits and behaviors associated with leadership. Given this past research, it was predicted that when a high pattern female was in a group with males low in only one trait, group members would see those males as a better match to their prototype than the female that was high in all three. That is, it was hypothesized that a female high in three essential leadership traits (i.e., intelligence, dominance, and self-efficacy) would violate one's implicit leadership theory or prototype more than a male low in only one of these traits. This was based on the belief that in regard to leadership prototypes, gender is the most salient characteristic. That is, individuals generally believe that a leader is: (a) male, and (b) possesses certain leadership traits (e.g., intelligence, extroversion, confidence). For a female to emerge as a leader she has to overcome this barrier (i.e., that she is not male). In this study it was believed that just being high in all three traits would not be enough if there were a male in the same group that was high in two of the traits. It was believed that a male high in only two traits would be a better match to individuals' leader prototype. However, this was not the case. The female confederate was seen as the leader more frequently than males low in one trait. Possibly this finding was due to the fact that the presence of males low in even one of the traits perceived as important for leadership was enough to violate individuals' leadership prototype more than just being female. Perhaps the tide is

turning in leadership prototypes. That is, individuals are viewing traits/behaviors as more important than gender. The participants in this sample were more willing to view a high pattern female as a leader more than males low in one trait, but high in the remaining two.

Hypothesis 2. Hypothesis two predicted that the high pattern female confederate would emerge as the leader more frequently than males low in two traits. Support for this hypothesis was found. When in a group with males low in two traits, the high pattern female confederate emerged as the leader. It was believed that the high pattern female confederate would be a better match to individuals' leadership prototype than males low in two of the traits. The results of this study demonstrated that although "being male" may be an important component of an individual's leadership prototype, it was neither necessary, nor sufficient to guarantee that an individual will be perceived as the leader. Males who demonstrated too few of the other associated leadership traits were unlikely to be perceived as a leader, at least when in the presence of a female who exhibited the associated traits.

Prior research documented females 'difficulty emerging as leaders in mixed sex groups despite possessing the necessary traits (i.e., traits predictive of leadership emergence). In this study, the high pattern female confederate emerged as the leader regardless of the personality patterns of the other group members. The additional analyses conducted suggested that the high pattern female confederate emerged as the leader more frequently than any other personality pattern. That is, she was seen as the leader more frequently than males low in one trait, males low in two traits, as well mixed males and mixed females. These results demonstrated that it is possible for females to emerge consistently as leaders. In addition, the mediation analyses suggested leadership ratings mediated the relationship between personality pattern and inferred leadership traits. In particular, the high pattern female confederate was seen as possessing more

leadership traits in part because group members saw her as the leader.

As stated earlier, one explanation for why the high pattern female confederate emerged more frequently than the other group members is that she was a better match to the other group members' leadership prototypes. A second explanation that can help account for the high pattern female's emergence was the nature of task. The task was designed to be neutral in regard to content and the leadership behaviors necessary for successful completion. Many prior leadership studies employed tasks that are biased toward men in terms of their content (i.e., logic and computer simulation game). Wentworth and Anderson (1984) provided evidence that the perceived gender orientation of the task influences leadership emergence, especially for females. Females were more likely to emerge when the task was feminine. When the task was masculine females emerged only 10 percent of the time; however, when the task was feminine they emerged 60 percent of the time. In addition to leadership studies employing the use of a male biased task, prior studies frequently used tasks that required more task-oriented behaviors (e.g., problem identification and initiating structure) for successful completion. Research suggested both that men performed more task-oriented behaviors (Anderson & Blanchard, 1982, Hutson-Comeaux & Kelly) and that females performed more socially oriented behaviors (Anderson & Blanchard, 1982, Hutson-Comeaux & Kelly). Also, research has shown that the number of task-oriented behaviors performed is positively correlated with leadership emergence (Stein & Heller, 1979). There is an overall tendency to conceptualize leadership in terms of task behaviors. The present study used a task that was perceived to be gender neutral by both sexes and required both task-oriented and socially oriented behaviors (e.g., consensus seeking) for successful completion. Using a task that requires both socially and task-oriented oriented behaviors increased the likelihood that females could emerge as leaders. If males and females were working on a task

together that requires socially oriented behaviors for successful completion, then the group members were more likely to value those behaviors, and were more likely to see them as indicators of leadership. In such circumstances, females were more likely to emerge as leaders.

Hypothesis 3. Hypothesis three predicted that males low in only one trait, but high in the other two would be perceived as possessing more leadership traits that high pattern female confederate. In contrast to this prediction, the high pattern female confederate was viewed as possessing more leadership traits than males low in one trait. Although this finding was in opposition to what was predicted, it was so only because it was predicted that males low in only trait would emerge more frequently than the high pattern female confederate. Hypothesis three is consistent with hypothesis one (i.e., the personality pattern that receives the highest leadership ratings will also be perceived as possessing more leadership traits). So, although the finding was not what was expected it did support previous literature that found that once an individual was categorized as a leader, unobserved capabilities and behavioral expectations were attributed to him or her (Hall et al., 1998; Lord et al., 1984) Since hypothesis one found that the high pattern female confederate emerged more frequently than the male low in one trait, one would have expected that the high pattern female confederate would be seen as possessing more leadership traits than males low in one trait.

Hypothesis 4. Lastly, it was hypothesized that the high pattern female confederate would be perceived as possessing more leadership traits than males low in two traits. Results were consistent with this prediction. In fact, the high pattern female confederate was perceived as possessing more leadership than any other personality pattern (males low in one trait, males low in two traits, mixed males, and mixed females). These results were consistent with the findings that the high pattern female confederate emerged more frequently than any other personality

pattern. If the high pattern female confederate emerged more frequently than any other personality pattern, it would be expected that she would also be seen as having more leadership traits.

In the task presented here, group members only interacted with each other for approximately twenty-five minutes, the amount of time it took to do the group ranking. It was unlikely that within twenty-five minutes, participants had enough information to assess all of the traits. The mediation analyses suggested that once individuals categorized the high pattern female as a leader they likely inferred that she possessed other traits prototypical of leaders. The high pattern female confederate was seen as possessing more intelligence, dominance, self-confidence, ambition, decisiveness, determination, and extraversion, than any other group member

Contributions

The findings from the present study contributed to the leadership emergence literature in several ways. To date there have been no studies that have examined the relationship between leadership behaviors based on multiple personality traits and leadership emergence in mix sex groups. Studies have been conducted that have examined the relationship between personality traits and leadership emergence (Smith & Foti, 1998), and the relationship between gender and leadership emergence (Hall et al., 1998; Karakowsky & Siegel, 1999; Wentworth & Anderson, 1984). The leadership emergence studies that have examined both personality traits and gender have only investigated one trait (Hegstrom & Griffith, 1992; Nyguist and Spence, 1986). This study was unique in that it examined the relationship between intelligence, dominance, self-efficacy, gender, and leadership emergence. This study was also one of the first laboratory studies to find that, under certain conditions, a female is actually likely to be perceived as a

leader of a mixed sex group, despite not being male. One important implication of this study is exhibiting behaviors consistent with high intelligence, dominance, and self-efficacy is more important than being male and high in only two of the traits. That is, in regard to leadership prototypes, the results of this study suggest that the salience of gender (specifically being male) may not be as strong as had previously been thought.

A second contribution of the present study was the use of a gender neutral task. Prior studies have been plagued with masculine biased task. The use of such tasks hinders females' ability to emerge as leaders. Karakowsky and Siegel (1999) found that the group members whose gender was inconsistent with the gender orientation of the task displayed lower levels of leadership. Specifically that females were less likely to emerge as leaders in groups with a male biased task. In addition to gender incongruence, Karakowsky and Siegel (1999) also examined the effects of being the numerical minority member (in regards to gender) in a group on leadership ratings. Every group had six members. One third of the groups contained five males and one female, another third included three males and three females, and finally the remaining third had one male and five females. They found that the gender incongruence with the task was more detrimental to females' leadership ratings than being the minority member in a group (one female in a groups with five males) working on a female biased task. They found that females could still emerge as leaders when they were in the numerical minority position; however, they experienced greater difficulty emerging as leaders when the task was masculine, despite the gender composition of the group (i.e., the ratio of males to females in the group). These findings speak to the importance of using a gender neutral task when examining leadership emergence in mixed sex groups.

Prior research demonstrated females' difficulty emerging in mixed sex groups. This study

is one of the first that has shown that a female can consistently emerge as a leader. Although the use of a confederate may question the generalizability of the findings, it cannot be denied that the finding in and of itself is valuable. Using a trained confederate to portray a high pattern female may not be reflective of how all high pattern females would react in group settings. However, since the other group members were not aware that she was a confederate, their attributions of her leadership qualities were based only on the behaviors she exhibited. The confederate was trained to exhibit specific leadership behaviors typical of a high pattern female. The amount and type of behaviors the confederate exhibited were based on viewing videotapes of real high pattern females interacting with three other group members doing the exact same task. Therefore, the behaviors performed by the confederate were "real" behaviors that a high pattern female would exhibit in a similar situation. Using a confederate in this study instead of a real high pattern female allowed for greater consistency in the high pattern female's behavior across groups. Support for this "consistency" can be found in the relatively low standard deviation of her GLI scores (see Table 4). This consistency afforded the opportunity to demonstrate that females can emerge as the group leader at least under some conditions. Future research will have to tease apart the specific conditions that are required for the high pattern female to emerge. That is, for a female to emerge in a mixed sex group must she merely exhibit more leadership behaviors than the males or must she exhibit twice as many?

Limitations

One limitation of this study was that the three traits were treated interchangeably. In this study, males low in either intelligence, dominance, or self-efficacy, and high in the other two were all considered equal. This was done so because no prior research existed which suggested that one of these traits (or any trait) is more important in predicting leadership emergence. Prior

meta-analyses have found the relationship between intelligence and leadership emergence (_ = .32; Keeney & Marchioro, 1998) and dominance and leadership emergence to be similar (_ = .37; Judge et al., 2002) While there are no meta-analyses estimating the relationship between self-efficacy and leadership emergence, prior studies have found self-efficacy to have a similar relationship to leadership emergence (r = .31; Smith & Foti, 1998; r = .37, Foti, 1999). Out of the sixteen groups that contained males low in one trait, twelve of them were low in intelligence. It is possible that the failure to find support for hypothesis one (i.e., the high pattern female confederate emerged more frequently than males low in one trait) was due to the fact that the males were low in intelligence. If intelligence is the most important trait in being perceived as a leader, then this might explain the failure to find support for hypothesis one. However, the results of Smith and Foti (1998) provided some support for treating the traits as interchangeable. Smith and Foti (1998) found that males high in intelligence, dominance, and self-efficacy emerged as the leader on a more frequent basis than any other personality pattern. Specifically relevant is the finding that they emerged more frequently than all of the one off patterns (LHH, HLH, and LHH). This finding suggested that it did not matter in which trait the participants were low; they were still less likely to emerge as the leader.Future research should examine if some traits are most important than others in being perceived (or not) as the leader.

A second limitation of this study is the categorization of low intelligence. In this sample, those individuals who were classified as low in intelligence were not low in the absolute sense. Since this study used undergraduate students, it was impossible to find participants who were actually low in intelligence. Those who were classified as low in intelligence were only low in the relative sense (i.e., in comparison to their peers). In reality, those who were classified as low in intelligence actually scored at the mean on the Shipley-Hartford. Those who were categorized

as low, on average had a score of 53. The mean on the Shipley-Hartford for individuals ages 18-24 in the general population ranges from 50 – 55. Therefore, in the present study those who were categorized as low in intelligence were actually average. However, it is not believed that this limitation influenced the findings. As can be recalled, the high pattern females emerged more frequently than males low in only one trait. Of the sixteen groups that contained a male low in only one trait, twelve of those groups contained males low only in intelligence. Despite the fact that male was in reality average in intelligence, the high pattern female still emerged.

In conclusion, this study has provided evidence that individuals can perceive a female as a leader, at least a high pattern female in the absence of a high pattern male. In this study, the high pattern female consistently emerged as the leader regardless of the personality patterns of the other group member. However, none of the groups had a male who was high in all three traits. Future research will need to examine if it is possible for a high pattern to emerge as a leader when she is in a group with a high pattern male.

References

Anderson, L.R., & Blanchard, P.N. (1982). Analysis of variance in small group research. Personality and Social Psychology Bulletin, 4, 341-345.

Barnlund, D.C. (1962). Consistency of emergence leadership in groups with changing task and members. Speech Monographs, 29, 45-52.

Bass, B.M. (1990). Bass & Stogdill's Handbook of Leadership: Theory, research, and managerial applications. New York: Free Press.

Baumgardner, T.L., Lord, R.G., & Maher, K.J. (1991). Perceptions of women in management. In R.G. Lord & K.J. Maher (Eds.). Leadership and information processing: Linking perceptions and performance (pp.95-113). Boston, MA: Unwin Hyman.

Brenner, O.C., Tomkiewicz, J., & Schein, V.E. (1989). The relationship between sex role stereotypes and requisite management characteristics revisited. Academy of Management Journal, 32(3), 662-669.

Cann, A., & Siegfried Jr. W.D. (1987). Sex stereotypes and the leadership role. Sex Roles, 17(7/8), 401-408.

Carbonell, J.L. (1984). Sex roles and leadership revisited. Journal of Applied Psychology, 69(1), 44-49.

Carli, L.L. (1982). Are women more social and men more task-oriented? A meta analytic review of sex differences in group interaction, reward, allocation, coalition, formation, and cooperation in the prisoner's dilemmas game. Unpublished manuscript. As cited in S.L. Hutson-Comeaux, & J.R. Kelly (1996). Sex differences in interaction style and group task performance: The process-performance relationship. Journal of Social Behavior and Personality, 11(5), 255-275.

Carli, L.L., & Eagly, A.H. (1999). Gender effects on social influence and emergent leadership. In G. Powell (Ed.), Handbook of Gender and Work (pp. 203-222). Thousand Oaks, CA: Sage Publications.

Carli, L.L. & Eagly, A.H. (2001). Gender, hierarchy, and leadership: An introduction. Journal of Social Issues, 57(4), 629-636.

Chemers, M.M., Watson, C.B., & May, S.T. (2000). Dispositional affect and leadership effectiveness: A comparison of self-esteem, optimism, and efficacy. Personality and Social Psychology Bulletin, 26(3), 267-277.

Deal, J.J., & Stevenson, M.A. (1998). Perceptions of female and male managers in the 1990s: Plus ca change… Sex Roles, 38(3/4). 287-300.

Eagly, A.H., & Karu, S.J. (1991). Gender and the emergence of leaders: A meta-analysis. Journal of Personality and Social Psychology, 60(5), 685-710.

Eagly, A.H., & Johannensen-Schmidt (2001). The leadership styles of women and men. Journal of Social Issues, 57(4), 781-798.

Eagly, A.H., & Steffen, V.J. (1984). Gender stereotypes stem from the distribution of women and men into social roles. Journal of Personality and Social Psychology, 46, 735-754.

Foti, R.J. (1999). Female leader emergence: A pattern approach. Paper presented at the 14th Annual Conference of the Society for Industrial and Organization Psychology, Atlanta, GA.

Foti, R.J., & Fraser, S.L., & Lord, R.G. (1982). Effects of leadership labels and prototypes on perceptions of political leaders. Journal of Applied Psychology, 67(3), 326-333.

Foti, R.J., & Hauenstein, N.M. (2001). Linking leadership emergence to leadership effectiveness in a military context. Unpublished manuscript.

Frisch, M.B., & Jessop, N.S. (1989). Improving WAIS-R estimates with the Shipley-Hartford and the Wonderlic Personnel Tests: Need to control for reading ability. Psychological Reports, 65, 923-928.

Gerstner, C.R., & Day, D.V. (1994). Cross-cultural comparison of leadership prototypes. Leadership Quarterly, 5(2), 121-134.

Gibbs, J.L. (1982). Personality patterns of delinquent females: Ethnic and social variations. Journal of Clinical Psychology, 38(1), 198-206.

Goeke, K.R., Tosi, D.J., & Eshbaugh, D.M. (1993). Personality patterns of male felons in a correctional halfway house setting: An MMPI typological analysis. Journal of Clinical Psychology, 49(3), 413-422.

Hall, R.J., Workman, J.W., & Marchioro, C.A. (1998). Sex, task, and behavioral flexibility effects on leadership perceptions. Organizational Behavior and Human Decision Processes, 74(1), 1-32.

Hegstrom, J.L., & Griffith, W.L. (1992). Dominance, sex, and leader emergence. Sex Roles, 27(5/6), 209-220.

Heilman, M.E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. Journal of Social Issues, 57(4), 657-674.

Hogan, R., Curphy, G.J., & Hogan, J. (1994). What we know about leadership: Effectiveness and personality. American Psychologist, 49(6), 493-504.

Hutson-Comeaux, S.L., & Kelly, J.R. (1996). Sex differences in interaction style and group task performance: The process-performance relationship. Journal of Social Behavior and Personality, 11(5), 255-275.

Jackson, D.N. (1974). Personality Research Form Manual. Goshen, NY: Research Psychologists Press.

Jago, A.G. (1982). Leadership: Perspectives in theory and research. Management Science, 28(3), 315-336.

Judge, T.A., Bono, J.E., Ilies, R., & Gerhardt, M.W. (2002). Personality and leadership: A qualitative and quantitative review. Journal of Applied Psychology,87(4), 765-780.

Karakowsky, L., & Siegel, J.P. (1999). The effects of proportional representation and gender orientation of the task on emergent leadership behavior in mixed-gender work groups. Journal of Applied Psychology, 84(4), 620-631.

Keeney, M.J., & Marchioro, C.A. (1998). A meta-analytic review of the traits associated with leadership emergence: An extension of Lord, De Vader, and Alliger (1986). Paper presented at the 13th Annual Conference of the Society for Industrial and Organization Psychology, Inc., Dallas, TX, April 25, 1998.

Kenney, R.A., Schwartz-Kenney, B.M., & Blascovich, J. (1996). Implicit leadership theories: Defining leaders described as worthy of influence. Personality and Social Psychology Bulletin, 22(11) 1128-1143.

Kenny, D.A. (1981). Interpersonal perception: A multivariate round robin analysis. In M.B. Brewer & B.E. Collins (Eds.), Scientific Inquiry and the Social Sciences: A volume in honor of Donald T. Campbell. San Francisco: Jossey-Bass, 1981.

Kenny, D.A., & Zaccaro, S.J. (1983). An estimate of variance due to traits in leadership. Journal of Applied Psychology, 68(4), 78-685.

Kirkpatrick, S.A., & Locke, E.A., (1991). Leadership: Do traits matter? Academy of Management Executive, 5(2), 48-60.

Lord, R.G., De Vader, C.L., & Alliger, G.M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: An application of validity generalization procedures. Journal of Applied Psychology, 71(3), 402-410.

Lord, R.G., Emrich, C.G. (2001). Thinking outside the box by looking inside the box: Extending the cognitive revolution in leadership research. Leadership Quarterly, 11(4), 551-579.

Lord, R.G., Foti, R.J. & De Vader, C.L. (1984). A test of leadership categorization theory: Internal structure, information processing, and leadership perceptions. Organizational Behavior and Human Performance, 34, 343-378.

Lord, R.G., Foti, R.J., & Phillips, J.S. (1982). A theory of leadership categorization. In J.G. Hunt, U. Sekeran, C. Schriesheim (Eds.), Leadership: Beyond Establishment Views (pp.104-121). Carbondale: Southern Illinois University.

Mann, R.D. (1959). A review of the relationship between personality and performance in small groups. Psychological Bulletin, 56(4), 241-270.

Martell, R.F., Parker, C., Emrich, C.G., & Crawford, M.S. (1998). Sex stereotyping and the executive suite: "Much ado about something". Journal of Social Behavior and Personality, 13(1), 127-138.

McClelland, D.C., & Boyatzis, R.E. (1982), Leadership Motive Pattern and long-term success in management. Journal of Applied Psychology, 67(6), 737-743.

McKelvie, S.J. (1989). The Wonderlic Personnel Test: Reliability and validity in an academic setting. Psychological Reports, 65, 161-162.

McMahon, R.C., & Davidson, R.S. (1985). An examination of the relationship between personality patterns and symptom/mood patterns. Counseling Psychology, 49(5), 552-556.

Megargee, E.I. (1969). Influence of sex roles on the manifestation of leadership. Journal of Applied Psychology, 53, 377-382.

Northouse, P.G. Leadership: Theory and practice (2nd ed.). Thousand Oaks, CA: Sage Publications. 2001

Nye, J.L., & Forsyth, D.R. (1991). The effects of prototype-based biases on leadership appraisals: A test of leadership categorization theory. Small Group Research, 22(3), 360-379.

Nyquist, L.V., & Spence, J.T. (1986). Effects of dispositional dominance and sex role expectations on leadership behaviors. Journal of Personality and Social Psychology, 50(1), 87-93.

Offerman, L.R., Kennedy, J.K. Jr., & Wirtz, P.W. (1994), Implicit leadership theories: Content, structure, and generalizability. Leadership Quarterly, 51(1), 43-58.

Ridgeway, C.L. (2001). Gender, status, and leadership. Journal of Social Issues, 57(4), 637-655.

Schein, V.E. (1973). The relationship between sex role stereotypes and requisite management characteristics. Journal of Applied Psychology, 57, 95-100.

Schein, V.E. (1975). The relationship between sex role stereotypes and requisite management characteristics among female managers. Journal of Applied Psychology, 60, 340-344.

Shelton, S.H. (1990). Developing the construct of general self-efficacy. Psychological Reports, 53, 987-994.

Sherer M., & Adams, C. (1983). Construct validity of the self-efficacy scale. Psychological Reports, 53, 899-902.

Sherer, M., Maddux, J.E., Mercadante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R.W. (1982). The self-efficacy scale: Construction and validation. Psychological Reports, 51, 663-671.

Sins, L.K., & Simmons, H. (1959). The Shipley-Hartford and the Doppelt Short Form as estimators of WAIS-IQ in a state hospital population. Journal of Clinical Psychology, 14, 452-453.

Smith, J.A., & Foti, R.J. (1998). A pattern approach to the study of leadership emergence. Leadership Quarterly, 9(2), 147-160.

Sorrentino, R. M., & Field, N. (1986). Emergent leadership over time: The functional value of positive motivation. Journal of Personality and Social Psychology, 50(6), 1091-1099.

Stein, R. T., & Heller, T. (1979). An empirical analysis of the correlations between leadership status and participation rates reported in the literature. Journal of Personality and Social Psychology, 37(11). 1993-2002.

Stogdill, R.M. (1948). Personal factors associated with leadership: A survey of the literature. Journal of Personality, 25, 35-71.

Taggar, S., Hackett, R., & Saha, S. (1999). Leadership emergence in autonomous work team: Antecedents and outcomes. Personnel Psychology, 52(4), 899-926.

Tipton, R.M. & Worthington, E.L. (1984). The measurement of generalized self-efficacy: A study of construct validity. Journal of Personality Assessment, 48(5), 545-548.

Waller, K.V., & Bates, R.C. (1991). Health locus of control and self-efficacy beliefs in a healthy elderly sample. American Journal of Health Promotion, 6(4), 302-309.

Wentworth, D.K., & Anderson, L.R. (1984). Emergent leadership as a function of sex and task type. Sex Roles, 11(3/4), 513-524.

Zaccaro, S.J., Foti, R.J., & Kenny, D.A. (1991). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. Journal of Applied Psychology, 76(2), 308-315.

Table 1

Descriptive statistics for the measures of intelligence and personality traits for the mass screening sample.

	Descriptive Statistic		
Measure	Mean	Median	St. Dev
Intelligence	58.28	60.0	8.02
Dominance	25.61	26.0	3.13
Self-Efficacy	64.68	65.0	8.11

Note. N=392

Table 2

Intercorrelations of pattern variables from the mass screening study.

	Variable		
Variable	IQ	Dominance	Self-Efficacy
IQ		.002	.101*
Dominance			.452**
Self-Efficacy			

Note: N=392

* $p < .05$

** $p < .01$

Table 3

Sample sizes, means, and standard deviations for the measures of intelligence and personality traits for the focal study as a function of personality pattern.

Pattern Type	N	Measures		
		Intelligence	Dominance	Self-Efficacy
Males				
LHH	12	53.3 (5.6)	29.5 (1.2)	72.5 (4.0)
HLH	2	66.0 (1.4)	21.5 (3.5)	78.5 (5.0)
HHL	2	65.5 (5.0)	28.0 (0.0)	58.0 (2.8)
LHL	6	53.7 (4.6)	28.2 (0.4)	61.3 (3.7)
HLL	8	66.2 (5.0)	22.1 (2.0)	54.6 (5.6)
Mixed	30	55.2 (7.5)	25.9 (7.0)	60.4 (8.4)
Females				
Mixed	30	56.6 (6.0)	23.8 (3.0)	60.0 (8.2)

Note. Values enclosed in parentheses represent standard deviations

Table 4

Means and standard deviations of GLI as a function of pattern type and number of traits on which the male member is low.

Measure	Pattern			
	Female HHH (Confederate)	Low Male	Mixed Female	Mixed Male
GLI* N=16	61.8(3.4)	44.1(13.0)	44.9(8.1)	44.6(7.7)
GLI** N=14	63.4(4.4)	50.5(9.3)	44.5(8.4)	46.1(10.0)

Note. Values enclosed in parentheses represent standard deviations

*GLI mean for groups that contained males low in one trait.

**GLI mean for groups that contained males low in two traits.

Table 5

Means and standard deviations of the Inferred Leadership Traits Scale as a function of pattern type and number of traits on which the male member is low.

Measure	Pattern			
	Female HHH (Confederate)	Low Male	Mixed Female	Mixed Male
Inferred Leadership Traits* N=16	115.1(5.2)	98.0(15.9)	94.0(11.4)	93.5(12.9)
Inferred Leadership Traits** N=14	115.3(7.0)	102.0(14.5)	89.4(13.4)	93.1(16.6)

Note. Values enclosed in parentheses represent standard deviations

* Inferred Leadership Traits Scale mean for groups with males low in one trait.

** Inferred Leadership Traits Scale mean for groups with males low in two traits.

Table 6

Regression analysis of inferred leadership traits on personality pattern and general leadership impression (GLI).

	Inferred Leadership Traits		
Variable	ß	ΔR²	Total R²
Step 1:			
Pattern[2]			.360**
D1	-.656**		
D2	-.431**		
D3	-.615**		
Step 2:			
GLI	.620**	.219**	.579*
Pattern			
D1	-.229*		
D2	-.061		
D3	-.201*		

Note. Standardized betas are reported

[2] The variable pattern had to be entered in the regression equation using a series of dummy codes since it is a categorical variable. The dummy codes employed compare the mixed females pattern to the high pattern female confederate (D1), the males low in either one or two traits pattern to the high pattern female confederate (D2) and the mixed males pattern to the high pattern female confederate (D3).

*p <. 05 **p < .01

Appendix A

Shipley-Hartford

Abstraction

Complete the following. Each dash (-) calls for either a number or a letter to be filled in. Every line is a separate item. Please print your answer to each item on the right. Take the items in order, but don't spend too much time on any one.

start here

(1) 1 2 3 4 5 - _____

(2) white black short long down - - _____

(3) AB BC CD D- _____

(4) Z Y X W V U - _____

(5) 1 2 3 2 1 2 3 4 3 2 3 4 5 4 3 4 5 6- - _____

(6) NE/SW SE/NW E/W N/- _____

(7) escape scape cape - - - _____

(8) oh ho rat tar mood - - - - _____

(9) A Z B Y C X D - _____

(10) tot tot bard drab 537 - - - _____

(11) mist is wasp as pint in tone - - _____

(12) 57326 73265 32657 26573 - - - - - _____

(13) knit in spud up both to stay - - _____

(14) Scotland landscape scapegoat - - - -ee _____

(15) surgeon 1234567 snore 17635 rogue - - - - - _____

(16) tam tan rib rid rat raw hip - - - _____

(17) tar pitch throw saloon bar rod fee tip end plank - - - - - meals _____

(18) 3124 82 73 154 46 13- _____

(19) lag leg pen pin big bog rob - - - _____

(20) two w four r one o three - _____

Appendix A

Shipley-Hartford

Vocabulary

In the test below, the first word in each line is printed in capital letters. Opposite it are four other words. *Draw a line* under the *one word* which means the *same thing*, or most nearly the same thing, as the first word. A sample has been worked out for you. If you don't know, *guess*. Be sure to underline, the *one word* in each line which means the same thing as the first word.

sample

	LARGE	Red	Big	silent	wet
(1)	TALK	Draw	Eat	speak	sleep
(2)	PERMIT	Allow	Sew	cut	drive
(3)	PARDON	Forgive	Pound	divide	tell
(4)	COUCH	Pin	Eraser	sofa	glass
(5)	REMEMBER	Swim	Recall	number	defy
(6)	TUMBLE	Drink	Dress	fall	think
(7)	HIDEOUS	Silvery	Tilted	young	dreadful
(8)	CORDIAL	Swift	muddy	leafy	hearty
(9)	EVIDENT	Green	obvious	skeptical	afraid
(10)	IMPOSTOR	Conductor	Officer	book	pretender
(11)	MERIT	Deserve	distrust	fight	separate
(12)	FASCINATE	Welcome	Fix	stir	enchant
(13)	INDICATE	Defy	Excite	signify	bicker
(14)	IGNORANT	Red	Sharp	uninformed	precise
(15)	FORTIFY	Submerge	strengthen	vent	deaden
(16)	RENOWN	Length	Head	fame	loyalty
(17)	NARRATE	Yield	Buy	associate	tell
(18)	MASSIVE	Bright	Large	speedy	low
(19)	HILARITY	Laughter	Speed	grace	malice
(20)	SMIRCHED	Stolen	pointed	remade	soiled
(21)	SQUANDER	Tease	belittle	cut	waste
(22)	CAPTION	Drum	ballast	heading	ape
(23)	FACILITATE	Help	Turn	strip	bewilder
(24)	JOCOSE	Humorous	Paltry	fervid	plain
(25)	APPRISE	Reduce	Strew	inform	delight
(26)	RUE	Eat	lament	dominate	cure
(27)	DENIZEN	Senator	inhabitant	fish	atom
(28)	DIVEST	Dispossess	intrude	rally	pledge
(29)	AMULET	Charm	orphan	dingo	pond
(30)	INEXORABLE	Untidy	involatile	rigid	sparse
(31)	SERRATED	Dried	notched	armed	blunt
(32)	LISSOME	Moldy	Loose	supple	convex

(33)	MOLLIFY	Mitigate	Direct	pertain	abuse
(34)	PLAGIARIZE	Appropriate	Intend	revoke	maintain
(35)	ORIFICE	Brush	Hole	building	lute
(36)	QUERULOUS	Maniacal	curious	devout	complaining
(37)	PARIAH	Outcast	Priest	lentil	locker
(38)	ABET	Waken	Ensue	incite	placate
(39)	TEMERITY	Rashness	timidity	desire	kindness
(40)	PRISTINE	Vain	Sound	first	level

Appendix B

Lost in Summer Camp Task

You are the Head of Camp Director for a camp focused on sports for children ages six to twelve. Due to many mistakes made during crisis situations by the prior Camp Director the camp may be discontinued. Your camp's success depends directly on your ability to make good decisions during crisis. On a Monday morning, a month into the camp session, you are immediately notified by one of your counselors that there are 15 situations, which need your attention, and cannot be handled without your approval. Your task is to rank order the 15 situations listed below in the order of their priority for the well being of the campers and the success of the camp. Place a "1" beside the most important situation to attend to, a "2" beside the second most important situation to attend to, and so on until all 15 items are ranked.

	Individual Ranking	Group Ranking
A diabetic camper forgot to take his insulin shot after breakfast.	_____	_____
A 10 year old camper left his canteen behind when he went hiking. He has had no water for several hours and has blacked out.	_____	_____
Although playing baseball, the batter accidentally hit the 10-year-old catcher in the head with the bat. The catcher already has a bump on her head where she was hit, has lost consciousness, and her pupils are dilated.		
A group of counselors and campers had an overnight campout in the woods. In the morning when they started to head back to camp they realized that one of the campers is missing. The last time he was seen was the night before.	_____	_____
Usually appearing sad and acting aloof, an older camper is often found bullying the smaller children. This morning during art class, he was discovered in a corner with scissors in one hand and moderately deep cuts in his wrist.	_____	_____
A child is complaining of feeling tired. Her counselor observed she has a fever, a nasal discharge, and a hacking cough, reddening eyes, and small white specks in her mouth.	_____	_____

TURN OVER

	Individual Ranking	Group Ranking
The night before a camper received a burn from the campfire. Ice was immediately placed on his hand. However, this morning his hand is swollen and he is complaining of intense pain.	_____	_____
Although playing an intense game of Floor Hockey, an argument broke out between two boys escalating into a fistfight. One boy with a known overprotective parent has a black eye, and the other has a bloody nose and a small facial abrasion.	_____	_____
An eight year-old boy with a known severe allergy to peanuts was found with a mostly eaten Peanut Crunch Bar in his hand and is breathing deeply.	_____	_____
A counselor, who has been rather depressed lately, is talking to some campers about the many ways one can commit suicide.	_____	_____
A sewage main under one of the cabins has burst, flooding the entire cabin.	_____	_____
The Camp Master's dog was bit by a raccoon a few days ago and is now foaming at the mouth and wandering around the camp alone. The younger campers are very scared of the dog, Although the oder campers think its funny and are teasing the dog.	_____	_____
A young camper has returned from fishing with a large hook stuck completely through his hand. His hand is nearly completely covered in blood.	_____	_____
After breakfast many campers are feeling sick and are throwing up. The cooks suspect if might be food poisoning.	_____	_____
An eleven year old camper has fallen out of a tree and is lying on the ground. She expresses great pain in her legs and is unable to get up and walk.	_____	_____

Appendix C

General Leadership Impression

The following questions concern your feelings towards and evaluation of **Group Member _____**. Please circle the answer which reflects your feelings.

1. How much did this member contribute to the effectiveness of the task?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Nothing

2. What degree of influence did this member exert in determining the final outcome of the task?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Nothing

3. How much leadership did this member exhibit?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Nothing

4. How much control over the group's activities did this member exhibit?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Nothing

5. If you had to choose a leader for a new task, how willing would you be to vote for this member as the leader?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Nothing

Appendix D

Battery of Inferred Capabilities

The following questions concern the perceived characteristics of **Group Member** _____. Using the scale below please indicate how characteristic you think each of the traits are for this group member.

1----------2----------3----------4----------5----------6---------7

Not characteristic at all | Neither characteristic nor uncharacteristic | Very Characteristic

1. Social Dominance 1-----2-----3-----4-----5-----6-----7
2. Ambitious 1-----2-----3-----4-----5-----6-----7
3. Extraversion 1-----2-----3-----4-----5-----6-----7
4. Aloof 1-----2-----3-----4-----5-----6-----7
5. Gregarious 1-----2-----3-----4-----5-----6-----7
6. Agreeable 1-----2-----3-----4-----5-----6-----7
7. Warm 1-----2-----3-----4-----5-----6-----7
8. Trusting 1-----2-----3-----4-----5-----6-----7
9. Unassuming 1-----2-----3-----4-----5-----6-----7
10. Submissive 1-----2-----3-----4-----5-----6-----7
11. Intelligent 1-----2-----3-----4-----5-----6-----7
12. Decisive 1-----2-----3-----4-----5-----6-----7
13. Introverted 1-----2-----3-----4-----5-----6-----7
14. Quarrelsome 1-----2-----3-----4-----5-----6-----7
15. Cold 1-----2-----3-----4-----5-----6-----7
16. Calculating 1-----2-----3-----4-----5-----6-----7
17. Arrogant 1-----2-----3-----4-----5-----6-----7
18. Determination 1-----2-----3-----4-----5-----6-----7
19. Confident 1-----2-----3-----4-----5-----6-----7