

INVESTIGATING THE ROLE OF
PERSONAL ATTRIBUTES IN LEADERSHIP EMERGENCE

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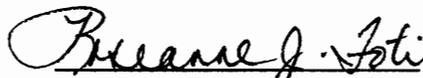
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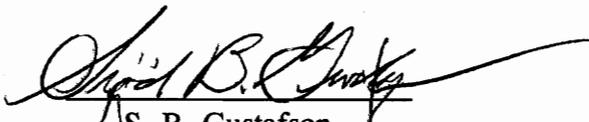
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(ABSTRACT)

The purpose of the present study was to investigate whether personal attributes are consistently associated with the emergence of leaders in small groups. Past research on leadership emergence has frequently examined the relationships between individual personal attributes and perceptions of leadership by group members following completion of a single group exercise. The present study extends the literature by taking a multivariate approach to the study of leadership perceptions, by varying group tasks and group membership, and by implementing both perceptual methods of measurement and direct measurement of leadership behavior.

One hundred seventy-three undergraduate students participated in small groups to complete two tasks. Participants worked with different group members during each task. The first task emphasized competition and persuasion among group members and the second task emphasized cooperation and information sharing among group members. Following each task, group members rated and ranked all group members

on leadership attributes and abilities. Trained observers then coded each of the leader behaviors that occurred during the group interactions and assigned their own objective leadership ranks to the group members.

Multiple regression, discriminant analysis, and bivariate correlations revealed that dominance and intelligence were consistently related to both perceptions of leadership by group members and objective observation and coding of leadership behaviors. In addition, perceptions of leadership by group members were found to be related to objective behavioral indices of leadership; thus, a link was created between perceptual and behavioral measures of leadership. In addition, group members who were perceived as possessing prototypical leader traits were consistently identified as the group leaders by group members and trained observers. Implications of the present study's results and suggestions for future research in the field of leadership are discussed.

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INTRODUCTION

The trait approach to the study of leadership has been either embraced or abandoned with equal enthusiasm across its history. Early in the 20th century, the emphasis on "Great Man" theories of inherited leadership qualities evolved into the more readily acceptable "trait" theories. For many years, leadership researchers attempted to identify a set of traits that could be used to predict leadership. Although previous studies proclaim to have identified numerous personality traits indicative of leadership, a significant number of critics have emphasized their inconsistencies and weak empirical evidence. In particular, researchers point out the highly-cited Mann (1959) and Stogdill (1948) reviews that reported there were no traits consistently identifying leaders from nonleaders across multiple situations. As a result, Muchinsky (1991) noted that leadership studies investigating trait-based variance were abruptly suspended.

More recently, however, researchers have speculated that dismissing trait-based research may be premature. Lord, DeVader, and Alliger (1986) conducted a reexamination of the literature reviewed by Mann (1959) and concluded that the reviews were misinterpreted. Most importantly, they reported that the reviews obscured the differences between leadership effectiveness and leadership perceptions. Leadership effectiveness emphasizes the amount of influence a leader has on the degree of success with which a group performs an assigned task. Although this is an

important area for investigation, it has often been confused with leader emergence or perceptions of leadership in groups with no formal leader. Leader emergence refers to the phenomenon that a particular individual will emerge as the accepted leader in a group situation, without having been explicitly assigned to that role. Hence, leader emergence refers to the perceptions of leadership independent of group performance. Leader emergence has typically been measured through observation and nominations by group members and, less frequently, through independent observation of group member behaviors.

In addition to differentiating between leader effectiveness and leader emergence, Lord et al. (1986) point out that Mann's results were interpreted too negatively, in light of the consistent relationships reported between specific traits (e.g., intelligence, dominance) and leadership. Lord et al's (1986) quantitative results contrast with the earlier pessimistic reviews of trait studies. Specifically, they found that there was a relationship between dispositional characteristics and leadership if one did not emphasize group performance. In fact, 23 of the 33 studies reanalyzed by Lord et al (1986) found significant positive correlations between dispositional variables and leadership, and 88% of the 196 original studies reported by Mann (1959) showed positive correlations between intelligence and leadership. Using all the quantitative data currently available, Lord et al. (1986) found "true" correlations between leadership perceptions and intelligence, and masculinity-femininity, and dominance to be significant, and most of their variance due to artifactual sources.

Although traits may or may not affect the effectiveness of leaders, leadership categorization theory has shown that they do have a demonstrated influence on perceptions of leadership (Lord et al., 1984; Offermann, Kennedy, & Wirtz, 1994; Pavitt & Sackaroff, 1990; Roberts & Foti, 1995, 1995b). Lord, Foti, & Phillips (1982) developed the leadership categorization theory as an extension of implicit leadership theory. Leadership categorization theory represents a general information processing theory of leadership (Lord, et al., 1984) where cognitive categories are utilized to differentiate leaders and nonleaders by examining prototypical and antiprototypical behaviors. A prototype is defined as a composite of those characteristics that are most representative of category membership (Rosch, 1974). If observers perceive a resemblance between characteristics or behaviors of an individual with those of a leader prototype, they classify that person as a leader and store that impression in long-term memory. Similarly, if observed characteristics or behaviors do not match the leader prototype, then the person is encoded into memory as a nonleader.

Specifically, it has been suggested that it is not so much the measured traits themselves that predict leadership ratings, but whether individuals are perceived by others as possessing the traits that match their leader prototypes (Cronshaw & Lord, 1987; Lord, Foti, & DeVader, 1984; Lord & Maher, 1990). Therefore, although one may argue that traits and behavior of leaders are important, the key issue is whether the ostensible leaders are perceived by the observers as having those traits and behaviors that fit a prototype of "leader" or "nonleader". It appears reasonable to speculate that

individuals who score higher on various measures of traits or individual differences associated with leadership will find it easier to behave in a manner consistent with that category. Thus, if measured traits and individual differences are translated into behavior that is associated with perceptions of leadership by the observers, then there should be a relationship between the characteristics of interest and impressions of leader emergence. Studies have shown that once an individual has been categorized as leader or nonleader, the perceiver tends to attribute characteristics associated with the prototype to the individual even in the absence of their behavioral manifestation (Cantor & Mischel, 1979; Lord, et al., 1984). Perceivers subsequently rely on their corresponding prototype to outline their impressions of the target individual. Therefore, the next task for researchers is to attempt to establish what traits will lead to the behaviors that are associated with prototypical leadership.

Previous research has shown that there are a core set of characteristics that are associated by the perceiver with the leadership phenomenon (Foti, Fraser, & Lord, 1982; Lord, et al., 1984; Offermann, Kennedy, & Wirtz, 1994; Pavitt & Sackaroff, 1990; Roberts & Foti, 1995b). For example, characteristics that are perceived as highly prototypical of leadership are intelligence, confidence, and decisiveness. Skills such as listening and strong oral communication are also frequently mentioned. Thus, there is a leadership category. However, the prototype that is most representative of category membership may be dependent on the characteristics of the situation (Foti et al., 1982; Hunt, Boal, & Sorenson, 1990). For instance, while evidence demonstrating

the use of leadership prototypes when evaluating leader behavior is substantial, it is less clear which prototypes are being used at a given time.

A reasonable assumption proposed by Foti et al. (1982) is that the situational context may determine what types of characteristics may be perceived as prototypical, thus determining who is perceived as the emergent leader in a group situation. Essentially, different situations may create various demands. Hunt et al. (1990) extended prior research (Foti et al., 1982; Lord et al., 1984; Rush, Thomas, & Lord, 1977) on implicit leadership theory by suggesting that there are factors that may influence variation in prototypes at top management level. Specifically, the authors suggest that the task and environment will influence prototypes to the extent that prototypes of ideal candidates will vary depending on the strategic goals of the organization. Thus, the individual who appears to possess the abilities that match the needs of the situation will be perceived as the prototypical leader. Additionally, there may be idiosyncratic differences in individuals' assessments of what constitutes leadership behaviors based on their past experiences and expectations of leaders and on the current situational demands. In other words, people do not always agree on their criteria for membership in the category of leader (Nye & Forsyth, 1991), and this may account for some of the variance in leadership ratings and criticism of trait research.

The remaining skepticism regarding trait research would most likely be eliminated if a profile of characteristics could be identified that consistently leads to behavior that is perceived as "leader-like" when matched against the perceiver's leader prototype.

Kenny and Zaccaro (1983), Zaccaro, Foti, and Kenny (1991), and Rueb and Foti (1990) suggest that future research should focus on a multivariate approach to individual characteristics facilitating leader emergence. Specifically, they recommend that subsequent research should emphasize additional personality variables linked to situational demands, as well as the more traditional leader variables. Thus, one should attempt to incorporate both a trait and a situational view of leadership in order to advance an understanding of leader qualities that lead to perceptions of leader emergence. The present study incorporates their recommendations.

Overview of the Study

The present study, while recognizing there is a fundamental disagreement over whether internal attributes shape behaviors and perceptions of leaders, suggests that personality variables continue to play a large role in perceptions of leader emergence. Therefore, the purpose of the present study is to determine if there are personality characteristics consistently associated with perceptions of leader emergence.

According to Lord's categorization theory of leadership, people identify others as leaders or nonleaders based on the frequency and nature of displayed leader behaviors. Therefore, as Jago (1982) claimed, leadership is not only some quality or characteristic that one possesses or is perceived to possess, it can be something that one does. As research techniques improve, trait research is beginning to focus on how leader traits relate to leader behavior and skills, and thus, subsequent perceptions of leadership by group members. Yukl (1989) has alleged that one problem with the leadership

literature is that trait research has shown little concern for direct measurement of leadership behavior or influence, even though it is evident that the effects of leader traits are mediated by leadership behavior and influence. Jago (1982) has also emphasized the need for both objective and subjective measures of leadership. Furthermore, Dobbins, Long, Dedrick, and Clemons (1990) and Zaccaro et al. (1991) have recommended investigating the actual behaviors that mediate the effects of individual behavior on emergence. To address this recommendation, group interactions will be videotaped and audio recorded. Trained raters, who remain blind to the participant's scores on the independent variables and to the ratings given by fellow group members, will observe and code the videotaped behaviors of group members as an additional measure of leadership behavior.

The present study extends past research in that the author views the two psychological constructs of self-monitoring and self-leadership as important indicators of leadership and evaluates these constructs in addition to the more traditional leadership traits of intelligence, dominance, and self-esteem. The present study also intends to improve on past research by (1) setting group membership such that there is equal representation of high, moderate, and low self-monitors across groups, (2) having multiple tasks emphasizing different group member behavior, and (3) incorporating multiple methods of measuring leader emergence by "self"-directed ratings (metaperception), "other"-directed group member ratings, and behavioral assessments by trained independent observers.

Literature Review

The study of leadership has endured as an integral part of the social science literature for nearly a century (Van Fleet & Yukl, 1986; Yukl & Van Fleet, 1992). In the past 75 years more than 3,000 leadership studies have been conducted and dozens of leadership models and theories have been proposed and rejected (Bass, 1990; Schriesheim, Tolliver, & Behling, 1987). Leadership research has often been fragmented and contradictory, in large part due to the broad nature of the topic and the myriad of definitions. Additionally, the perceived importance of the role of personality in leadership has vacillated over the past 50 years, as confirmed by the fluctuations in the quantity of empirical work that was published across those years (Atwater & Yammarino, 1993; Bass, 1990; Yammarino & Bass, 1991). Emphasis has gone from a study of traits, to a study of behaviors, to a contingency view suggesting particular behaviors are necessary under certain circumstances (Bass, 1990). Recently, researchers have suggested that leadership cannot be understood without looking at a leader's traits as well as the situation in which the leader works (Fiedler & Garcia, 1987; House, 1991; Yammarino & Bass, 1991).

Traits

Although personality theories are currently controversial, it is generally acknowledged that people can be characterized in terms of enduring dispositional qualities, or traits. The concept of traits broadly refers to people's general characteristics, including capacities, motives, or patterns of behavior (Kirkpatrick &

Locke, 1991). Traits have also been conceptualized as recurring regularities or trends in a person's behavior (Hogan, 1991). Traits make up the structure of personality and are purely descriptive; however, they do not indicate why a person acts in a particular way. Mischel's (1968) criticism of trait research asserts that the literature does not support the proposition that traits are stable over time and situations. His criticism was primarily based on correlations between single behavioral measures and personality measures. However, Epstein and O'Brien (1985) contend that prototypical trait behaviors may fail to show up if only measured once in a particular situation.

Mischel also believed that situational variables were more influential on behavior than traits, stating that traits typically account for only nine percent of the variance in behavior. However, although Mischel argued that traits were not good predictors of behavior across situations, he acknowledged that traits were important constructs for perceivers. In response to Mischel's criticism of trait research, Hogan (1991) noted that correlations between well-constructed and self-validated personality measures and nontest behaviors often exceed .30 (cf. R. Hogan, DeSoto, & Solano, 1975).

Additionally, the situation is difficult to separate completely from personality because our perceptions of various situations are based on both the environment and our personality.

In an attempt to reconcile the person-situation debated by explaining the interaction between individuals and their environment, Wright and Mischel (1987) proposed conditional trait theory. Conditional trait theory defines a trait as the conditional

probability of a certain behavior given a certain situation (Wright & Mischel, 1987). By integrating traits and situations, researchers have begun to learn how people and situations interact. Research by Kendrick and Funder (1988) and Monson, Hesley, and Chernick (1982) in this area has found that traits influence behavior only in relevant situations and are more easily expressed in some situations than others. In addition, their research indicates that a person's traits can change a situation and people with different traits will choose different situations. Snyder (1974, 1983) has also claimed that certain people are more responsive to situation specification of behavioral appropriateness. The implications of Snyder's assertions will be addressed in greater detail in a subsequent section.

Early trait theories attributed leadership to the possession of universal attributes. This individual difference perspective had its roots in the "Great Man" theory, where leadership was defined as a function of inherited qualities (Galton, 1869). However, the trait perspective soon moved away from the concept of inherited characteristics, and simply asserted that leader characteristics were different from nonleaders (Terman, 1904). At first a few traits appeared to be universally important for leadership. For instance, reviews by Stogdill (1948) and Mann (1959) indicated that a significant number of personal qualities were associated with leadership. For instance, Stogdill's (1948) review found that more than two-thirds of the studies reviewed reported significant positive correlations between intelligence and leadership. In addition, Stogdill's (1948) review of the leadership literature also found leaders to score higher

than members of their reference group on many other indices, such as responsibility, self-confidence, assertiveness (i.e., dominance), intelligence, extroversion, persuasiveness, and knowledge and expertise in a particular subject area. Hogan, Curphy, and Hogan (1994) note that the personality descriptors identified by Stogdill map easily onto the big-five model of personality structure endorsed by many current personality psychologists (Goldberg, 1993; Hogan & Hogan, 1992; McCrae & Costa, 1987). Similarly, a review by Mann (1959) reported that 173 of 196 studies investigating intelligence and leadership produced results yielding positive correlations, with more than half of them significant. Correlations between dominance and leadership were also reported. Nevertheless, rather than noting the consistency in the trends that emerged from the review, Mann chose to emphasize the low median correlations between various traits and leadership. And, as a result of his conclusion that no traits consistently differentiated leaders from nonleaders across a variety of situations, research investigating traits dropped off dramatically.

However, the last ten years has witnessed a resurgence of trait theory in leadership research due largely to illuminating studies by Lord et al. (1986) and Kenny and colleagues (Kenny, 1988; Kenny & Zaccaro, 1983; Zaccaro et al., 1991). These studies pointed out the methodological and conceptual flaws in the reviews conducted by Stogdill (1948) and Mann (1959), and the statistical flaws in early studies of cross-situational consistency in leader emergence (Barnlund, 1962). Lord et al. (1986) argued that the Stogdill and Mann reviews misrepresented the results because they

confused leadership effectiveness with leadership perceptions. Additionally, the older reviews were plagued by the use of unsophisticated statistical techniques. The reviews failed to account for sampling error, measurement unreliability, and differences in effect sizes among the studies. The meta-analytic technique employed by Lord et al. (1986) accounted for these differences and partialled out the artifactual sources of variance among the studies. Consequently, their results based on a reanalysis indicated that several traits (intelligence, masculinity-femininity, and dominance) predicted leadership perceptions and leader emergence.

Kenny and Zaccaro (1983) reexamined Barnlund's (1962) data from a "rotational design" study using a quantitative model of social relations (Kenny, 1988; Kenny & La Voie, 1984) in order to determine whether leaders emerge consistently across a variety of situations. In contrast to Barnlund's original finding, the reanalysis conducted by Kenny and Zaccaro found that between 49% and 82% of the variance in leadership across situations could be attributed to dispositional qualities. Hence, they concluded that emergent leadership can be attributed to some stable characteristic(s). Subsequent studies have confirmed the stability of leadership (Zaccaro, et al., 1991; Rueb & Foti, 1990; Walsh, 1992).

Now that the stability of leadership has been adequately demonstrated, the next task for researchers is to identify the combination of traits and other individual difference characteristics that will better predict who will emerge as the leader in a group situation. Deaux and Wrightsman (1984) lamented that earlier personality

research investigating single variables did little to enlighten our knowledge of individuals' behavior in group interactions. Additionally, many researchers failed to justify the expected role of a trait or individual characteristic in the investigation of leader perceptions. Therefore, it is recommended that subsequent research should emphasize a theoretical investigation in establishing multiple traits and individual characteristics that will be related to emergent leadership. Other recent studies investigating personality and leader emergence have come to similar conclusions (Gough, 1990; Kenny & Zaccaro, 1983; Lord et al., 1986; Rueb & Foti, 1990; Zaccaro et al., 1991).

The traits of intelligence, dominance, and self-esteem have been shown to consistently predict emergent leaders in group situations. In addition, this study investigates whether two individual difference variables, self-monitoring and self-leadership, lead to behavior that results in individuals being perceived as leaders. Each of these construct will now be addressed in turn.

Intelligence

Within the world of psychology, intelligence has been defined as a general cognitive ability to adapt to new circumstances and solve problems whether verbal, numerical, conceptual, or spatial in nature (Anastasi, 1982). Common sense tells us that there ought to be a very high relationship between a leader's intellectual ability and his or her performance in directing a group. Since some of the major functions of a leader include planning, evaluating data, making decisions, and developing action

plans, leaders must possess some degree of cognitive capability (Fiedler & Garcia, 1987). These types of intellectual functions are similar to those we find on typical intelligence tests. Intelligence has most often been measured with pen and pencil tests that attempt to evaluate intelligence in terms of chronological age, although other indicators such as a student's GPA have also been used. Intelligence has been found to be an important characteristic in implicit leadership theory; therefore, it is not surprising that a strong relationship between intelligence and leadership perceptions has typically been found (Lord et al., 1986; Mann, 1959; Rueb & Foti, 1990; Stogdill, 1948).

From the earliest of leadership studies (Cowley, 1931; McCuen, 1929), intelligence has been found to be related to leadership. Stogdill (1948) reported that the mean correlation between intelligence and leadership was .28, ranging from -.14 to +.90. Stogdill also stated that if one considers those findings of scholarship (college or high school grades), as suggested by Buttergeit and Caldwell (in Stogdill, 1948), then "Leaders are found, with a degree of uniformity, to make better than average grades than do nonleaders" (Stogdill, 1948, p. 46). In his follow-up review covering the years 1947-1970, 25 additional studies indicated a positive relationship between intelligence and leadership. Similarly, Mann's (1959) review also indicated there was a relationship between intelligence and leadership. He reported that 173 of 196 results yielded positive relationships between intelligence and leadership. Ninety-two of those studies reported significant positive findings, with only one result reporting a

significant negative finding. Overall, the median correlation reported by Mann (1959) between intelligence and leadership was significant, $r = .25$, $p < .01$.

The intelligence-leadership relationship has received even more support in recent years (Atwater & Yammarino, 1990; Lord et al., 1986; Rueb & Foti, 1990; Rueb, 1994). Lord et al.'s (1986) reanalysis of the studies reviewed by Mann with the meta-analytic technique indicated a strong relationship did indeed exist between intelligence and leadership. Conclusions drawn from the meta-analysis were that Mann's review was not as condemning as originally thought. In fact, the reanalysis revealed that Mann had far fewer independent samples than had been reported and had incorrectly reported several of the correlations. Specifically, Lord et al. (1986) reported a significant intelligence-leadership correlation of .50 (corrected for attenuation) compared to Mann's median correlation of .25. Based on conclusions drawn from Lord et al. (1986), it appears that the misinterpretation of Mann's review resulted in a premature abandonment of the trait approach.

Rueb and Foti (1990) used a rotation design in which tasks and group membership were always varied to explore the intelligence-leadership relationship. However, in contrast to other studies that found stronger correlations between verbal intelligence and leadership (Mann, 1959), the results of their study indicated that numerical intelligence significantly predicted leadership. The authors attributed this to the nature of the tasks and the range restriction found in the use of the intelligence measure. When corrected

for within rotation range restriction, verbal and numerical intelligence combined were significantly related to leader emergence.

Studies have also been conducted in military settings to explore the relationship between intelligence and leadership. Atwater and Yammarino (1990) conducted a study using cadet squad leaders at a military academy to identify potential predictors of leadership. Intercorrelations were calculated between all potential predictors of leadership and superior and subordinates' ratings of cadet leaders. Atwater and Yammarino found a significant relationship between intelligence and leadership ratings. Rueb (1994) also conducted a study investigating potential predictors of leadership utilizing Air Force officers attending Squadron Officer School. Similarly, his analyses showed differences in the classification of leaders and nonleaders for intelligence. Given that a strong relationship between intelligence and perceptions of leadership are expected and have been consistently demonstrated through previous research, the trait of intelligence is included in this study.

Dominance

Dominance, sometimes referred to as ascendancy or boldness, has been defined as the inclination of individuals to try to control their environment and to influence others (Jackson, 1989). Dominance has both positive and negative connotations, as it refers to aggressiveness, confidence, persistence, and independence seen in individuals. Ray (1987) classifies assertion as nonaggressive dominance and authoritarian behavior as aggressive dominance. Assertion is the expression of one's feelings, needs,

preferences, or opinions in a nonthreatening, nonpunitive manner (Hollandsworth, 1977). Authoritarian behavior is the use of commands to attempt to get absolute obedience from others. This study emphasizes prosocial assertiveness and ascendance in social settings; therefore, we will refer to this trait as prosocial dominance.

Dominant individuals are important in group interactions because they are less likely to yield to normative pressure. They can critically evaluate alternatives and offer recommendations without conforming to the group's opinion (Callaway, Marriott, & Esser, 1985). Research has shown dominant individuals generally: are perceived as popular, use more negative social-emotional remarks, participate in group activities, promote group cohesiveness, influence group decisions, and ultimately emerge as leaders (Cattell & Stice, 1960; Haythorn, 1953; Shaw, 1976).

Given the qualities associated with dominance, it is not surprising to see that the vast majority of research has found some positive correlation between dominance and leader emergence. In an early series of studies conducted by Richardson and Hanawalt (1943, 1944, 1944a), Hanawalt, Richardson, and Hamilton (1943), and Hanawalt and Richardson (1944), dominance was identified as being significantly correlated with leadership across a variety of populations.

In their first study, Richardson and Hanawalt (1943) defined leadership as the holding of office in a student organization. They found, regardless of sex, that leaders were found to be significantly more dominant than nonleaders. The second study by Hanawalt et al. (1943) analyzed the responses of leaders versus nonleaders using item

analysis and reported distinct response differences between the groups. They concluded "that college leadership is more closely tied up with dominance than with any of the other scales" (p. 266).

The third study (Richardson & Hanawalt, 1944) focused on men in vocational and social activities. The leaders, defined as either office holders (persons with two or more presidencies/chairmanships since age 21) or supervisors (persons with 15 or more persons under their direction), were again reported as being significantly more dominant than nonleaders. An item analysis of the Bernreuter scales by Hanawalt and Richardson (1944) again indicated that leaders responded significantly different from nonleaders. Richardson and Hanawalt's (1952) final study again used the office holders criteria above to show that women leaders in social activities (e.g., PTA, Bridge Club, YWCA) were more dominant than women nonleaders. Their results led them to conclude that dominance was indeed related to leadership.

The Dominance subscale of the California Psychological Inventory (CPI; Gough, 1964) was used in two other early investigations (Altrocchi, 1959 and Smelser, 1961 as cited in Megargee, 1972) to select subjects high and low in dominance who then interacted in a mutual problem-solving situation. Although the validity of the dominance scale was not the subject of investigation, it was noted in both studies that the high dominant subjects behaved dominantly and the low subjects submissively. Other research has been conducted to determine whether people with higher dominance scale scores manifest more leadership and whether people with low dominance scores

are more submissive, particularly in studies of conformity (as cited in Megargee, 1972). The results of a study by Megargee, Bogart, and Anderson (1966) indicated "that the CPI Dominance scale is capable of predicting leadership. However, the conditions under which leadership is to be exercised are as important as the personality trait of dominance in determining whether or not dominant behavior will be manifested."

Several leadership reviews (Lord et al., 1986; Mann, 1959; Stogdill, 1948) have also indicated that dominance is related to leadership perceptions. Stogdill reported that 11 of 17 studies reported a significant positive dominance-leadership relationship. In his 1974 follow-up review, Stogdill reported an additional 12 more studies supported the dominance-leadership relationship. Given these new findings, Stogdill rethought his original claim that dominance was not related to leadership and concluded that "these results suggest that dominance, . . . , may characterize some leaders" (cited in Bass, 1981, p. 80). Mann (1959) found that 73% of the results involving dominance were positive and that 71% of these results were significant, yet neutralized his findings by emphasizing the low median correlation, $r = .20$. Lord et al. (1986). however, emphasized that dominance was indeed found to be related to leadership perceptions.

Dominance has continued to be a popular area for research in recent years, typically being measured with both personality tests and behavioral observations. In another study, Hills (1985) administered the Adjective Check List (ACL), a self-report checklist, to 237 managers. After interaction in two 6-person groups, the leadership

ratings from two staff reporters were correlated with the self-report scores. Hills found that assertiveness (dominance) of the managers was significantly related to leadership. Using the CPI to measure dispositional dominance, Davis and Gilbert (1989) found prior task interactions diminished status differences between male and female partners, allowing high dominant women paired with low dominant men to become leader 71% of the time. Rueb and Foti (1990) used a rotation design approach to investigate whether the more dominant individual emerged as leader within each task. Results further supported the dominance-leadership relationship. Rueb's (1994) study in a military setting also showed differences in the classification of leaders and nonleaders for dominance. Given that many researchers have found dominant individuals influence group interactions and are perceived as leaders, the trait of dominance is included in this study.

Self-Esteem

Self-esteem refers to a global affective evaluation of the self in comparison with others, and is typically measured by the degree to which an individual endorses various evaluative statements about the self (Epstein, 1973). Coopersmith (1967) further submitted that feelings of self-esteem express an attitude of approval or disapproval about oneself and the extent to which people believe themselves to be capable, significant, successful, and worthy. Individuals with high self-esteem, being more certain about their competence, experience less anxiety and stress than do those individuals low in self-esteem (Shrauger, 1972). Individuals high in self-esteem also

exert more effort in activities, particularly when they set their own goals, whereas this is not always related to an increase in effort for those with low self-esteem (Carroll & Tosi, 1970).

According to Coopersmith (1967) and Morse and Gergen (1970), self-esteem develops early in childhood, becoming relatively stable as individuals mature and incorporate more information into their self concept. However, Korman (1970) noted that circumstances involving self-evaluation may arise which alter the relatively chronic level of self-esteem; specifically, global evaluations of the self may be altered due to repeated exposure to specific characteristics of the situation.

In general, however, affective evaluations of the self are stable, and people will tend to seek out information that is consistent with these self-views. For instance, Festinger (1954) proposed that there is an intrinsic need for individuals to evaluate their opinions and that they tend to rely on social information to corroborate their view of reality when objective data are not available. That is, people will actively seek confirmatory social evaluation of their abilities and opinions whenever there is uncertainty. It has also been suggested that an individual will be motivated to perform a task in a manner consistent with the self-image with which they approach the task (Korman, 1966, 1968, 1970; Lecky, 1945). More specifically, Korman posited that individuals are motivated to think, feel, and behave in ways that enable them to maintain their preexisting level of self-esteem. Additionally, it has been shown that

consistency between a person's performance and expected performance results in positive feelings (Aronson & Carlsmith, 1962).

Past evidence suggests that high self-esteem and low self-esteem individuals differ in several aspects. For instance, Gerard (1961) found that low self-esteem subjects were more vulnerable to outside pressures, more dependent upon situations, and more susceptible to the perception of failure than people with high self-esteem. Finally, high self-esteem individuals were found to be systematically different in group performance situations in that they exert more influence (Thomas & Burdick, 1954, as cited in Utterback, 1979), have greater confidence in their ability to deal with events (Coopersmith, 1967), and were less negatively influenced by the presence of others (Shrauger, 1972).

A person's level of self-esteem may affect his or her behavior in specifiable ways. For instance, self-esteem influences the way people approach a task and their self-estimated probability of being able to perform it successfully. In addition, level of self-esteem may influence whether an individual will engage in activities or behavior that enable him or her to appear "leader-like". Rosenberg (1989) noted that individuals low in self-esteem tend to describe interpersonal relations as awkward and difficult. This may be manifested in a variety of ways, however. For instance, some tend to describe themselves as shy and easily embarrassed. Other individuals report feelings of tension in new situations. These feelings of tension and awkwardness may produce an interference with communication, which is obviously necessary in leadership

perception. In its mild form, it may be manifested in a hesitancy to express one's views. More seriously, individuals with low self-esteem withdraw entirely from discussions and fail to initiate any interpersonal contact.

Rosenberg (1989) described a study that examined observational descriptions of high and low self-esteem patients by nurses. The nurses described individuals with low self-esteem as being easily led, usually giving in to others, often letting others make the decisions, very easily influenced, and lacking self-confidence. Rosenberg also conducted numerous studies in the classroom (Rosenberg, 1989). He reported that people with low self-esteem: (1) were more likely to be described as relatively subdued and inactive in classroom discussions; (2) were less likely to be described as active participants in classroom discussions; (3) were less likely to be selected as a leader by two or more of their classmates; and (4) were judged as less likely to be actually chosen by others if a school elected were held.

Malloy and Janowski (1992) measured dispositional social anxiety to see whether it would correlate negatively with perceived emergent leadership. They hypothesized that socially anxious persons can be expected to be reserved and quiet in a group of new acquaintances and as a result, should be judged lower on leadership. Results confirmed that social anxiety was negatively correlated with the target component of perceived leadership scores ($r = -.36, p < .05$). Given that level of self-esteem has been shown to influence interpersonal behavior in a variety of group interactions and subsequent perceptions of leadership, the trait of self-esteem is included in this study.

Individual Difference Characteristics

Individual difference characteristics were defined earlier as an observed stylistic consistency or regularity in an individual's behavior, affect, or cognition (Leary, 1988). Recently, recommendations have been made that there is a need for research to explore personality variables that can be linked to situational demands. Thus, one should attempt to incorporate both a trait and a situational view of leadership in order to advance an understanding of leader qualities and leader emergence. In an attempt to identify those individual differences that consistently lead to behavior that results in individuals being perceived as leaders, I will investigate the individual difference variables of self-monitoring and self-leadership in addition to the aforementioned traits to see if they may act as more comprehensive indicators of leader emergence.

Given the speculation that various situations may require different cognitive, affective, and behavioral strategies for successful group functioning, one may suggest that an individual who wishes to be perceived as a leader may find it to his or her advantage to be skillful at effectively perceiving the thoughts and behaviors of self and group members, as well as being skilled in behavioral flexibility.

Self-Monitoring

One concept that has only recently been investigated in the leadership literature is the phenomenon that many individuals who are perceived as leaders appear to have the ability to discern the needs of the situation and adapt their behavior accordingly. Self-monitoring is the concept used by social psychologists to describe this skill of

behavioral flexibility. Specifically, self-monitoring is the ability to pick up on salient environmental and social cues and adjust one's behaviors and actions accordingly. It involves three primary factors: a concern for social appropriateness, a sensitivity to social cues, and an ability to control one's behavior in response to those cues (Briggs, Cheek, & Buss, 1980; Zaccaro et al., 1991; Snyder, 1974). High self-monitors attend closely to cues from others in their environment regarding situationally appropriate behavior and use these cues to guide their social actions, even if these behaviors are not congruent with their inner dispositions. In fact, research has shown that the chameleon-like behavior of the high self-monitor is only weakly, if at all related to their actual attitudes (Ajzen, Timko, & White, 1982; Zanna, Olson & Fazio, 1980). Low self-monitors rely on their own attitudes in determining what social behavior to exhibit, rather than molding their behavior to the demands of the situation.

Many recent studies have found support for the hypothesis that high self-monitors will emerge as leaders of a group more often than low self-monitors (Dobbins, et al., 1990; Ellis, 1988; Garland & Beard, 1977; Kent & Moss, 1990; Rueb & Foti, 1990; Watson & Behnke, 1990; Zaccaro, et al., 1991). Snyder (1987) and Watson and Behnke (1990) observed that the same social style prompting high self-monitors to initiate conversation in one-to-one situations may, in group situations, lead them to provide rewarding interactions to other group members, thereby facilitating their emergence as leaders. Specifically, it appears that high self-monitors are skillful at assessing the needs of the group and the needs of the situation and can easily adapt to

fit the environment's requirements. Consequently, they may find it easier to emerge as the leader of a situation because of their ability to perceive what group members expect of a leader and to adapt their behaviors accordingly in response to the group's perceived expectations (Kenny & Zaccaro, 1983).

Although only recently addressed within the arena of leadership research, studies exploring the relationship between self-monitoring and leadership are increasing. These initial results appear to be quite promising. Pioneer studies by Garland and Beard (1979), Foti and Cohen (1986), Ellis (1988), and Ellis, Adamson, Deszca, and Cawsay (1988) provide evidence for a self-monitoring - leadership relationship. One of the first studies to investigate self-monitoring and emergent leadership required male and female subjects to participate in a brainstorming task and an anagram task (Garland & Beard, 1979). In the brainstorming task, which emphasized consensus and minimal performance feedback, high self-monitors in female groups were more likely to emerge as leaders. This effect did not occur, however, in male groups or in the anagram task.

Subsequent research on self-monitoring and leadership was extended to include tasks that emphasized a variety of leader behaviors. Foti and Cohen (1986) were the first to attempt to conduct a study which altered leader requirements (task versus relationship orientation), an underlying premise of self-monitoring. Data were collected from 196 undergraduates in same-sex three-person groups composed of one high, one moderate, and one low self-monitor through a modified version of the manufacturing game (see Zaccaro et al., 1991). They found that high self-monitors

were significantly more likely to emerge as leaders. Additionally, Foti and Cohen (1986) reported that high self-monitors would adapt their leadership style to the situation, providing support for the theoretical explanation above.

Recent work on self-monitoring and leader emergence has tested the stability of leadership by incorporating rotation designs in the studies (Kenny & Zaccaro, 1983; Rueb and Foti, 1990; Walsh, 1992; Zaccaro et al., 1991). Rotation designs manipulate group membership and group tasks in order to emphasize the changing nature and adaptation ability of high self-monitors. Using the ROTO computer program (Kenny, 1989), recent studies reported that stability of the leadership scores did exist and that 5% of that variance could be attributed to the individual difference variable of self-monitoring. Similarly, Rueb and Foti (1990) conducted a rotation design study and reported that self-monitoring could account for up to 18% of the variance in the leadership ratings by itself and in conjunction with intelligence and dominance could account for 33% of the variance. In general, self-monitoring has been found to be moderately correlated ($r = .22$) with stable leadership perceptions across groups and tasks. The authors conclude that efforts should be made to further refine the profile of characteristics that lead to perceptions of leadership emergence.

Although there is a great deal of research supporting the relationship between self-monitoring and leader perceptions, several studies (Kent & Moss, 1990; Rueb, 1994; Seites & Anderson, 1981; Walsh, 1992; Wentworth & Anderson, 1984) have questioned the viability of a simple monotonic relationship between self-monitoring and

leadership. Kent and Moss (1990) conducted a two-part study investigating the role high self-monitors play within a group. They reported that high self-monitors are more likely to perceive themselves as emerging leaders in hypothetical situations. However, despite regression analysis data which appeared to indicate that high self-monitors emerged as leaders, the researchers suggested that the other members of the group instead saw the high self-monitor as a valuable contributor, not necessarily as the leader. Seites and Anderson (1981) found that high self-monitors were more likely to emerge as leaders in larger groups while low self-monitors were more likely to emerge in smaller groups. Walsh (1992) used a rotation design similar to Zaccaro et al. (1991) in which task and group membership were both varied. She hypothesized that self-monitoring would be related to leader emergence, but was unable to detect a relationship between the two variables. Similarly, neither the study by Rueb (1994) nor the study by Wentworth and Anderson (1984) found evidence for a relationship between self-monitoring and leadership.

Specifically, while there is evidence that self-monitoring is related to leadership emergence, the correlations are low enough (.18 to .33) to suggest that moderate and low self-monitors also manage to emerge as leaders. Since low self-monitors do not monitor social cues, and in fact minimize their responsiveness to situationally induced behavioral adaptation, it follows that these individuals may go about the leadership process in a qualitatively different way than do high self-monitors. However, it is likely that the reason there are only moderate correlations at times between self-

monitoring is that various moderators may be influencing the relationship. In addition, group membership is not always controlled and there may be groups that contain multiple high self-monitors or multiple low self-monitors.

In previous studies, only Foti and Cohen (1986) and Dobbins et al. (1990) attempted to control for this by establishing a priori group membership. Foti and Cohen (1986) created groups consisting of one high, one moderate, and one low self-monitor. High self-monitors consistently emerged as leaders. Dobbins et al. (1990) also placed subjects into groups such that each group consisted of two males and two females, with one high and one low self-monitor represented from each sex. The groups worked on a problem-solving task. Upon completion of this task, the groups were asked to select one group member as their leader. Once again, high self-monitors were more likely than low self-monitors to be selected, as were males over females. When group membership is established such that various levels of self-monitoring are represented, high self-monitors consistently emerge as perceived leaders. Given research generally supports the self-monitoring-leadership relationship and its strong theoretical connection to leader behavior, the self-monitoring variable was included in this investigation.

Self-Leadership

One characteristic new to the literature that has yet to receive attention in the area of emergent leadership research is the concept of self-leadership. Self-leadership is conceptualized as a comprehensive self-influence perspective that concerns leading

oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating (Manz, 1986). This broader view of self-influence includes self-management strategies as well as strategies for managing the natural motivational value of the task and the patterns in one's thinking (Manz, 1983; Manz, 1986).

Manz and Sims (1991) divide their self-leadership strategies into two categories: (1) behaviorally focused strategies, and (2) cognitively focused strategies (See Appendix A). Behaviorally focused strategies concentrate mainly on effective behavior and action, and are designed to help individuals organize and direct their own work lives more effectively. Engaging in behavioral strategies of self-leadership heightens the motivational level within the individual. Specifically, these strategies include self-goal setting, self-observation/evaluation, self-cue management, self-reward, and rehearsal (Manz & Sims, 1991). Cognitively focused strategies emphasize effective thinking and feeling. Specifically, these strategies include opportunity thought, finding natural rewards at work, and efficacy expectations (Manz & Sims, 1991). Recently, Ball, Trevino, and Sims (1991) have proposed the dimensions of self-problem solving and initiative as more comprehensive indicators of self-leadership behavior and have recommended measuring these strategies. Many of these self-leadership strategies were cited by both student leaders and student nonleaders as being prototypical of a leadership figure (Roberts & Foti, 1995, 1995b).

The concept of self-leadership is derived primarily from research and theory in two areas of psychology: (1) social learning theory (Bandura, 1977), and (2) cognitive evaluation theory (Deci, 1975). Social learning theory recognizes the adaptation and change of human behavior as a complex process. Cognitive evaluation theory emphasizes intrinsic motivation and providing "natural" rewards. In cognitive evaluation theory, an individual's feelings of self-determination and competence are central to the experience of intrinsic motivation (Deci, 1975). In a review of current self-management models, Mills (1983) proposed that predictability of the self-managed behavior may be realized by procedures outside the formal leadership domain.

Little empirical work has been conducted on the newly-proposed concept of self-leadership. Roberts and Foti (1995a) and Cox (1994) investigated self-leadership of employees in applied settings, and found that individuals who exhibited high levels of self-leadership showed less need for external sources of structure or leadership. Essentially, self-leadership of employees acted as a "substitute for leadership" (Kerr & Jermier, 1978). In addition, Roberts and Foti (1995) found that a sample of undergraduate student leaders, operationalized as the holding of a student office in a university organization, reported significantly higher self-leadership as measured by the Self-Leadership Questionnaire developed by Cox & Sims (Cox, 1994). Furthermore, Roberts (1995) found that student reports of the use of self-leadership behavioral and cognitive strategies was positively correlated with leader emergence in small group discussions.

Although Manz (1992) asserts that all individuals have the ability to exercise self-leadership, there may be great variation in the extent to which individuals do so. Some individuals will be better candidates for self-leadership than others and may implement these faculties quite naturally in both their work and personal environments. It is these individuals that may exhibit the tendency to emerge as leaders in group situations.

Given that self-leadership shows promise as an individual difference characteristic that integrates personal qualities and the situation, the trait of self-leadership is included in this study.

Integration of the Variables

It was noted earlier that many researchers fail to justify the expected role of a trait or individual characteristic in their investigations of leadership. In order to conduct a theoretical investigation into whether a profile of individual characteristics exists that is related to emergent leadership, one must first account for the reasons why the specified characteristics have been included in the study. Thus, the next section examines the commonalities and linkages among the variables that will be explored in this study.

Traditionally, a leader is visualized as guiding his or her group members toward the achievement of group goals. Every group has certain needs that must be met in order to fulfill its tasks and goals. Congruent with this conceptualization of group needs, individuals will most likely be perceived as a group leader when they demonstrate the traits, affect, and behaviors that are most successful in addressing the specific needs of the group. Each of the variables that were examined in this study

may influence whether an individual will be perceived as an emergent leader. For instance, an intelligent individual will be more likely to use his or her cognitive capability to detect what is required for successful task performance by the group. Furthermore, an individual with greater intellectual ability will find it easier to understand and evaluate group problems and develop remedial solutions than those who possess less general cognitive ability.

Similarly, group needs may be more easily addressed by dominant individuals who have the confidence and assertiveness necessary to make suggestions. As noted earlier, intellectual ability may allow an individual to assess the problems correctly, but dominance is what enables her or him to speak out and offer up the solutions to the rest of the group members. Likewise, it takes a person with moderate to high self-esteem to feel that he or she is capable of addressing the group needs, and to feel that he or she is a competent and worthy participant. Individuals may have the cognitive ability to solve the group problem, but lowered self-confidence will influence the way the task is approached and will determine his or her evaluation of the probability of being able to perform it successfully. Essentially, group needs will not be met by intelligent individuals who do not express confidence in their solutions, are unable to express their opinions, and fail to influence other group members.

Self-monitoring and self-leadership are conceptualized as more comprehensive indicators of leadership. If we continue to visualize a leader as guiding his or her group to its goals, we can immediately see the reasons why a great degree of self-

monitoring and self-leadership ability should assist an individual in guiding the group to its goals. By its very definition, high self-monitoring ability enables the individual to discern social cues and to adapt his or her behavior through a variety of tactics to meet the group needs. Given the speculation that perceptions of a leader may vary depending on the demands of the situation, one may suggest that an individual who wishes to be perceived as a leader may find it advantageous to be skillful at behavioral flexibility. Kenny and Zaccaro (1983) proposed that one thing that these individuals have in common is the ability to perceive the needs of the group and what group members expect of a leader and to adapt their behaviors accordingly in response to the group's perceived expectations. Kent and Moss (1991) reported that high self-monitors are more likely than low self-monitors to perceive themselves as emerging leaders in hypothetical situations. Again, this indicates that high self-monitors recognize their ability to perceive the situation and act appropriately. It stands to reason that high self-monitors will have greater confidence in their ability to adapt to the group's needs and, similar to individuals with high self-esteem, will find it less difficult to "fill the shoes" of a leader by behaving in whatever manner appears appropriate for the situation.

Behaviors such as initiating conversation and talking more frequently during conversations are often associated with leadership. It is interesting to note that research has found that individuals with high self-monitoring, high dominance, and high self-esteem are often more likely to engage in those behaviors (Ickes & Barnes, 1977; Lord et al., 1984). It is reasonable to expect that other behaviors associated with leadership

will be exhibited by individuals who possess a great degree of those characteristics. Thus, if the behaviors fit the leader prototype held by an observer, subsequent ratings of leadership will be higher.

The last variable measured in this study, self-leadership, may determine whether the individual is self-directed to fulfill the needs of the group. Self-leaders have high inner standards for various behavioral and cognitive strategies. High self-leaders may find it effortless to transfer these high inner personal standards to a group situation by encouraging the group to set and meet their goals, to initiate interaction and offer opinions, to raise the efficacy level of the group, and to solve problems independently.

High self-leaders and high self-monitors often demonstrate similar behaviors when influencing group situations. For instance, high self-leaders and high self-monitors tend to motivate others by showing them that their efforts will be rewarded, by encouraging others to cooperate, by setting clear goals and emphasizing deadlines, by being supportive and putting others at ease, by listening to other's suggestions, and by allowing others to use their own judgment, where appropriate (Manz & Sims, 1989; Snyder, 1987). One may speculate that those characteristics that lead one to successfully direct his or her own effective thoughts, feelings, and behaviors will naturally transfer to a greater mastery in leading others to effective thoughts, feelings, and behavior.

Although these traits should consistently influence perceptions of leadership, the situations in which they are manifested may also be relevant. For instance, in group

situations which require leaders to show greater exhibited authority, confidence, and influence over decisions, the traits of dominance and self-esteem may be stronger predictors of emergent leadership. However, in group situations where the members need to cooperate and share information in order to successfully solve a group problem, the characteristics of intelligence and self-leadership may be stronger predictors of emergent leadership. Because self-monitoring is the ability to adapt across a variety of situations, its predictive ability should be relatively stable.

Traits and the Leader Prototype

This study will also investigate whether the degree to which an individual possesses the characteristics described above leads to behavior that will be perceived as prototypical of a leader. Rush, Phillips and Lord (1981) and Phillips and Lord (1981) have asserted that leader ratings are the joint effect of subjects' general impressions of the leader AND the subjects' beliefs about the leadership construct. In other words, these authors suggest that there is a relationship not only between traits, but also between perceived traits and the subordinates' prototypes of what a leader should be.

Lord, et al. (1984) investigated whether the construct of leadership itself is not so much of a single quality, or trait, as it is a category. The more an individual is perceived to have certain attributes matching the perceiver's "leader" prototype, the greater the likelihood that the individual will be perceived as a member of the category, "leader". Studies have demonstrated that group members base their evaluations of other members' leadership on their impressions of the other members' leadership-

relevant characteristics (Pavitt & Sackaroff, 1990). These impressions are in turn a function of the group members' implicit theories of leadership, or structure of beliefs about leader-relevant traits and behaviors.

A group member's leadership is evaluated by comparing the extent to which his or her judged leadership-relevant characteristics match those for relevant prototypes. As noted earlier, these prototypes may be dependent on the characteristics of the situation. It is possible that past experience with leaders, as well as situational and task demands, may lead to some variation in implicit leadership theories. In other words, the likelihood that a given set of behaviors will be associated with leadership is influenced by the context in which it took place (Foti et al., 1982). Therefore, it is necessary to manipulate the demands of the situation by changing task emphasis (e.g., cooperation versus competition) to elicit a variety of leader behaviors that match the needs of the group.

Summary and Hypotheses

As previously discussed, there exists a great deal of debate over the importance of internal attributes in leadership research. While many researchers show skepticism toward personality research in leadership issues, Lord et al. (1986) contended that "Personality traits are associated with leadership perceptions to a higher degree and more consistently than popular literature indicates" (p.407). The present author also subscribes to this premise and investigates the constructs of self-monitoring and self-leadership in addition to several traditional prototypical traits of leaders.

Accordingly, it is hypothesized that emergent leaders will significantly differ from nonleaders on the following traits. Specifically, this study hypothesizes that:

1: Intelligence will be positively associated with group members' perceptions of prototypical leadership and leader emergence across tasks.

1(a): Intelligence will be positively associated with behavioral measures of leader emergence across tasks.

2: Social dominance will be positively associated with group members' perceptions of prototypical leadership and leader emergence across tasks.

2(a): Social dominance will be positively associated with behavioral measures of leader emergence across tasks.

3: Self-esteem will be positively associated with group members' perceptions of prototypical leadership and leader emergence across tasks.

3(a): Self-esteem will be positively associated with behavioral measures of leader emergence across tasks.

4: Self-monitoring will be positively associated with group members' perceptions of prototypical leadership and leader emergence across tasks.

4(a): Self-monitoring will be positively associated with behavioral measures of leader emergence across tasks.

5: Self-leadership will be positively associated with group members' perceptions of prototypical leadership and leader emergence across tasks.

5(a): Self-leadership will be positively associated with behavioral measures of leader emergence across tasks.

The purpose of the study is to identify multiple characteristics that predict leadership perceptions rather than explore many single-trait relationships; therefore, the following hypothesis is offered:

6. The combined set of independent variables, self-monitoring, self-leadership, intelligence, prosocial dominance, and self-esteem, will predict prototypicality ratings and perceptions of leadership by group members and behavioral measures of leadership by trained observers.

As noted earlier, the situations in which various leader behaviors may be manifested may be important to overall leader impressions. For instance, task conditions may vary such that certain exhibited characteristics by a leader may be perceived as more appropriate in specific situations. However, because self-monitoring is the ability to adapt across a variety of situations, its predictive ability should be relatively stable. Therefore, I hypothesize that:

7. Given the nature of the tasks, dominance and self-esteem will have stronger correlations with leader emergence in the consensus and influence task, and intelligence and self-leadership will have stronger correlations with leader emergence in the cooperative information-sharing task. Self-monitoring will be equally predictive of leader emergence in both tasks.

Given that the stability of leadership is well-documented through previous research testing cross-situational stability in rotational designs (Kenny & Zaccaro, 1983; Rueb & Foti, 1990; Walsh, 1992; Zaccaro, et al., 1991), it is hypothesized that:

8: Perceptions of leadership emergence in the first task will be positively associated with perceptions of leadership emergence in the second task.

It was noted earlier that very few studies have included direct measurement of leadership behavior or influence, even though individuals perceive leadership through observed behavior. This study recognizes the need for both objective and subjective measures of leadership by offering the following two hypotheses:

9: Perceptual measures of leader emergence by group members will be positively associated with coded leader behaviors and assigned rank by trained observers across tasks.

10: Prototypical leader attributes will be positively associated with objective and subjective perceptions of leader emergence across tasks.

Method

Participants

Participants in Phase I were 196 students enrolled in undergraduate-level psychology courses at a large southeastern university. Participants were recruited from undergraduate-level courses in the behavioral sciences, and received course credit for their participation as well as had their names entered into a lottery drawing for a monetary reward. All participants read and signed an informed consent form prior to participation in the study (see Appendix B). Of the 196 students who participated in Phase I, 191 returned to participate in the focal part of the study. One hundred eighty-eight participants formed 47 groups (23 female, 22 male, 2 mixed-sex) of four members each, and the last rotation included one group of three women who completed the tasks. Data from mixed-sex groups and the group that was short one person were discarded, resulting in usable data from a total of 173 (89 women, 84 men) participants.

Procedure

Phase I. Ninety-four men and 102 women were administered the Wonderlic Personnel Test, the revised Self-Monitoring Scale (Lennox & Wolfe, 1984), the Self-Leadership Questionnaire (SLQ; Cox, 1994), the California Psychological Inventory (CPI) Dominance Scale (Gough, 1964), and the self-esteem scale from the Organizational Climate Questionnaire (OCQ; Jones & James, 1979) in two mass testing

sessions. All participants were then invited back to participate in the second session in smaller groups.

Phase II. Participants returned to complete Phase II of the study within one to three weeks following Phase I. Self-monitoring responses from Phase I were divided into high, moderate, and low self-monitoring scores for men and women. Individuals who scored in the top 25% (score of 62+ for both men and women) of the scale were classified as high self-monitors, individuals who scored in the middle 50% (scored 51-62 for men and 54-61 for women) were classified as moderate self-monitors, and individuals who scored in the bottom 25% (scored less than 50 for men and less than 53 for women) were classified as low self-monitors. In the second phase, participants were assigned to one of four 4-person groups where they participated in two leaderless group exercises, and then completed questionnaires on group member characteristics. Group membership was established such that each group consisted of one high, two moderate, and one low self-monitor.

Group exercises consisted of problem-solving exercises presented in the leaderless group discussion format. Each of these exercises required different behaviors for an individual to be perceived as a leader. Each 4-person group worked together in one of the leaderless group exercises, and had the instructions read to them verbatim by a research assistant. Protocol instructions were provided to research assistants so that each task period was standardized. All group discussions were conducted in small conference rooms, in a semi-circular array around a circular table, with seating

positions assigned alphabetically. Each discussion was videotaped by a camera mounted approximately 10 feet in front of the participants. Time allotted varied depending on the exercise being performed, typically ranging from approximately 30 minutes to 1 hour for completion of each of the group exercise.

When the first exercise was concluded, group members completed a questionnaire rating each group member (including themselves) on a set of attributes found to be indicative of the "leader" prototype held by undergraduate students in a previous study (Roberts & Foti, 1995b). Participants were also asked to rate the leadership abilities of each person in the group using the General Leadership Impression (GLI) questionnaire. Participants were then asked to rank each group member (including themselves) in order of leader preference if the group was asked to meet a second time to work on similar problems. Several studies have found effects for group performance cues (group success or failure) on ratings of leaders (Larson, Lingle, & Scerbo, 1984; Rush, Thomas, and Lord, 1977; Rush et al., 1981); therefore, groups were not given feedback on how they performed until after they rated all group members. Following completion of the questionnaire and feedback on group performance, participants were rotated to a new group to participate in the second group exercise and to again record measures of group member leadership. Rotations were structured such that no individual group member worked with the same group members on the second task (see Appendix C for rotation design). Before leaving, they completed a questionnaire as a

manipulation check to determine their individual prototypes for an ideal leader and their overall impressions of the study.

As noted earlier, all group interactions were videotaped and audio recorded. Trained raters, who were blind to the participant's scores on the independent variables and to the ratings given by fellow group members, observed and coded the videotaped behaviors of all group members as an additional measure of leadership behavior. Trained raters then assigned rankings to each of the group members according to their exhibited leadership.

Leaderless Group Discussions

Undergraduate research assistants who acted as group exercise administrators engaged in approximately nine hours of training and role play to familiarize themselves with all aspects of the leaderless group tasks and group task administration.

Persuasion and Consensus Exercise (Admissions Committee Decision).

Group exercise administrators read the protocol and instructions for the first exercise verbatim to each group to maintain administrative consistency across groups (see Appendix D).

The first of these exercises involved solving a problem for which there was no clear right or wrong answer. The group was given instructions informing them that they were members of an admissions committee for Southern Business School. Participants were instructed to read the fact sheet and each applicant profile and to rank order the eight applicants on the work sheet according to their potential for good

academic performance in a program of graduate business study. Individuals had 30 minutes to complete this part of the exercise. Individuals then listened to a short lecture on consensus building and were instructed that the task of their group was to reach a group consensus regarding the rank order of eight applicant profiles to be recorded as the Admissions Committee Final Decision. Groups had an additional 30 minutes to come to a consensus and submit their recommendation. Thus, competition, persuasion, and influence tactics entered into this problem.

Cooperation and Information Sharing Exercise (Unscramble the Bank Accounts)

Group exercise administrators again read the protocol and instructions to each group verbatim to maintain administrative consistency across groups (see Appendix E).

The group first listened to a short lecture on problem-solving and sharing information. Following the lecture, the group was given instructions that their task was to unscramble individual bank accounts by matching the name of each person with the appropriate bank, account number, account balance and occupation. The group was given a set of data cards containing individual pieces of information that were necessary for the group to solve the problem. The cards were distributed evenly among the four members of the group. After participants studied their data cards and read the fact sheet, they were informed that during the activity they were allowed to discuss the information on the cards that were assigned to them, but were not allowed to pass the cards around for others to see. The administrator then explained the scoring system, and instructed participants to raise their hands when they arrived at a solution. The

administrator also told the group that they were in competition with the other groups and that the first subgroup to successfully unscramble the accounts and submit the correct solution was the "winning group". Completion of the problem-solving portion of this task varied among the groups, ranging from approximately 12 minutes to 30 minutes. Unlike the first task, the second problem had one correct solution, and required cooperation, information sharing, and effective use of group resources.

Predictor Variables.

Intelligence (INTEL). The Wonderlic Personnel Test was used to measure intelligence. The Wonderlic is a timed 12-minute test consisting of 50 items that measure general learning ability in verbal, spatial, and numerical reasoning. The Wonderlic is scored by summing the number of correct answers given by the participant in 12 minutes. Test items include analogies, analysis of geometric figures, arithmetic problems, logic, disarranged sentences, sentence parallelism with proverbs, similarities, definitions, judgment, direction following, and others. It has been extensively utilized in business settings and for vocational guidance (see Appendix F for Wonderlic items).

The Wonderlic norms are extensive; specifically, the 1983 norms are based on over 126,000 individuals. The reliability of the Wonderlic is well documented. Test-retest reliabilities range from .82 to .94, even after a period of some years. Alternate form reliabilities range from .73 to .95. The validity of the Wonderlic as a predictor of job success is well-researched and documented, especially by Hunter (1989). It also

correlates well with the usual measures of intellectual ability. One study by the U.S. Office of Personnel Management (Guion, 1965) reported a correlation between the Wonderlic and the Multi-Aptitude Scale of .87 and .86 in two samples of vocational trainees and similar results have been reported elsewhere.

Social Dominance (DOM). Social dominance was measured with the 46-item dominance scale of the California Personality Inventory (CPI). The CPI dominance scale is a measure of prosocial assertiveness and is not a measure of the need to dominate or to control others, or to engage in authoritarian behavior. Specifically, this inventory was designed for normal (non-psychiatrically disturbed) participants. As pointed out by House and Baetz (1979), the CPI dominance scale measures prosocial assertiveness and ascendance in social settings and not bossy, pushy, or domineering behavior. The label "dominance" has a negative connotation of socially undesirable, domineering, and controlling behavior in layman terms; however, the CPI scale is almost entirely free of such connotations, and therefore, this trait was conceptualized as "social dominance".

The purpose of the scale is to predict what an individual will do in a specified context, and/or to identify individuals who will be described in a certain way. The dominance scale of the CPI assesses factors of leadership ability, influence, persistence, and social initiative. Individuals who score high on the CPI Dominance scale tend to take initiative in social settings, to introduce people to each other, and to be socially

engaging by being humorous, introducing topics of discussion, and stimulating social interaction (House & Howell, 1992).

The test is a self-administered paper-and-pencil test with no time requirement. Although it only requires a fourth grade reading level, it is most appropriate for high school, college, and young adults. Answers are scored as either 1 (true) or 2 (false). The CPI has a scoring key which determines whether an answer of 1 is a “hit” or “miss” for Dominance. A greater number of “hits” indicates a higher score for Dominance. A sample item from the Dominance scale is, "I like to give orders and get things moving" (See Appendix G for CPI-DOM items).

The scale has a long-term (1 year) test-retest reliability of .72 for high school females, and .64 for high school males (Megargee, 1972). Short-term (1-4 weeks) test-retest reliabilities coefficients are higher, ranging from .80 for prison males to .89 for freshmen women. Internal consistency coefficients range from .70 for high school boys to .80 for freshmen women. The Dominance scale is one of the better-validated CPI scales. Several studies have tested its concurrent validity and it is also one of the few personality scales for which predictive validity has been established. In a variety of cross-validation studies, the dominance scale had a validity coefficient of at least .40 with staff ratings for medical school applicants and military officers.

Self-Esteem (SE). The self-esteem measure was an 11-item measure taken from the Organizational Climate Questionnaire (OCQ; Jones & James, 1979). This scale is typically scored on a 5-point Likert-type response format but was adjusted for this

study to maintain consistency with the remaining measures, resulting in anchors of 1 (certainly always false) to 6 (certainly always true). The sum of the responses comprised an individual's score, with a higher score indicating higher levels of reported self-esteem.

This scale has a reported alpha reliability of .74 from the authors (Jones & James, 1979) and includes self-esteem and self-confidence measures adopted from previously used scales (Dieterly & Schneider, 1974; Hunt, Singer, & Cobb, 1967; James, Hater, & Jones, 1981; Levenson, 1974; Rosenberg, 1965). A more recent study by Gustafson and Ritzer (in press) reported reliability coefficients of .90 and .91 for two student samples, respectively. This measure was also selected over other traditional measures of self-esteem (e.g., Rosenberg Self-Esteem Inventory) because it displays a greater degree of variance in individual scores within a sample. A sample item from the scale is "I take a positive attitude towards myself." (See Appendix H for SE items).

Self-Monitoring Scale (SM). Self-monitoring was measured with the Lennox and Wolfe (1984) revised 13-item self-monitoring scale. Lennox and Wolfe (1984) reconceptualized Snyder's (1979) construct of self-monitoring more narrowly by measuring only sensitivity to the expressive behavior of others (6 items) and ability to modify self-presentation (7 items). This resulted in the development of a scale that was much more consistent with Snyder's original conception, as articulated in his 1974 article. The anchors on this 6-point scale range from 1 (certainly always false) to 6 (certainly always true). Lennox and Wolfe (1984) recommended the 6-point response

format because it produced relatively stable correlation matrices throughout their studies. The sum of the responses comprised an individual's score, with a higher score indicating higher levels of reported self-monitoring. A sample item is, "Once I know what the situation calls for, it's easy for me to regulate my actions accordingly" (See Appendix I for SM items).

The authors report coefficient alphas of .77 for the seven items measuring ability to modify self-presentation, .70 for the six items measuring sensitivity to expressive behavior of others, and .75 for the total scale. Rueb (1988) conducted factor analyses of both the Snyder and Gangestad (1986) and the Lennox and Wolfe (1984) scales. He reported that the Lennox and Wolfe scale was significantly related with the Snyder and Gangestad scale, $r = .91$, $p < .05$, but resulted in a higher internal reliability, .83, than the Snyder and Gangestad scale, .66. He also reported that the Lennox and Wolfe scale was the better of the two scales to use because it more closely matched the proposed factor structure of the self-monitoring model, while maintaining higher internal reliability. Therefore, the Lennox and Wolfe revised Self-Monitoring Scale was employed in this study.

Self-Leadership (SL). Self-leadership was measured with the Self-Leadership Questionnaire (SLQ; Cox, 1994). Based on the conceptual work of Manz and Sims (1987), the SLQ was developed by Cox and Sims and is a modified version of the Self-Leadership Behavior Items. Answers are scored on a 5-point scale ranging from 1 (is definitely not true of me) to 5 (is definitely true of me). This study used a 6-point

scale to maintain consistency with the revised Self-Monitoring Scale. The sum of the responses comprised an individual's score, with a higher score indicating higher levels of reported self-leadership. A sample item of a behaviorally-focused strategy statement is, "I like to work towards specific goals I set for myself" (See Appendix J for SLQ items). Items specifically directed to employee responses were slightly altered to be applicable to a student sample.

Preliminary factor analysis indicates that the items from this instrument have a respectable loading (a low of .36 to a high of .94) on a nine-factor solution encompassing problem-solving, initiative, self-observation/evaluation, self-goal setting, self-reward, opportunity thought, efficacy expectations, natural rewards, and teamwork (J. F. Cox, personal communication, September 9, 1992). Two modifications of the instrument were deemed necessary for the current study and require explanation here: first, although Cox and Sims included a ninth factor, teamwork, in their research, this was eliminated in the current study because the items were not logically related to the characteristics of the current study's student sample; and second, although Cox and Sims were forced to revise the original 11-factor questionnaire to shorten its length by removing the items relating to the two additional factors of self-cue management and rehearsal, I elected to leave the two additional factors intact and included items from the original questionnaire that comprised ten factors. Roberts and Foti (1995a) and Roberts and Foti (1995b) found that these ten factors produced an internal reliability

coefficient of .91 for non-exempt employees in a large manufacturing organization, and .92 for samples of student leaders and nonleaders.

Outcome Variables.

Group Member Evaluations

Prototypical Leader Traits (PROTO). Measures of leader prototypicality were obtained by having each group member rate themselves and all other group members on 12 core leadership attributes identified in the Roberts and Foti (1995) study on leader prototypicality. The prototypical traits are as follows: confident, decisive, intelligent, listens well, open-minded, communicates well, honest, friendly, creative, responsible, organized, and caring (see Appendix K). Past studies have found that students rate these traits as being prototypical of a leader figure (Lord et al., 1984; Offermann et al., 1994; Roberts & Foti, 1995b).

Participants were also asked to rate themselves and other group members on four neutral traits and four antiprototypical traits. The neutral traits, as established by previous studies (Lord, et al., 1984; Roberts & Foti, 1995b) on prototypicality include: flexible, dominant, tactful, and happy. Antiprototypical traits (Lord, et al., 1984; Roberts & Foti, 1995b) include: critical of others, manipulative, unemotional, and reserved. Group members were asked to rate all members on the degree to which they appear to possess the above-mentioned personality traits using a 5-point Likert-type scale ranging from 1 (to a very little extent) to 5 (to a very great extent).

General Leadership Impression (GLI). The first perceptual measure of

leadership was assessed using the GLI (Cronshaw & Lord, 1987). This is a five-item questionnaire directing each member of the group to rate every other member of the group on leadership ability. The scale uses a 5-point scale with anchors ranging from 1 (nothing) to 5 (extreme amount). A sample item asks, "How much did this person contribute to the effectiveness of the group?" (See Appendix L for GLI items). Previous research has shown this scale to have high internal consistency (Cronbach's alpha = .88). This measure has also been found to be strongly related to objective measures of leadership behavior and other measures of leadership perceptions (Lord, 1977). Five items related to teamwork, group process, and conflict management were also added to avoid leadership priming.

Rankings (P-RANK). The second perceptual measure of leadership was assessed by asking group members the following question, "If you were asked to meet a second time with this same group to work on a similar task, please rank in order, your preference for a group leader. Indicate your choice by putting the number assigned to each group member in the space provided. Please include yourself in the ranking." Participants then ranked 1 to their top choice, 2 to their second choice, 3 to their third choice, and 4 to their last choice.

Behavioral Observation by Trained Raters.

The third measure of leadership was examined by having trained raters observe the small group interactions, code the number of exhibited leadership behaviors, and judge who emerged as the leader of the group. Observers independently observed and coded

the videotaped behaviors of each group member during their group interactions on various functions that make up the dimension of leadership. Byham (1986, cited in Gatewood, Thornton, and Hennessey, 1990) observed that assessments of videotaped interactions are not uncommon. Trained raters coded five leadership dimensions by observing specific behaviors and assigning a tally mark for each observed behavior under the appropriate dimension. The five dimensions included: (1) Clarifying the situation; (2) Developing ideas; (3) Influencing action; (4) Acknowledging ideas, and (5) Facilitating¹. Based on an evaluation of the ratings of all five dimensions, observers recorded an overall assessment rating for each group member. The same type of rating procedure was reported by Gatewood et al. (1990) and Russell (1987). Trained observers then ranked each group member from 1 (most "leader-like") to 4 (least "leader-like") according to their overall impressions of leadership.

A number of steps were taken to ensure that the exercise design manipulations were not confounded with the observer. First, all observers verified with the experimenter that they were not the group exercise administrator of the rotations they were rating. Second, all observers verified with the experimenter that they had never interacted personally or professionally with any of the individuals they were rating. Third, all observers only observed and rated a particular participant once, thus eliminating the possibility of carryover effects. Finally, the potential for cognitive overload for observers was reduced by limiting the number of leadership dimensions to five.

Observational Training. Eleven undergraduate research assistants served as observers, and the primary researcher served as the check for interobserver agreement. In addition to the nine hours of leaderless group discussion administration training conducted prior to Phase II of the experiment, observers were trained for approximately 13 more hours in leaderless group discussion observation and evaluation. Components of the training program for research assistants included reading, classroom instruction, practice with the two tasks, discussion, coding of transcribed exercises, observation of practice videotapes, and individual coding of practice videotapes.

The first hour of observer training was devoted to familiarizing the assessors with the purpose and administration of leaderless group discussions. Lecture and discussion covered the development and rationale behind each of the exercises and the function of a leaderless group discussion as a means of eliciting observable behavior. The next two hours were devoted to training on the specific leadership dimensions that were used in the two leaderless group discussion problems. Assessors were furnished with dimension definitions and several behavioral examples. In addition, a behavior-rating exercise was conducted differentiating between judgment evaluations and behavioral observations. Rater training primarily attempted to improve observation process through an emphasis on observing carefully, watching for specific behaviors, using behavior checklists, and an introduction to systematic errors of observation (Thornton & Zorich, 1980). Approximately four hours of training involved the coding and discussion of transcribed exercises from the study tapes. The remaining four hours

consisted of coding hypothetical behavioral examples and practicing observation and coding skills on videotaped group interactions that were not part of the focal study. Observers were considered to be adequately trained when they obtained three consecutive interobserver agreement scores of 90% or better.

Interobserver Agreement. Each observer was subject to at least one check for interobserver agreement conducted by the primary researcher while the observer was coding the tapes that comprised the focal study. In testing for agreement, the primary researcher and a research assistant simultaneously observed a videotaped group exercise and independently recorded by use of tally marks the behaviors of two group members for 15 minutes. The two observers compared their dimensional totals to determine agreement on the categorization. Interobserver agreement was calculated as a percentage agreement score. Interobserver agreement coefficients ranged from .75 to 1.00 with an average of .90 across all 11 raters.

Behavioral Observation (BEHAV). Appendix M describes each of the leadership dimensions and Appendix N lists the behaviors that were coded on the checksheet by trained observers. Each occurrence of a leadership behavior was recorded by a tally mark under the appropriate dimension. Behaviors were summed to give dimensional totals and one grand total across tasks.

Behavioral Rank (B-RANK). Following the observation and recording of videotaped interactions, raters assigned an overall rank to each participant within the

group, with a 1 being given to the participant who emerged most "leader-like", and a 4 given to the individual who appeared to be the least "leader-like".

RESULTS

Descriptive Statistics

Table 1 shows the unadjusted means and standard deviations of the predictor scores in this study by gender subgroup. The only predictor that showed significant differences between men and women was Intelligence. This is consistent with the literature that indicates men generally perform higher than women on tests of cognitive ability (Hartigan & Wigdor, 1989; Jensen, 1980; Linn, 1982; National Academy of Sciences, 1982; Roberts & Skinner, 1995; Rothstein & McDaniel, 1991; Siem & Sawin, 1990). Scores on the Wonderlic ranged from 12 to 40, with an average score for this sample that was approximately three to four points higher than means reported for normative samples.

Insert Table 1 about here

Table 2 shows the unadjusted means and standard deviations for the perceptual and behavioral criterion variables for Task 1 and Task 2 for gender subgroups.²

Insert Table 2 about here

Prototypical Leadership (PROTO) scores were computed by assigning values to each prototypical response using a 5-point Likert-type scale. A value of 1 was assigned to

the response "This person possesses this characteristic to a very little extent" and a value of 5 was assigned to the response "This person possesses this characteristic to a very great extent", yielding composite scores from each rater ranging from 12 to 60 points. The sum of the composite ratings assigned by all group members yielded a participant's overall PROTO score, ranging from 48 to 240 points for each task, and 96 to 480 points overall. PROTO scores were higher for both men and women in Task 2. In addition, women had significantly higher ratings of PROTO than men across both tasks. However, this study did not investigate whether the higher average ratings obtained by women were a function of the raters or the ratees. Put more simply, it is impossible to determine whether higher ratings were the result of women appearing more "leader-like" or whether the women were simply more generous raters.

Scores from the General Leadership Impression (GLI) scale were computed by assigning a value of 1 to the response "Nothing" and a value of 5 to the response "Extreme Amount". As in Cronshaw and Lord (1987), these five items were summed to yield a composite score ranging from 5 to 25 points. The sum of the composite ratings assigned by other group members yielded a participant's overall GLI score, ranging from 15 to 75 for each task, and 30 to 150 overall. Although men and women did not significantly differ in their perceptual ratings of GLI, both men and women had significantly higher perceptual ratings of GLI in Task 2.

Each participant's rank (P-RANK) for each task was the sum of the ranks assigned by other group members in that task, ranging from 3 (high leadership) to 12 (low

leadership). An individual's overall P-RANK was calculated by summing the ranks given them by all group members across both tasks, ranging from 6 (high leadership) to 24 (low leadership). Although the summation of ordinal data is a radical procedure for most studies, it was thought to be appropriate for this study to prevent losing potentially important information about an individual's rank by the other group members with the use of proportions.

Individual behaviors were summed for each leader dimension and leader dimension subscores were summed to yield a behavior score for each task. Groups spent more time on Task 1 than Task 2, resulting in a greater number of observed leader behaviors in Task 1 (see Table 3). Table 3 shows that most behaviors in the influence and persuasion task (Task 1) were coded under Dimension 2 (Developing Ideas) and Dimension 3 (Influencing Action), whereas most of the behaviors in the cooperation and information sharing task (Task 2) were coded under Dimension 1 (Clarifying the Situation) and Dimension 2 (Developing Ideas). In a comparison of dimensions, the only significant correlation holding time constant ($r = .20$, $p < .05$) that emerged between dimensions in Task 1 and Task 2 was for Dimension 1 (Clarifying the Situation). This provides further evidence for the distinctive nature of the two tasks.

Insert Table 3 about here

Analyses were conducted using the summed behavior (BEHAV) scores across both tasks. Each participant's B-RANK was the rank assigned by the observer, ranging from 1 (high leadership) to 4 (low leadership) for each task. As mentioned earlier in Footnote 2, a smaller N size was used for behavioral measures because of equipment malfunction. Thus, differences in mean P-RANK and B-RANK were the result of discarding data from mixed-sex groups, three-person groups, and groups in the room when the equipment malfunctioned.

As done in previous research, adjusted scores were calculated for predictor and criterion scores for all subsequent analyses. The adjusted scores were computed by averaging the individual unadjusted scores by rotation and subtracting the unadjusted rotation average from each individual score. This resulted in a difference score for each individual for all predictor and criterion variables. This technique was used because it adjusts for any differences in the averages between rotations and for individual averages between tasks within a rotation. In other words, it corrects for leniency and severity errors among raters within a rotation and between rotations. Table 4 presents individual difference scores for each group member in a rotation and the rotation means and standard deviations for each variable.

Insert Table 4 about here

Table 5 presents the full correlation matrix for all predictor and criterion variables for each task separately, as well as across tasks. Coefficient alphas for the scales are presented on the diagonal. Coefficient alpha is an estimate of internal consistency based upon the analysis of the variance-covariance structure of item responses (Crocker & Algina, 1985). All predictor scale reliabilities except DOM exceeded .80; however, the reliability for DOM in this study, $\alpha = .76$, was in the high end of the authors' reported range. All criterion scale reliabilities exceeded .90. The coefficient alphas indicate good internal consistency for the scales used in this study.

Insert Table 5 about here

Modest intercorrelations among the predictors is evident in Table 5. Although relationships among the variables were expected and discussed in the introduction, they were somewhat higher than anticipated (-.02 to .52). However, the level at which intercorrelations become significant is dependent upon sample size, and thus, the intercorrelations were not of major concern in this study (W. M. Pirie, personal communication, April 10, 1995). In addition, method variance is an artifact of measurement that may bias relations between variables when constructs are measured by the same method. Given that DOM, SE, SM, and SL were self-report measures completed at the same time, one might argue that method variance contributed to the inflated correlations among those predictors. However, as an additional check to

determine if multicollinearity was a problem for the present study, the variance inflation factor (VIF) was assessed. VIF measures the interrelationships among the independent variables in the model. The VIF will become large if one variable is highly related to another and affects the estimate of the relationship with the dependent variable. If all variables were orthogonal to one another the VIF would be one. VIFs which are greater than 10 are considered to have multicollinearity, VIFs less than 6 are considered free from multicollinearity, and VIFs between 6 and 10 are considered suspect and should be examined with caution (Montgomery & Peck, 1982). The VIFs in the current study range from 1.1 (INTEL) to 1.7 (SL), suggesting that multicollinearity is not a problem in this particular study.

Nevertheless, given that SL had the highest correlations with the other predictors, I investigated what the pattern of relationships between the predictors and criterion would be after partialing out the effects of SL. Table 6 shows that controlling for SL decreased the magnitude of the intercorrelations among most of the predictors, but did not affect the overall pattern of relationships between the predictors and the criterion. In other words, the predictors that were related to the criterion scores before controlling for SL continued to be related to the criterion at the same level of significance after controlling for SL, and predictors that were not related to perceptions of leadership remained nonsignificant; thus, partialing out SL did not affect the degree of the relationship between the predictors and criterion in this particular study. Consequently, SL continued to be investigated in subsequent analyses in addition to the

other predictors. However, given that SL did not contribute additional unique variance to the criteria, it may be parsimonious to discard SL for future studies.

Insert Table 6 about here

A Pearson correlation was conducted between the GLI score and the P-RANK. The resulting correlation, $r = -.80$ was significant, $p < .001$. This suggests that the two perceptual measures are tapping the same leadership emergence construct, as the shared variance was 64 percent. Another Pearson correlation was conducted between the BEHAV total and the B-RANK. The resulting correlation, $r = -.75$ controlling for time was also significant, $p < .001$, suggesting that the behavioral observation and ranking by trained observers again tapped the same leadership emergence construct, as the shared variance was 56 percent. Further discussion of the relationship among perceptual and behavioral criterion will be discussed in a later examination of Hypothesis 9.

Manipulation Check

This study was based on the assumption that 12 attributes that were considered “prototypical leadership” would capture leader emergence in addition to group members’ ratings and rankings of leadership. As noted earlier, these 12 “core” attributes had been identified in previous studies by student leaders, student nonleaders, and working adults (Lord, et al., 1984; Offermann et al., 1994; Roberts & Foti,

1995b). In order to test whether this prototype of leadership matched the leader prototype of participants in this study, participants were asked to think about their impressions of a leader. They were then given 5 minutes to list the characteristics that matched their image of a leader. In order of descending frequency, the following attributes were listed: intelligent, open-minded, organized, honest, confident, responsible, decisive, friendly, caring, creative, listens to others, and communicates well. Given the consistency in reported prototypes, it is apparent that there is a shared implicit leadership theory among laypersons in the United States (cf. Gerstner & Day, 1994, for cross-cultural comparisons of leader prototypes). Thus, I felt confident in the attributes designated to be prototypical and felt I was justified in moving forward with hypothesis testing.

Tests of the Hypotheses

Correlational analyses using adjusted predictor and criterion scores were performed to test Hypotheses 1-5 and 1(a)-5(a). Table 7 displays the results for Hypotheses 1-5 by presenting excerpted correlation matrices for each of the predictors with group members' perceptions of leader emergence, and Table 8 displays the results for Hypotheses 1(a)-5(a) by presenting excerpted correlation matrices for each of the predictors with behavioral measures of leader emergence by trained observers.

Insert Tables 7 and 8 about here

Hypotheses 1, 1(a), 2 and 2(a) tested whether two variables that have been found consistently to predict leader emergence in previous studies were related to perceptual and behavioral measures of leader emergence in this study. Hypothesis 1 predicted that INTEL would be positively related to group members' perceptions of leader emergence across tasks. The resulting correlation between the INTEL scale and PROTO, GLI, and P-RANK were $r = .18$, $r = .31$, and $r = -.28$, respectively. All correlations were statistically significant, resulting in support for Hypothesis 1. Similar results were found for Hypothesis 1(a) which tested whether INTEL was related to behavioral measures of leader emergence. Correlations of .22 for BEHAV and -.21 for B-RANK were again statistically significant, resulting in support for Hypothesis 1(a).

Hypothesis 2 predicted that DOM would be positively related to group members' perceptions of leader emergence across tasks. The resulting correlations between the DOM scale and PROTO, GLI, and P-RANK were higher with $r = .33$, $r = .38$, and $r = -.32$, respectively. Thus, Hypothesis 2 received support. The correlations tested by Hypothesis 2(a) were $r = .35$ for BEHAV and $r = -.38$ for B-RANK, again supporting Hypothesis 2(a).

Hypotheses 3-5 and 3(a)-5(a) tested predictor variables which are not frequently found in the literature, and have received mixed support in previous studies of leadership. Although individuals with higher SE were rated higher on prototypical leader attributes in this study ($p < .05$), correlations between SE and leader perceptions as measured by GLI and P-RANK were not significant. However, it is

evident from Table 5 that a more detailed breakdown of correlations by Task 1 and Task 2 reveal SE to be significantly correlated with P-RANK in Task 1 although it “washed out” across the two tasks. Hypothesis 3 received only marginal support. Self-esteem did not predict BEHAV or B-RANK by trained observers; therefore, Hypothesis 3(a) received no support.

No significant correlations resulted between self-monitoring and any criterion variables. Thus, neither Hypothesis 4 nor Hypothesis 4(a) received support. Given the absence of support for a relationship between self-monitoring and leader emergence, post-hoc analyses were performed using a t -test to see if there were differences in criterion means for two samples representing the extremes of self-monitoring.

Individuals who scored one SD above the mean SM score composed the first group, $n = 22$. Individuals who scored one SD below the mean SM score composed the second group, $n = 19$. As Table 9 indicates, results were perplexing - not only were there no significant mean differences, both extreme high self-monitors and extreme low self-monitors were rated lower than the total mean by group members on all perceptual measures of leadership. Table 9 also shows the results of t -tests using the behavioral criterion variables. Again, mean differences were not significant; however, the means were in the hypothesized direction for BEHAV and B-RANK.

Insert Table 9 about here

Hypothesis 5 predicted that SL would be positively related to group members' perceptions of leader emergence across tasks. The observed correlations of .11, .02, and -.02 were small and nonsignificant. Hypothesis 5 received no support. Surprisingly, Hypothesis 5(a) did receive moderate support because of the significant correlation, $r = -.18$, between SL and B-RANK.

As noted earlier, the bulk of previous research has involved simple correlational analyses that attempt to find the traits that have the largest correlations with behavior. Indeed, I began this way as well in my test of the previous five hypotheses. However, multiple regression analyses provide an opportunity to look at how a composite of traits or personal attributes predict leadership, and allow for the interpretation of the unique variance accounted for by a particular trait. To test Hypothesis 6, this study used multiple regression to determine whether the combined set of independent variables (INTEL, DOM, SE, SM, and SL) was predictive of leadership ratings by group members and independent raters. To test whether the variables were predictive of ratings and rankings by group members, the perceptual criterion variables (PROTO, GLI, and P-RANK) were each regressed onto INTEL, DOM, SE, SM, and SL (See Table 10). This five variable regression equation predicted PROTO ($F = 5.19$, $p < .001$), GLI ($F = 9.02$, $p < .001$), and P-RANK ($F = 6.47$, $p < .001$). R^2 for the full model for PROTO, GLI, and P-RANK were .13, .21, and .16, respectively. However, closer inspection of the beta weights in Table 10 revealed that only INTEL and DOM accounted for unique variance.

Insert Table 10 about here

The second part of Hypothesis 6 was tested by regressing BEHAV and B-RANK onto INTEL, DOM, SE, SM, and SL with time as a covariate (See Table 11). Because the groups varied in the amount of time spent completing the tasks, this study recognized that the number of behaviors observed and coded may be dependent on the amount of time group members were observed in group interactions. To control for time effects, TIME (recorded in whole minutes) was first entered into the equation. Time was significantly related to recorded BEHAV ($R^2 = .09$, $p < .001$). The five predictors were added to the equation in Step 2, resulting in a significant change in R^2 of .14 ($p < .001$). Thus, the full equation predicted BEHAV ($F = 7.27$, $p < .001$) and B-RANK ($F = 4.96$, $p < .001$). DOM accounted for all variance in the criteria across tasks. However, a breakdown of tasks revealed that INTEL and SL accounted for unique variance in observer rankings for Task 2 but not Task 1, thus obscuring any significant effect across tasks. In summary, Hypothesis 6 was supported, but it must be qualified by the fact that DOM and INTEL were the only predictors consistently influential in the regression equations.

Insert Table 11 about here

Having alluded to the unique variance captured by INTEL and SL in Task 2 in the previous hypothesis, the next hypothesis tested the effects of specific predictors with leader emergence for each task. Hypothesis 7 predicted that dominance and self-esteem would have stronger correlations with leader emergence in the consensus and influence task, and intelligence and self-leadership would have stronger correlations with leader emergence in the cooperation task. A quick survey of the bivariate correlations in Table 5 shows that this was the case for DOM, INT, and SE, but not SL. Table 12 shows the correlations and R^2 of the sum of DOM and SE (DOM+SE) with leader emergence in Tasks 1 and 2 and the sum of INT and SL (INT+SL) with leader emergence in Tasks 1 and 2. As evident in Table 12, DOM+SE had a stronger relationship with leader emergence in Task 1. However, INT+SL did not result in a stronger relationship with leader emergence in Task 2, possibly stemming from the negative correlation between the two predictor variables. As noted earlier, SM did not predict any criterion variables. Thus, Hypothesis 7 was only partially supported.

Insert Table 12 about here

Hypothesis 8 tested the stability of leader emergence across two tasks. A comparison of each of the perceptual measures of leadership in Task 1 (PROTO1, GLI1, P-RANK1) was compared to each of the perceptual measures of leadership in Task 2 (PROTO2, GLI2, P-RANK2) and each of the behavioral measures of leadership

in Task 1 (BEHAV1, B-RANK1) was compared to each of the behavioral measures of leadership in Task 2 (BEHAV2, B-RANK2). The hypothesis that perceptions of leadership emergence in the first task would be positively associated with perceptions of leadership emergence in the second task was supported ($p < .01$ for all criterion variables in Task 1 and 2). Despite the statistical significance, the correlations between leadership emergence in Task 1 and leadership emergence in Task 2 were only .21 (see Table 5). These coefficients appear to be rather low, given the accepted stability of leadership. However, this study did not partial out variance attributed to the raters and to the rater-ratee interactions. In addition, the low correlations support the distinctive nature of the two tasks, which was a desired feature of the methodological design.

Hypothesis 9 predicted that prototypicality ratings and perceptual measures of leader emergence by group members would be positively associated with coded leader behaviors and ranks by trained observers across tasks. As shown in Table 13, Hypothesis 9 was supported.

Insert Table 13 about here

The final hypothesis treated PROTO as a predictor variable for the first time in the study. Hypothesis 10 predicted that prototypicality ratings would be positively associated with leader perceptions by group members and by trained raters. PROTO was significantly related to group member perceptions of GLI ($r = .59, p < .001$) and

P-RANK ($r = -.39, p < .001$). In addition, PROTO was significantly related to coded leader behaviors ($r = .24, p < .01$) and B-RANK ($r = -.33, p < .001$). Thus, Hypothesis 10 was supported.

While prototypicality ratings were positively associated with ratings of GLI and rankings by group members for both men and women, it is interesting to note that prototypicality ratings had a stronger relationship with GLI and rankings for men than for women. Specifically, the correlation for prototypicality and GLI was .74 for men versus .44 for women. Similarly, the correlation for prototypicality and P-RANK was -.53 for men and -.27 for women. This is consistent with results obtained by Nye and Forsyth (1991) showing men tended to base their ratings on prototypes more so than women.

Exploratory Analyses

Several exploratory analyses were conducted which may be of interest to the reader. Given that prototypicality ratings of leadership were positively related to perceptions of leadership, I felt it would be interesting to explore whether the measured traits themselves were related to leader emergence or whether the simple appearance of the traits through manifested behavior were related to leader emergence. Group members rated each other on prototypical, antiprototypical, and neutral traits which included the traits of intelligence, dominance, and confidence (analogous to SE). Before analyzing whether the perceived traits were related to leadership emergence, I first determined whether perceptions of the traits were correlated with their

corresponding measured traits. Each of the three perceived traits was significantly correlated with its corresponding measured trait: perceptions of INTEL (P-INTEL) were correlated with measured INTEL ($r=.26$, $p < .001$); perceptions of DOM (P-DOM) were correlated with measured DOM ($r=.41$, $p < .001$), and perceptions of SE (P-SE) were correlated with measured SE ($r=.17$, $p < .05$). A preliminary assessment revealed that the perceived traits had stronger correlations with perceptual measures of leadership than the measured predictors. Recognizing that common-method bias would be inflating these correlations, I also looked at the relationship between the perceived traits and objective measures of leadership by the trained observers. Table 14 lists the correlations among perceived INTEL (P-INTEL), perceived DOM (P-DOM), and perceived confidence (P-SE) with the perceptual and behavioral criterion variables. High correlations between perceived traits and perceptions of leadership indicate that it is at least as important, if not more important, to project the appearance of traits considered to be prototypical of a leader as it is to possess the traits of a leader.

Insert Table 14 about here

Although selecting profiles of personality characteristics was not the purpose of this particular study, exploratory analyses revealed that individuals who had high scores on all five predictors had significantly higher ratings of leadership across perceptions of

leader emergence by group members and behavioral measures of leader emergence recorded by trained observers. Table 15 shows that an initial t-test comparing individuals who scored above their rotation mean on all five predictors (HHHHH) to individuals who scored below their rotation mean on all five predictors (LLLLL) revealed significant differences in the two groups' perceptual and behavioral criterion scores. An additional analysis demonstrated that comparing individuals with HHHHH profiles to the rest of the sample also resulted in significant differences across all criterion scores (see Table 16).

Insert Tables 15 and 16 about here

Other exploratory analyses included the use of discriminant analysis to determine which traits were most useful for classifying leaders and nonleaders according to their leader ranks. Group members were considered to be leaders if they had a rank of 12 or less by the other group members across both tasks or 3 or less from the trained observer across both tasks. The five predictor variables were entered simultaneously to determine whether the function significantly discriminated between emergent leaders and nonleaders according to perceptual rank assigned by group members and a behavioral rank assigned by a trained observer. Both were found to be statistically significant with canonical correlations of .36. The discriminant coefficients for each of the variables are presented in Table 17. The variables that contributed significantly to

the discriminant analysis were again DOM and INTEL. Overall, 75.14% of the participants were correctly classified by perceptual rank: 25.5% (n=12) of the leaders and 93.7% (n=118) of the nonleaders. Similarly, 78.85% of the participants were correctly classified by behavioral rank: 21.6% (n=8) of the leaders and 96.6% (n=115) of the nonleaders.

Insert Table 17 about here

Given that DOM and INTEL were the only two traits that consistently emerged to predict perceptions of leadership, I subsequently explored whether the predictive value of the two traits varied by gender. Table 18 shows that both DOM and INTEL were related to GLI for men and women; however, closer inspection of the two tasks indicates that intelligence was related to leadership impressions in Task 1 for men but not women, and intelligence was related to leadership impressions in Task 2 for women but not men. Overall, DOM remained a factor for both sexes, but did not significantly predict either perceptions of leadership or behavioral indices of leadership for women in Task 2. In addition, Table 18 shows that the magnitude of the relationship between INTEL and behavioral indices of leadership decreased when the sexes were divided, particularly for women.

Insert Table 18 about here

The final exploratory analysis was conducted to investigate more fully the role of SM. Given the absence of correlation between this predictor and the criterion variables of interest across tasks, I investigated whether SM had any relationship with criterion variables that varied by gender subgroup. An examination of the relationship between SM and each criterion variable for each task was conducted to assess whether there were different relationships between the predictors and criterion score by gender subgroup. SM scores were not related to leader emergence for women in any tasks; however, SM was consistently related to leader emergence in Task 1 for men. SM scores for men predicted P-RANK by group members in Task 1 ($r = -.23, p < .05$), BEHAV coded by trained observers in Task 1 ($r = .23, p < .05$), and B-RANK by trained observers ($r = -.28, p < .05$).

Discussion

The major purpose of the study was to determine if there are personality characteristics consistently associated with perceptions of leadership. The results of the present study clearly support previous research findings that perceptions of leadership are amenable to the trait approach. The present study goes beyond earlier research, however, in a number of different ways. For example, this study took a multivariate approach to the study of leadership emergence. In addition, the study incorporated multiple tasks and groups with changing members. The study also used multiple means of assessment of leadership by investigating both perceptions of leadership by group members and objective observation and coding of leadership behaviors. Finally, the present study recognized that cognitive categories are utilized to differentiate leaders and nonleaders by examining prototypical and antiprototypical behaviors. Therefore, the study investigated whether individuals who were perceived by others as possessing the traits that match their leader prototypes were perceived as emergent leaders.

There are five main conclusions that can be drawn from this study. First, the trait view of leadership, which has been largely ignored since the reviews by Mann (1959) and Stogdill (1948), has considerable usefulness for predicting leader emergence. The results of this study clearly support the role of the traditional attributes of intelligence and dominance in predicting leadership emergence. This is strengthened by the fact that the two characteristics consistently predicted leader emergence by both subjective ratings of leadership (i.e., group member perceptions) and objective ratings of

leadership (i.e., coding of observed leader behaviors and ranking by trained observers). Many studies had recommended the use of objective measures of leadership, but none attempted to implement them. Furthermore, using multiple regression techniques, this study revealed that intelligence accounted for approximately 3% to 9% of the leadership scores, and dominance accounted for approximately 7% to 15% of the leadership scores. Finally, both predictors, intelligence and dominance, accounted for as much as 20% of the leadership emergence variance.

Although consistent support was found for hypotheses 1 and 1(a) and 2 and 2(a) using two predictors commonly found in previous research, mixed results were obtained for the three additional attributes of interest to this study: self-esteem, self-monitoring, and self-leadership. Hypotheses related to self-esteem and self-leadership received partial support due to their relationship with at least one measure of leader emergence; however, the relationship was inconsistent across subjective and objective measures of leadership. For instance, individuals with high self-esteem were perceived by group members as possessing characteristics of prototypical leadership, but failed to emerge as the leader through GLI ratings, coded behaviors, or rankings by either group members or by independent raters. It was quite a surprise to find nonsignificant correlations between self-esteem and leadership scores, given the theoretical connection. However, exploratory analyses revealed that measured self-esteem was only correlated .18 with perceived self-esteem. While statistically significant, the correlation is small enough to indicate that reported self-esteem may not translate into

overt behavior that is interpreted that way by others. I will discuss the relationship between measured traits and perceived traits in more detail later.

In contrast, self-leadership was not related to leader prototypicality or perceptions of leadership by group members; however, it was significantly related to leadership rankings by trained observers. One reason for the general lack of a relationship between self-leadership and perceptions of leadership by group members may be that the two tasks selected for this study did not elicit behavioral or cognitive strategies used by self-leaders. Specifically, these tasks of short duration and experimenter-set goals may not be optimal tasks for self-leaders. Nevertheless, this still does not explain why a relationship existed between self-leadership and rankings of leadership by trained observers. Future studies may want to select tasks that would more fully utilize the strategies employed by self-leaders; however, given the redundancy between self-leadership and more-established variables, as well as the inconsistent relationship with perceptions of leadership, future research may benefit from shifting its focus toward variables other than self-leadership.

The failure to find any significant relationship between self-monitoring and perceptions of leadership was unexpected. Although there have been mixed results in previous studies, many authors had attributed that to the fact that there were multiple high self-monitors or multiple low self-monitors working together in group situations (Dobbins et al., 1990; Garland & Beard, 1979). This study took special care to control group composition such that groups always consisted of one high self-monitor, one low

self-monitor, and two moderate self-monitors. Even with the maximization of these differences, there was no overall relationship with self-monitoring and leadership perceptions. A comparison of extreme high self-monitors and low self-monitors also disclosed that both groups were rated lower on leadership by their group members than those who scored in the moderate range.

Several possible reasons have been cited by previous researchers to explain the inconsistent findings and weak correlations for self-monitoring. Specifically, past research has suggested that the effects may be moderated by the sex of group members and the nature of the task confronting the group (Ellis, 1988; Ellis & Cronshaw, 1992; Garland & Beard, 1979; Wentworth & Anderson, 1984). Exploratory analyses investigating this possible explanation demonstrated that both of these variables may moderate the relationship between self-monitoring and leader emergence. For example, sub-group analyses for gender effects revealed that self-monitoring was related to perceptions of leadership in Task 1 for men, but not for women. These results are consistent with research results that have found a relationship between self-monitoring and leadership for men (Anderson & Thacker, 1985; Ellis, 1988; Ellis & Cronshaw, 1992)

In addition, evidence that self-monitoring was only related to leader emergence in Task 1 lends credence to the argument that the nature of the task is also important. Garland and Beard (1979) are the only researchers to have examined task effects. They speculated that high self-monitors will emerge as leaders when the task requires

discussion and task competency is difficult to assess but not when the task requires minimal interaction and task competency is clear. Their results were consistent with their hypotheses. Similarly, Dobbins et al. (1990) suggested that as the group task becomes more structured, the importance of self-monitoring skills alone should diminish and be replaced by the need for specific, technical knowledge. In the present study, Task 1 required a great deal of discussion and debate among group members and task competency was very difficult to assess. This was in contrast to Task 2 where group members presented each other with pieces of information, but had very little reciprocal interaction. In addition, task competency was extremely clear throughout Task 2. Given that self-monitoring was related to perceptions of leadership in Task 1, but not Task 2 for men, it appears that both gender and the nature of the task may act as potential moderators.

In post-hoc analyses, this study explored one other possible moderator that has not been recognized previously in the literature. Heretofore, the study had been controlling for time effects by treating it as a covariate in all behavioral analyses. Given that exploratory results suggest that amount of discussion and information about task competency is important for the self-monitoring - leadership link, and given that Task 1 elicited more reciprocal discussion among participants and less information about competency, I speculated that high self-monitors in Task 1 would emerge more often as leaders when they had more time to interact with other group members. Thus, one should not be controlling for time effects in this case, but treating time as a potential

moderating variable. Indeed, treating time as a moderating variable revealed a significant interaction between self-monitoring scores and time for objective behaviors ($p = .02$). Specifically, high self-monitors exhibited fewer leader behaviors than low self-monitors when groups interacted for a short duration in Task 1, but exhibited a significantly greater number of leader behaviors than low self-monitors when group interactions occurred over a long duration. This interaction can be seen clearly in Figure 1. Thus, one may conclude that the relationship between self-monitoring and leader emergence is much more complex than is revealed from a simple assessment of the bivariate correlation.

A second major conclusion that may be drawn from this study is that multiple predictors should be used to predict emergent leadership. Leadership, like many other person categories, appears to be defined by a prototype involving several different traits. Thus, simple bivariate correlations cannot possibly capture the domain of leadership and should not be expected to yield correlations close to one. Instead, researchers should attempt to define the combination of traits that will more accurately predict leadership perceptions. In this particular study, multivariate regression and discriminant analyses revealed that dominance and intelligence consistently predicted perceptions of leadership by group members and observation of leader behavior by trained observers. Although the effects of self-esteem, self-monitoring, and self-leadership were limited, each was related to emergent leadership in some manner. However, only self-leadership accounted for additional variance in leadership

emergence above and beyond dominance and intelligence, and its contribution was restricted to rankings by group members in Task 1 and rankings by trained observers in Task 2. Given the inconsistent results for self-esteem, self-monitoring, and self-leadership, additional studies may want to assess other traits that can predict leadership emergence more consistently.

The third conclusion concerns the stability of leader emergence from Task 1 to Task 2. Even without conducting a rotation design to isolate the stable variance attributable to characteristics of the ratee (cf. Kenny & Zaccaro, 1983; Rueb and Foti, 1990; Walsh, 1992; Zaccaro et al., 1991), perceptions of leadership in Task 1 were moderately related to perceptions of leadership in Task 2. This is encouraging, particularly given the painstaking care to make the two tasks very distinct. The tasks were constructed such that there would be variability in group situations and group needs, thus maximizing the possibility that different leader traits would be more relevant in different group situations. This study demonstrated that dominance and self-esteem had a stronger relationship with leader emergence in Task 1 than in Task 2; however, the second part of that hypothesis that intelligence and self-leadership would have a stronger relationship with leader emergence in Task 2 than in Task 1 was not supported. Closer inspection revealed that intelligence alone had a stronger relationship with leader emergence in Task 2 than Task 1, but self-leadership did not. Furthermore, one unexpected finding showed that there was a negative relationship between self-leadership and intelligence. Overall, the results of this study lend support

to Yukl's (1981) view that situational characteristics such as the nature and demands of the task must be taken into account when studying the impact of specific traits on leader emergence.

Given that the correlation between leader emergence in Task 1 and leader emergence in Task 2 did not approach 1.0, it is apparent that some individuals who were perceived as leaders in Task 1 did not emerge as leaders in Task 2 and vice versa. This could be due to a number of reasons. First, Kenny and Hallmark (1992) acknowledged that there would be less stable variance in studies that used very heterogeneous tasks. It may be the case that the two tasks required such distinct behaviors for the members to be perceived as leaders that differences in the individual's abilities to exhibit these behaviors created variance across the tasks. This contention supports the contingency perspective which emphasizes the importance of being able to match leadership style to the needs of the situation. Another possible explanation, however, is that the variability between emergent leadership in Task 1 and Task 2 was related to the characteristics of the tasks themselves. Specifically, individuals in Task 2 performed a somewhat more restricted set of behaviors, many of which were unrelated to leadership. In addition, some individuals commented that Task 2 involved so much cooperation among group members that they disliked having to rank themselves in order of leadership. Thus, there was little variance for some groups in their leadership ratings for all group members and forced variance in their rankings, which may or may not reflect an accurate picture for each group.

The fourth conclusion involves the relationship between perceptual measures of emergent leadership and objective measures of emergent leadership. As noted earlier, this study is one of the first to use multiple methods in the assessment of emergent leadership (i.e., subjective ratings and rankings by group members and coded behaviors and rankings by trained observers). One study conducted over 30 years ago also compared ratings of leadership by group members to recorded frequency and quality of leadership contributions by trained observers (Barnlund, 1962). The average correlation between observed “frequency of leadership contribution” and subject rankings in Barnlund’s study was identical to the correlation reported in my study between observed behavior and group member rankings ($r = .63$). In addition, the average correlation between observer rankings and subject rankings in Barnlund’s study was .69. This was very similar to the correlation reported in my study of .62 between rankings assigned by trained observers and rankings assigned by group members. Thus, it is reasonable to conclude that group participants are able to perceive “leaderlike” behavior of others in a variety of task settings and that leadership can be somewhat objectively assessed by group participants.

The fifth conclusion concerns the role of implicit leadership theories on leader emergence. This study tested the assumption that there is a general prototype for leadership commonly shared by American samples and found that the same attributes are consistently cited by students and working adults as being prototypical of leadership. Given that individuals possess prototypes for leadership, one could

extrapolate from this by suggesting that one group member's evaluation of another group member will be a function of both the first member's implicit leadership theory and the second member's leadership relevant behavior. Given this assumption, it is not surprising that ratings of group members' prototypical leadership were related to General Leadership Impression ($r = .59, p < .001$) and ranking assigned by group members ($r = -.39, p < .001$). These coefficients are probably conservative estimates of the relationship simply because of the unavoidable reality that several participants did not discriminate among group members in their ratings of leader prototypicality. For example, a cursory survey of the prototypicality ratings revealed that some individuals were lenient raters and rated all of the group members above average (e.g., scores of 4 or 5) on all of the prototypical attributes. Similarly, a smaller number of participants tended to give all individuals the same average rating on all of the prototypical attributes (e.g., a score of 3 across all attributes). Thus, although there was a satisfactory range of scores within the rotations and across the rotations, there may have been range restriction within the individual groups for prototypicality.

I have also argued in this study that traits as perceived by others would affect leadership emergence. The key issue of this assumption is that perceptions of leadership will be a function of whether a group member is perceived by the observers as having those traits and behaviors that match the prototype of "leader" or "nonleader". In other words, it is not so much the measured traits themselves that predict leadership ratings, but whether individuals are perceived by others as possessing

the traits that match their leader prototypes. However, this study has reasoned that individuals who score higher on various measures of traits or individual differences associated with prototypical leadership will be more likely to behave in a manner consistent with that prototype, thus creating the necessary link between measured traits and perceptions of leadership.

One main reason that correlations between traits and leadership are much less than 1.0 is that past empirical results have only presented scores from standardized tests of potential leaders' traits. These correlations will be attenuated because the measured traits will not agree perfectly with the traits as perceived by others (Lord, DeVader, & Alliger, 1986). For example, there was minimal correlations between an individual's measured self-esteem and emergent leadership in this study, yet perceptions of that individual's self-esteem by group members was strongly related to perceptions of leadership, ranging from .54 to .75 across perceptual and objective measures. Closer inspection showed that measured self-esteem was only related .18 to self-esteem as perceived by others. While significant, this correlation is low enough to suggest that greater self-report of a particular trait does not always translate into behavioral manifestations of that trait. Perceptions of dominance and perceptions of intelligence showed a stronger relationship with their corresponding measures than self-esteem, but still confirmed that the perceptions of those traits by others were better predictors of emergent leadership than the measured traits. While one may expect a relationship between ratings of prototypicality and ratings of leadership by group members due to

the common method of measurement, the relationship between leader prototypicality and emergent leadership was also strong and consistent for behavioral measures and ranking by trained observers. The lack of a one-to-one correspondence between measured traits and perceived traits and the evidence that perceived traits have a stronger relationship with leader perceptions leads to the conclusion that individuals who want to be perceived as a leader must act like a leader. In other words, the individual must behave in a manner that is consistent with the leader prototype. Thus, whether or not an individual is intelligent, open-minded, organized, honest, confident, responsible, decisive, friendly, caring, creative, a good listener and a good communicator, the individual should engage in behavior that is perceived to match those characteristics (or at least a subset of those characteristics that are relevant to the task) in order to be perceived as the leader of the group.

Limitations of the Study

Although a study as comprehensive as this one benefits from the control afforded by a lab environment, I realize that several aspects of the procedures were quite different from naturally-occurring groups in actual organizations. The most important limitation was that the length of the group interactions was very brief, averaging 23 minutes of discussion in Task 1 and 17 minutes of discussion in Task 2. This becomes of particular concern when one recalls that exploratory analyses indicated an interactional effect between time and self-monitoring. When individuals worked together longer in their group situation, the high self-monitors emerged as the leaders.

In contrast, when groups finished the task in a short amount of time, high self-monitors exhibited fewer leader behaviors. Given that group member interactions are typically of a longer duration in naturally-occurring groups, self-monitoring (as well as other traits) may prove more useful than this study indicates for predicting leadership perceptions.

In addition, there were several other potential limitations imposed by the experimental controls required for this study. For example, groups were structured to maximize variance attributable to traits independent of gender. Thus, men and women worked in same-sex groups to eliminate potential biases due to confounding between gender schemata and leader schemata. However, real-world situations will not often accommodate gender segregation in group interactions. In addition, exploratory analyses revealed that there may be differences in the types of behaviors considered “leader-like” for men and women in various tasks. Future studies should use gender as an additional factor when assessing leader emergence. This may be accomplished in a number of ways: first, by varying the types of tasks to determine if different types of behavioral strategies are employed by men and women in order to emerge as leaders in distinctive tasks, and second, comparing studies using mixed-sex groups and same-sex groups to determine what types of behaviors will predict emergent leadership for men and women.

In addition, group processes may differ considerably between one-time experimental groups that have never met before and already extant groups. In order to

control for pre-existing impressions and potential attributions for group member behavior, the present study created groups where individuals were unfamiliar with each other. However, the possibility exists that the dynamics among group processes may be different for groups who have never interacted.

One other limitation worthy of mention is the simple fact that university subjects were used in this study. Generalizing data collected from university student samples to real-world settings has often been criticized (Locke, 1986). The motivation level of university students participating in a psychology experiment may be somewhat different than the motivation level of an individual in an organization who may be wanting to be recognized as “leader-like”. However, this concern may be somewhat mitigated by the fact that data was collected from students who volunteered to participate in the study within the first few weeks of the semester. Typically, this sample of students is more motivated than student samples obtained toward the end of the semester. There was also a tendency in several groups for members to give each other very similar if not identical ratings. This student sample appeared to be more influenced by social desirability factors and wanting to be liked by their peers, as evidenced by some of their disgruntled comments at having to rate each other and the generally lenient ratings assigned by many group members.

The above-mentioned considerations are important limitations of the study and thus, the findings need to be evaluated with these points in mind. However, given that this study incorporated numerous recommendations by previous researchers for the first

time in the literature, the controls imposed in this study allowed for a powerful test of the hypotheses regarding the trait approach to leadership perceptions.

Future Recommendations

Given that the present study was able to identify two attributes that consistently predicted perceptual and objective measures of leadership, future studies may want to focus on additional personality variables that may be linked to the traditional leader variables. Although recent criticism has been directed toward personality taxonomies (Block, 1995), Big Five theories and the Myers-Briggs Type Indicator are two areas that are receiving increased attention in the leadership literature. One unpublished study has suggested that psychological type may act as moderating variable in leader emergence (Walsh, 1992).

Another powerful test of the importance of traits to perceptions of leadership would be an assessment of the profile of traits that best predict who will emerge as the leader of a group. The pattern-approach to trait research would involve selecting and forming groups based on specific predictors of interest to the researcher. In order to investigate a pattern-approach to trait research, one must be able to pretest a very large sample in order to obtain the minimum number of subjects required for each possible pattern of interest. In exploratory analyses, this study did select out individuals who scored higher than the mean on all five predictors (HHHHH) to compare them to the pattern of individuals who scored low on all predictors (LLLLL), followed by a comparison of HHHHH individuals to the rest of the sample. One may recall that only

16 individuals comprised the “high” pattern and 17 individuals comprised the “low” pattern. Power for a test using such small samples would be very low. Furthermore, any attempt to get samples that represent the extremes (e.g., one SD above or below the mean) would result in even more restricted sample sizes. However, if it is feasible for a researcher to pretest a large number of subjects, assessment of the trait patterns related to perceptions of leadership would contribute substantially to the leadership literature.

The current study created newly-formed groups to combat potential sources of bias such as prior impression formation and attributions for behavior. However, future research should compare pre-existing groups with newly-formed groups. Given that many organizations are shifting to a team-oriented environment, there should be ample opportunity for this type of comparison. An even more powerful test of the role of experience with group members would be a longitudinal study to assess the content of group interactions, the development of group member roles, and emergent leadership. A longitudinal study would be particularly useful for identifying a link between leadership emergence and leadership effectiveness.

This study has clearly acknowledged that the topic of emergent leadership is perceptual in nature. This particular study investigated whether traits predicted perceptions of leadership by subjective and objective measures independent of group performance. As noted earlier, many scientists have overgeneralized leadership perceptions to the topic of leadership effectiveness. Although the present study’s

results indicated that traits are important predictors of leadership perceptions, one may not extrapolate from those results to infer that traits are important for effective leadership. Traits may determine which individual will be perceived as the leader of a group but may not be important for predicting subsequent effectiveness or ineffectiveness as a leader. Contingency approaches to leadership may be more relevant for predicting effectiveness. Few studies have attempted to investigate the relationship between traits and leader effectiveness. However, one follow-up study to Mann's (1959) review focused on group performance and found that intelligence was strongly and consistently related to group performance, average $r = .60$ (Heslin, 1964). Given that Heslin's study needs to be updated and extended, I encourage future research to investigate the role of traits in leader effectiveness.

The control afforded by the current study regarding the structuring of groups and the use of behavioral indices of leadership allowed for a powerful test of the trait-related hypotheses. Consequently, I strongly recommend that future research continue to develop the more elaborate designs that vary both group membership and group tasks. Researchers should pay particular attention to the types of tasks they select, ensuring that they select distinct tasks that will elicit a wide range of behavior and a great deal of group interaction. The importance of measuring behavioral indicators of leadership cannot be overemphasized. The observation and measurement of behavior in this study provided uncontrovertible evidence that traits can consistently predict leadership through multiple methods of assessment. Although these findings must be

replicated in ongoing leadership settings, they offer compelling evidence for the importance of traits.

Implications for the Field of Leadership

The present study was a comprehensive test of the relevance of potential trait predictors for emergent leadership and the importance of perceived leader prototypicality for emergent leadership. Given that the results clearly support previous research findings that perceptions of leadership are amenable to the trait approach, these results have interesting applied implications. For example, management development programs for entry-level managers may expand their training curriculum by increasing the amount of time devoted to developing the traits that predict leadership (e. g., assertiveness training, decision-making seminars, organization and time-management skills). In addition, the strong support for the intelligence-leadership relationship may result in the continued use of general cognitive tests by organizations for the selection of potential leaders or may serve to encourage organizations to help sponsor employees' continuing education. Managerial assessment centers should continue to investigate the measured traits of assessment center participants, and observe whether there is a relationship between measured traits and the behavioral manifestations that occur during assessment center exercises.

Another issue emerging from this study that has important implications for the field of leadership is the role that prototypical attributes have on perceptions of leadership. This study showed that if an individual is perceived as having certain attributes that

match the prototype of “leader”, he or she has a greater chance of being perceived as the leader of a group. Thus, managers should be aware that some individuals may be particularly good fits to leadership prototypes, and will automatically be recognized as leaders. Others may not be as good fits to leadership prototypes, but may have their fit improved through leadership development activities. Being perceived as a leader has the added bonus of an increase in social power and greater recognition and credit for work outcomes. In turn, this may influence dyadic relationships between the leader and the followers and with other leaders. Being perceived as a leader also allows one to exhibit greater influence in business, military, and government settings. Previous research has shown that leadership perceptions have particular relevance in the political arena (Foti, Fraser, & Lord, 1982).

In conclusion, this study has extensively tested the impact of multiple traits on perceptions of leadership and determined that trait theory should not be abandoned by researchers. In addition, the evidence shows that individuals must be perceived as possessing those traits indicative of leadership to emerge as the leader of a group. My conclusion that certain traits are relevant to perceptions of leadership as assessed by group members and trained observers has various practical and theoretical implications, but it should be replicated and extended in future research across organizational settings.

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Footnotes

¹ Leadership dimensions and materials for evaluating leadership were provided by Development Dimensions International, Copyright Development Dimensions International, Inc., MCMXCII.

² All analyses involving perceptual measures (PROTO, GLI, P-RANK) have an N of 173. Behavioral data (BEHAV, B-RANK) were unavailable from 17 subjects (7 men, 10 women) because of equipment malfunction in one room, resulting in an N of 156 for analyses involving behavioral observation.

APPENDIX A
SELF-LEADERSHIP STRATEGIES

SELF-LEADERSHIP STRATEGIES

Behavior-Focused Strategies

Self-Observation - observing and gathering information about specific behaviors that you have targeted for change

Self-Set Goals - setting goals for your own work efforts

Management of Cues - arranging and altering cues in the work environment to facilitate your desired personal behaviors

Rehearsal - physical or mental practice of work activities before you actually perform them

Self-Reward - providing yourself with personally valued rewards for completing desirable behaviors

Cognitive-Focused Strategies

Finding Natural Rewards at Work: * *Building Natural Rewards into Tasks*
* *Focusing Thinking on Natural Rewards*

Establishment of Effective Thought Patterns (opportunity thoughts) - establishing constructive and effective habits or patterns in your thinking

Efficacy Expectations - confidence in one's ability to perform well and meet prospective challenges

Meta-Dimensions

Self-Problem Solving - spontaneous problem resolution by subordinates without supervisory intervention

Initiative - assuming greater responsibility and spontaneously initiating change

* definitions taken from Charles C. Manz & Henry P. Sims, Jr. (1989).

SuperLeadership. New York: Berkeley Books; and from the dissertation proposal of Jonathan P. Cox, University of Maryland College Park

APPENDIX B
STATEMENT OF INFORMED CONSENT

Consent Form

1. TITLE OF EXPERIMENT: Group Interactions and Decision Making

2. PURPOSE OF EXPERIMENT:

You are invited to participate in a study that is investigating group interactions and decision making. To accomplish the goals of the study, you will first be asked to come in to complete a set of personality and cognitive measures in a group testing situation. This will take approximately two hours. When you have completed the questionnaire, you will also be asked what evenings are most convenient for you to participate in the main part of the study. Within approximately one week, you will be contacted by the experimenter to schedule one evening to come in to work with other students in small groups of four. Participants will be asked to perform two tasks. The first task is a consensus building task where you will rank graduate school candidates for entry into a graduate business program. The second task requires participants to share information and to solve a problem by unscrambling individual bank accounts and matching the characteristics of the account holders. Total time required for the two tasks is approximately 2 hours and 15 minutes.

Although you will be asked to come in to complete the personality measures in a large group setting, the focal part of the study is the smaller interpersonal group situations. Therefore, it is important that you participate in both sessions. Please do NOT sign up for this study if you are unable to participate in the focal study as well.

3. ANONYMITY OF PARTICIPANTS AND CONFIDENTIALITY OF RESULTS:

The results of the study will remain strictly confidential. At no time will the researcher release the results of the study to anyone, other than those individuals who are assisting with the project. The information you provide will be analyzed independent of your name, and only a subject number will be assigned to your data to identify you during any analyses and writeup.

The group interactions will be recorded by a video camera. The videotapes will remain in a secured location in the laboratory and only the researcher and specific research assistants will have access to them. All videos will be erased after a period of one year.

4. DISCOMFORTS AND RISKS FROM PARTICIPATING IN THE STUDY:

There are no apparent risks to you from participation in this study.

5. EXPECTED BENEFITS:

This study will assess the interpersonal behavior and decision making strategies in group interactions. The results of this study can potentially add to the literature in group interactions. Furthermore, since everyone engages in group interactions in their everyday lives, this study has practical importance for its participants. For example, studying the dynamics of group interactions allows individuals to better understand their own contributions and interpersonal behavior. Finally, results of the study will be made available to those interested in this topic upon request.

6. FREEDOM TO WITHDRAW:

You may cease participation at any time without penalty.

7. EXTRA CREDIT OR FINANCIAL COMPENSATION:

You will receive a total of five (5) points toward your extra credit points for undergraduate psychology classes in exchange for your participation. Two (2) points will be awarded at the completion of the large group session. Three (3) additional points will be awarded after the small group session. In addition, two lottery drawings for the amount of \$50.00 each will be held to thank you for your participation at the end of the small group sessions. The lottery drawing will be held after everyone has participated in the study, and winners will be notified no later than April 1st.

8. USE OF RESEARCH DATA:

The information accumulated by this research may be used for scientific or education purposes and information relating to your responses may be presented at scientific meetings and/or published and republished in professional journals or books, or used for any other purpose which Virginia Tech's Department of Psychology considers proper in the interest of education, knowledge, or research.

9. APPROVAL OF RESEARCH:

This research project has been approved by the Human Subjects Committee of the Psychology Department, and by the Institutional Review Board of Virginia Tech.

10. PARTICIPANT'S PERMISSION:

I have read and understand the above description of the experiment, had an opportunity to ask questions, and had them answered, and hereby acknowledge the above and give my voluntary consent for participation in this study. If I choose to participate in this study, I understand that the small group sessions will be videotaped and recorded, and I hereby give my permission to be videotaped.

If I choose to participate in this study, I understand that I may withdraw at any time without penalty.

I understand that should I have any questions about this research and its conduct, I should contact any of the following.

PRIMARY RESEARCHER:	Heather E. Roberts	Phone: 951-1431
FACULTY ADVISOR:	Dr. Roseanne J. Foti	Phone: 231-5814
CHAIR, HSC:	Dr. Richard M. Eisler	Phone: 231-7030
CHAIR, IRB:	Dr. Ernest Stout	Phone: 231-6077

APPENDIX C
ROTATION DESIGN

GROUP BY TASK ROTATION DESIGN

Tasks Groups*	Task 1 LGD 1 - Consensus	Task 2 LGD 2 - Cooperation
Group 1	1 (H) 2 (M) 3 (M) 4 (L)	1 (H) 6 (M) 11 (M) 16 (L)
Group 2	5 (H) 6 (M) 7 (M) 8 (L)	5 (H) 10 (M) 15 (M) 4 (L)
Group 3	9 (H) 10 (M) 11 (M) 12 (L)	9 (H) 14 (M) 3 (M) 8 (L)
Group 4	13 (H) 14 (M) 15 (M) 16 (L)	13 (H) 2 (M) 7 (M) 12 (L)

* 4-Person Task Groups

APPENDIX D

LEADERLESS GROUP DISCUSSION - ADMISSIONS COMMITTEE DECISION

PROTOCOL AND INSTRUCTIONS

TASK 1 - PROTOCOL FOR FACILITATORS

- 1.) Verify everyone is wearing their ID number tags, distribute sign-in sheet, and say:

"Welcome everyone. For convenience sake, please sit in the numeric order of your ID tags around the table, from my left to right. Please make sure that your number is easily visible to the other group members. I need you to complete these three OPSCANS by filling in your name, date, and student ID. I also need you to fill in the sign-in sheet. If you have a different extra-credit sheet other than the one we use for Intro and Social Psychology, I will take it from you now, and the researcher will sign it during the study.

(Collect the sign-in sheet and OPSCAN/extra-credit forms)

- 2.) The facilitator distributes to each participant a copy of the Admissions Committee Fact Sheet, a set of Admissions Committee Applicant Profile Sheets I-VIII, an Admissions Committee Decision Work Sheet, and a pencil, and say:

" In this session, you are going to be completing an exercise called the Admissions Committee Game where you must make a decision regarding various applicants".

- 3.) Read Step 1 of the Task 1 - Facilitator Instructions aloud, and ask:

"Are there any questions?"

- 4.) Step away from the group, and let them get organized and begin.

- 5.) After 25 minutes has passed, say:

"Twenty-five minutes have passed since you began. You will have 5 more minutes to finish ranking the eight applicants in Column (1) on the Admissions Committee Decision Work Sheet."

- 6.) After 5 more minutes has passed, say:

"Your time is now up. Please put your pencils down while we move on to the second step."

- 7.) Read Step 2 of the Task 1 - Facilitator Instructions aloud, and ask:

"Are there any questions?"

- 8.) Step away from the group and turn on the camera while they begin.

9.) After 25 minutes has passed, say:

"Twenty-five minutes have passed since you began. You will have 5 more minutes to record the committee's decisions in Column (2) on the Admissions Committee Decision Work Sheet."

10.) After 5 more minutes has passed, say:

"Your time is now up. Now, please spread out around the room. We would like you to fill out the following questionnaire. Please read the directions thoroughly, think carefully about your responses, and answer each question as honestly as you can. Remember, this information is never made available to anyone but the researcher. When you are finished, place the questionnaire and all your applicant materials except the worksheet in the envelope provided. I will then show you the real performance rankings of the applicants so you can see how you did, and we will switch groups for the second task."

11.) Distribute questionnaires and envelopes to specified individuals, turn off the camera, and then ask:

"Are there any questions?"

12.) As they finish filling out the forms, hand one copy of the actual performance rankings of the applicants to the group, and then say:

"The applicant profiles you rated were based on actual case histories. This is the true performance ranking of each applicant at the completion of his or her graduate program, as determined by the students' grade-point averages at the conclusion of their two-year program of study. It may be interesting for you to see how well your group did compared to the true rankings that were given to these graduate students. Please go ahead and complete columns 3, 4 and 5 on your worksheet."

13.) Give them approximately five minutes to see how their ratings compared to the handout and to complete the worksheets.

14.) Collect the envelopes containing their questionnaires and materials.

15.) Direct everyone back to the common area to rotate them to the next group.

"We're now going to rejoin everyone else in the main conference room to divide up into new groups for the last task. Follow me."

Task 1 - Admissions Committee Decision

Instructions for Facilitators

"Step 1. You are a faculty member of Southern Business School. In addition to your teaching responsibilities, you are a member of the Admissions Committee, which screens applicants for admission to the Master of Business Administration program. The standardized test for admission to business programs is the GMAT, which is a test similar in form to the SAT. Higher scores on the test places a student into a higher percentile category. Read over the Admissions Committee Fact Sheet carefully first in order to be familiar with the admissions policy and characteristics of the business program.

During the last two weeks, you have received eight applicant profiles. Tomorrow the Admissions Committee will meet to consider the applications. As is your policy, you wish to make your own decisions before the meeting. You will have a total of thirty minutes to rank these applicants on the basis of their relative potential for success in Southern's graduate program. Make these decisions now. Record your INDIVIDUAL decisions in column (1) on the Admissions Committee Decision Work Sheet. When you have finished, wait for instructions to proceed to the next step."

(Go back to Protocol sheet)

"Step 2. It is now Friday. You are to meet with the other members of the Admissions Committee and decide by consensus on a ranking for each applicant. Consensus is a decision technique where the group decision reflects the views of all the members and is agreed upon by all members. Consensus exists when a group makes and supports a decision. Some guidelines to keep in mind while trying to achieve consensus include:

- 1. Avoid changing your mind simply to reach agreement and to avoid conflict, but support solutions with which you are able to agree somewhat.**
- 2. Avoid "conflict-reducing" techniques such as majority vote, averaging, or taking turns in reaching your decisions.**
- 3. Avoid lengthy arguments to "prove your point"; instead, view conflict between members as a way of opening up alternatives.**
- 4. The best results flow from an integration of information, logic, and emotion. You will have 30 minutes to reach a group consensus. Record the committee's decisions in column (2) on the Admissions Committee Decision Work Sheet."**

APPENDIX E

LEADERLESS GROUP DISCUSSION - UNSCRAMBLE THE BANK ACCOUNTS

PROTOCOL AND INSTRUCTIONS

TASK 2 - PROTOCOL FOR FACILITATORS

1.) Pass out the sign-in sheet, and say,

"Welcome back everyone. I would like for everyone to again fill out the sign-in sheet, please."

2.) The facilitator distributes to each participant a copy of the Fact Sheet, a blank sheet of paper, and a pencil, and say:

"In this session, you are going to be completing an exercise called Unscrambling the Bank Accounts Game. This game allows you to experience group logic problem-solving processes."

3.) Distribute one set of data cards evenly among the members of the group (4 cards each=16), and say:

"Do not reveal the information on your cards to anyone else at this point."

4.) Read the Task 2 - Facilitator Instructions aloud, turn on the camera while they are looking at their cards, and ask:

"Are there any questions?"

5.) Step away from the group, and let them get organized and begin.

6.) When a hand is raised, the facilitator makes a note of the time and then checks the answer for accuracy. If any part of the answer is wrong, say:

"Please continue working on the problem because the answer is not correct."

7.) If the group solves the problem and offers the correct solution before the 30 minutes are up, say:

"That is the correct answer." and SKIP TO PROTOCOL STEP 8.

If 30 minutes has passed and they have not offered the correct solution, say:

"Your time is now up. Please put your pencils down." (Go to Protocol Step 8)

8.) When students have put their pencils down, say:

"Now, please spread out around the room. We would like you to again fill out this questionnaire. Please think carefully about your responses, and answer each question as honestly as you can. While you are completing this questionnaire, I will compare your score to the other team's score. When you are finished, please place the questionnaire and all your other materials in your envelope and return it to me. You will then have 5 minutes to answer three more short questions and you will be given a lottery slip to fill out for your chance to win a \$50 cash bonus. If you are a winner, we will contact you within the next month, and post the winners' names here on the 5th floor of Derring."

9.) Distribute questionnaires and envelopes to specified individuals, and then ask:

"Are there any questions?"

10.) Step out of the room to check the other groups for about two minutes, then return.

11.) As they finish filling out the forms, collect the questionnaires; then distribute the manipulation check questionnaire. When they hand back the manipulation check questionnaire, distribute lottery slips and signed extra-credit sheets (if any).

12.) If the group successfully solved the problem before the time limit and the other groups, say:

"The other teams have not solved the problem yet. Congratulations on being the first!"

If the group has solved the problem before the time limit but is not first, say:

"Congratulations on solving the problem; however, another group has solved the problem first."

However, if the group did not solve the problem before the time expired, say:

"Several other groups were unable to complete the problem in 30 minutes either. Therefore, we are going to recommend to the experimenter that we extend the time to 45 minutes for future groups."

13.) Thank the participants, collect their lottery slips, and leave.

Task 2 - Unscrambling the Bank Accounts

Instructions for Facilitators

"Please take five minutes to study the fact sheet and the cards that have been assigned to you."

(Give them 5 minutes)

"Your task is to match the name of each person with the appropriate occupation, bank, account number, and account balance. You will be timed as you unscramble the bank accounts, and you will be competing against the other groups. Each group will have up to 30 minutes to propose a final solution; however, the faster you solve the problem, the higher your score, and the greater your chances of beating the other groups. During the activity, you may discuss the information on the cards that were assigned to each of you, but you may NOT pass the cards around for others to see or read off all your cards at once to each other.

Instead, build on each other's cards by relating one piece of information to another. For instance, if one of you shares the information on a card that states, "The dentist's account number is 117568", another could immediately chime in by sharing a card that states, "Tom is not a dentist" or "All accounts at National have 6 digits". If you reach a point where it seems that you become stuck building on the information, one of you can initiate sharing the information of a new card.

If your group solves the problem correctly in every aspect, your group will receive a score of one hundred minus the number of minutes you took to find the answer. Each time your group turns in an answer that is not correct in every aspect, five points will be deducted from your score while you continue to try to solve the problem.

The group with the highest score at the end wins."

APPENDIX F

WONDERLIC PERSONNEL TEST

WONDERLIC

PERSONNEL TEST

FORM A

NAME Date

(Please Print)

Social Security Number

READ THIS PAGE CAREFULLY. DO EXACTLY AS YOU ARE TOLD.
DO NOT TURN OVER THIS PAGE UNTIL YOU ARE
INSTRUCTED TO DO SO.

PROBLEMS MUST BE WORKED WITHOUT THE AID OF A CALCULATOR
OR OTHER PROBLEM-SOLVING DEVICE.

This is a test of problem solving ability. It contains various types of questions. Below is a sample question correctly filled in:

REAP is the opposite of
1 obtain, 2 cheer, 3 continue, 4 exist, 5 sow

The correct answer is "sow". (It is helpful to underline the correct word.) The correct word is numbered 5. Then write the figure 5 in the brackets at the end of the line.

Answer the next sample question yourself.

Paper sells for 23 cents per pad. What will 4 pads cost?

The correct answer is 92¢. There is nothing to underline so just place "92¢" in the brackets.

Here is another example:

MINER MINOR — Do these words

1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite?

The correct answer is "mean neither the same nor opposite" which is number 3 so all you have to do is place a figure "3" in the brackets at the end of the line.

This test contains 50 questions. It is unlikely that you will finish all of them, but do your best. After the examiner tells you to begin, you will be given exactly 12 minutes to work as many as you can. Do not go so fast that you make mistakes since you must try to get as many right as possible. The questions become increasingly difficult, so do not skip about. Do not spend too much time on any one problem. The examiner will not answer any questions after the test begins.

Now, lay down your pencil and wait for the examiner to tell you to begin!

PLACE
ANSWERS
HERE

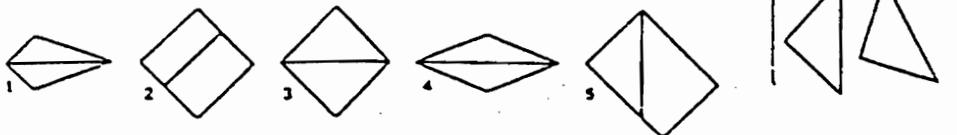
5

Do not turn the page until you are told to do so.

922062804

START HERE

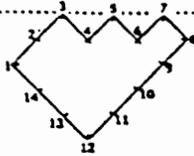
1. The last month of the year is
1 January, 2 March, 3 July, 4 December, 5 October.....
2. CAPTURE is the opposite of
1 place, 2 release, 3 risk, 4 venture, 5 degrade.....
3. Most of the items below resemble each other. Which one is least like the others?
1 January, 2 August, 3 Wednesday, 4 October, 5 December.....
4. Answer by printing YES or NO—Does R.S.V.P. mean "reply not necessary"?
5. In the following set of words, which word is different from the others?
1 troop, 2 league, 3 participate, 4 pack, 5 gang.....
6. USUAL is the opposite of
1 rare, 2 habitual, 3 regular, 4 stanch, 5 always.....
7. Which figure can be made from these two parts?.....



8. Look at the row of numbers below. What number should come next?
8 4 2 1 1/2 1/4 ?.....
9. CLIENT CUSTOMER—Do these words
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite?.....
10. Which word below is related to smell as chew is to teeth?
1 sweet, 2 stink, 3 odor, 4 nose, 5 clean.....
11. AUTUMN is the opposite of
1 vacation, 2 summer, 3 spring, 4 winter, 5 fall.....
12. A train travels 300 feet in 1/2 second. At this same speed, how many feet will it travel in 10 seconds?.....
13. Assume the first 2 statements are true. Is the final one:
1 true, 2 false, 3 not certain?
These boys are normal children. All normal children are active.
These boys are active.....
14. REMOTE is the opposite of
1 secluded, 2 near, 3 far, 4 hasty, 5 exact.....
15. Lemon candies sell at 3 for 10 cents. How much will 1 1/2 dozen cost?.....
16. How many of the five items listed below are exact duplicates of each other?.....

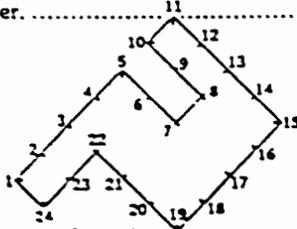
84721	84721
9210651	9210561
14201201	14210210
96101101	96101161
SS884444	SS884444
17. Suppose you arranged the following words so that they made a true statement. Then print the last letter of the last word as the answer to this problem.
always A verb sentence a has.....
18. A boy is 5 years old and his sister is twice as old. When the boy is 8 years old, what will be the age of his sister?.....
19. ITS ITS—Do these words
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite?.....
20. Assume that the first 2 statements are true. Is the final statement:
1 true, 2 false, 3 not certain?
John is the same age as Sally. Sally is younger than Bill. John is younger than Bill.....
21. A dealer bought some barrels for \$4000. She sold them for \$5000, making \$50 on each barrel. How many barrels were involved?.....
22. Suppose you arrange the following words so that they make a complete sentence. If it is a true statement, put a (T) in the brackets; if false, put an (F) there.
eggs lay All chickens.....
23. Two of the following proverbs have the same meaning. Which ones are they?.....
 1. Many a good cow hath a bad calf.
 2. Like father, like son.
 3. A miss is as good as a mile.
 4. A man is known by the company he keeps.
 5. They are seeds out of the same bowl.
24. A watch lost 1 minute 18 seconds in 39 days. How many seconds did it lose per day?.....
25. CANVASS CANVAS—Do these words
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite?..
26. Assume the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?
All Quakers are pacifists. Some of the people in this room are Quakers. Some of the people in this room are pacifists.....
27. In 30 days a boy saved \$1.00. What was his average daily saving?.....
28. INGENIOUS INGENUOUS—Do these words
1 have similar meanings, 2 have contradictory meanings, 3 mean neither the same nor opposite?..
29. Two men caught 36 fish; X caught 5 times as many as Y. How many fish did Y catch?.....

30. A rectangular bin, completely filled, holds 300 cubic feet of grain. If the bin is 3 feet wide and 10 feet long, how deep is it?
31. One number in the following series does not fit in with the pattern set by the others. What should that number be? $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$
32. Answer this question by printing YES or NO. Does A.D. mean "In the year of our Lord"?
33. CREDITABLE CREDULOUS—Do these words
1 have similar meanings. 2 have contradictory meanings. 3 mean neither the same nor opposite?
34. A skirt requires $2\frac{1}{4}$ yards of material. How many can be cut from 45 yards?
35. A clock was exactly on time at noon on Monday. At 2 P.M. on Wednesday, it was 25 seconds slow. At that same rate, how much did it lose in $\frac{1}{2}$ hour?
36. Our baseball team lost 9 games this season. This was $\frac{3}{8}$ of all they played. How many games did they play this season?
37. What is the next number in this series? 1 .5 .25 .125 ?
38. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write the numbers as the answer.

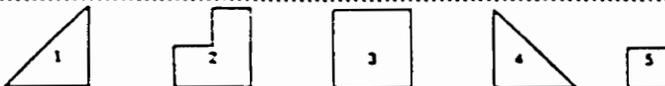


39. Are the meanings of the following sentences 1 similar, 2 contradictory, 3 neither similar nor contradictory? A new broom sweeps clean. Old shoes are easiest.
40. How many of the five items listed below are exact duplicates of each other?
- | | |
|------------------|------------------|
| Raxford, J. D. | Rockford, J. D. |
| Singleton, M. O. | Simbleton, M. O. |
| Richards, W. E. | Richard, W. E. |
| Siegel, A. B. | Seigel, A. B. |
| Wood, A. O. | Wood, A. O. |
41. Two of the following proverbs have similar meanings. Which ones are they?
1. You cannot make a silk purse out of a sow's ear.
 2. He that steals an egg will steal an ox.
 3. A rolling stone gathers no moss.
 4. You cannot damage a wrecked ship.
 5. It is the impossible that happens.

42. This geometric figure can be divided by a straight line into two parts which will fit together in a certain way to make a perfect square. Draw such a line by joining two of the numbers. Then write these numbers as the answer.



43. Which number in the following group of numbers represents the smallest amount?
10 1 .999 .33 11
44. Are the meanings of the following sentences
1 similar, 2 contradictory, 3 neither similar nor contradictory?
No honest man ever repented for his honesty. Honesty is praised and starves.
45. For \$1.80 a grocer buys a case of fruit which contains 12 dozen. She knows that two dozen will spoil before she sells them. At what price per dozen must she sell the good ones to gain $\frac{1}{3}$ of the whole cost?
46. In the following set of words, which word is different from the others?
1 colony, 2 companion, 3 covey, 4 crew, 5 constellation
47. Assume that the first 2 statements are true. Is the final one: 1 true, 2 false, 3 not certain?
Great men are ridiculed. I am ridiculed. I am a great man.
48. Three individuals form a partnership and agree to divide the profits equally. X invests \$4500, Y invests \$3500 and Z invests \$2000. If the profits are \$1500, how much less does X receive than if the profits were divided in proportion to the amount invested?
49. Four of the following 5 parts can be fitted together in such a way as to make a triangle. Which 4 are they?



50. In printing an article of 30,000 words, a printer decides to use two sizes of type. Using the larger type, a printed page contains 1200 words. Using the smaller type, a page contains 1500 words. The article is allotted 22 pages in a magazine. How many pages must be in the smaller type?

APPENDIX G
CALIFORNIA PSYCHOLOGICAL INVENTORY
DOMINANCE SCALE

The following questionnaire contains a series of statements. Read each one, decide how you feel about it, and then mark your answer to the right. If you *agree* with a statement, or feel that it is true about you, answer TRUE. If you *disagree* with a statement, or feel that it is not true about you, enter FALSE.

True/False

1. I doubt whether I would make a good leader.
2. It is hard for me to start a conversation with strangers.
3. I think I would enjoy having authority over other people.
4. I find it hard to keep my mind on a task or job.
5. I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.
6. When in a group of people I have trouble thinking of the right things to talk about.
7. School teachers complain a lot about their pay, but it seems to me that they get as much as they deserve.
8. I don't blame anyone for trying to grab all she can get in this world.
9. Every citizen should take the time to find out about national affairs, even if it means giving up some personal pleasures.
10. I should like to belong to several clubs or organizations.
11. I am certainly lacking in self-confidence.
12. When I work on a committee I like to take charge of things.
13. If given the chance I would make a good leader of people.
14. Sometimes at elections I vote for men about whom I know very little.
15. I very much like hunting.
16. A person does not need to worry about other people if he only looks after himself.
17. I can honestly say that I do not really mind paying my taxes because I feel that's one of the things I can do for what I get from the community.

18. When prices are high you can't blame a person for getting all she can while the getting is good.
19. In school, I found it very hard to talk in front of the class.
20. I am a better talker than a listener.
21. I would be willing to give money myself in order to right a wrong, even though I was not mixed up in it in the first place.
22. We should cut down on our use of oil, if necessary, so that there will be plenty left for the people fifty or a hundred years from now.
23. When the community makes a decision, it is up to a person to help carry it out even if he had been against it.
24. I would rather have people dislike me than look down on me.
25. I must admit I try to see what others think before I take a stand.
26. People should not have to pay taxes for the schools if they do not have children.
27. In a group, I usually take the responsibility for getting people introduced.
28. I would be willing to describe myself as a pretty "strong" personality.
28. There are times when I act like a coward.
30. I must admit I am a pretty fair talker.
31. I have strong political opinions.
32. I think I am usually a leader in my group.
33. Disobedience to any government is never justified.
34. I enjoy planning things, and deciding what each person should do.
35. I would rather not have very much responsibility for other people.
36. I usually have to stop and think before I act even in trifling matters.
37. It is pretty easy for people to win arguments with me.
38. I have not lived the right kind of life.

39. I have a natural talent for influencing people.
40. I like to give orders and get things moving.
41. I sometimes keep on at a thing until others lose patience with me.
42. The one to whom I was most attached and whom I most admired as a child was a woman (mother, sister, aunt, or other woman).
43. I'm not the type to be a political leader.
44. People seem naturally to turn to me when decisions have to be made.
45. I dislike to have to talk in front of a group of people.
46. I have more trouble concentrating than others seem to have.

APPENDIX H

SELF-ESTEEM INVENTORY

DARKEN the circle of ONE of the six numbers following the statement that most accurately reflects your feeling about the statement.

- 1 - certainly, always false**
- 2 - generally false**
- 3 - somewhat false, but with exceptions**
- 4 - somewhat true, but with exceptions**
- 5 - generally true**
- 6 - certainly, always true**

PLEASE DARKEN IN ONLY ONE NUMBER (1, 2, 3, 4, 5 OR 6)

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. All in all, I am inclined to feel that I am a failure.
5. I feel that I have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I am a person of worth, at least on an equal basis with others.
8. I wish I could have more respect for myself.
9. I am able to do things as well as most other people.
10. I take a positive attitude toward myself.
11. For me, the future looks bright.

APPENDIX I
SELF-MONITORING QUESTIONNAIRE

DARKEN the circle of ONE of the six numbers following the statement that most accurately reflects your feeling about the statement.

- 1 - certainly, always false**
- 2 - generally false**
- 3 - somewhat false, but with exceptions**
- 4 - somewhat true, but with exceptions**
- 5 - generally true**
- 6 - certainly, always true**

PLEASE DARKEN IN ONLY ONE NUMBER (1, 2, 3, 4, 5 OR 6)

1. In social situations, I have the ability to alter my behavior if I feel that something else is called for.
2. I am often able to read people's true emotions correctly through their eyes.
3. I have the ability to control the way I come across to people, depending on the impression I wish to give them.
4. In conversations, I am sensitive to even the slightest change in the facial expression of the person I'm conversing with.
5. When I feel that the image I am portraying isn't working, I can readily change it to something that does.
6. My powers of intuition are quite good when it comes to understanding others' emotions and motives.
7. I have trouble changing my behavior to suit different people and different situations.
8. I can usually tell when others consider a joke to be in bad taste, even though they may laugh convincingly.
9. I have found that I can adjust my behavior to meet the requirements of any situation I find myself in.
10. I can usually tell when I've said something inappropriate by reading it in the listener's eyes.
11. Even when it might be to my advantage, I have difficulty putting up a good front.
12. If someone is lying to me, I usually know it at once from that person's manner of expression.
13. Once I know what the situation calls for, it's easy for me to regulate my actions accordingly.

APPENDIX J

SELF-LEADERSHIP QUESTIONNAIRE

DARKEN the circle of ONE of the six numbers following the statement that most accurately reflects your feeling about the statement.

- 1 - certainly, always false**
- 2 - generally false**
- 3 - somewhat false, but with exceptions**
- 4 - somewhat true, but with exceptions**
- 5 - generally true**
- 6 - certainly, always true**

PLEASE DARKEN IN ONLY ONE NUMBER (1, 2, 3, 4, 5 OR 6)

Self-Goal Setting

- 1. I define the goals myself.
- 11. I set goals for myself.
- 20. I set goals for my own performance.
- 29. I define goals for myself.

Self-Observation and Evaluation

- 2. I judge how well I am performing.
- 12. I know how my performance stands.
- 21. I try to keep track of how well I'm doing while I work.
- 30. I keep track of my progress on tasks I am working on.

Rehearsal

- 3. I rehearse how I will do something new or difficult.
- 13. I practice (either physically or mentally) a new task before I do it the first time.
- 22. I go over a new assignment before I actually start working on it.
- 31. I think about how I am going to do something before I begin it.
- 47. I rehearse how I will deal with a challenge before I actually face the challenge.

Self-Reward

- 4. I reward myself with something I like when I have successfully completed an assignment.
- 14. I give myself a pat on the back when I meet a new challenge.
- 23. I reward myself for doing a good job.
- 32. I feel good about myself when I perform well.
- 40. I treat myself to something I enjoy when I do a task especially well.

Finding Natural Rewards

- 5. I seek out activities in my assignments that I enjoy doing.
- 15. I find my own favorite ways to get work done.
- 24. I take time to do assignments that I like to do.
- 38. I do my work in ways that I enjoy rather than just trying to get it over with.
- 41. I do tasks that make me feel good about myself.

Opportunity Thoughts

- 6. I look for the opportunities contained in problems I face.
- 16. I view unsuccessful performance as a chance to learn.
- 25. I think of problems as opportunities rather than obstacles.
- 34. I think about how challenges can be met, rather than why they cannot.
- 45. I think about eventual success rather than possible failure.

Efficacy Expectations

- 7. I think I can do very well on assignments.
- 17. I think I am capable of high performance.
- 26. I expect that I will perform well.
- 35. I have confidence in my ability to meet challenges.
- 43. I am sure that I am capable of overcoming almost any obstacle.

Self-Cue Management

- 8. I set up my own work/study area to help me focus my attention on my work.
- 18. I remove things from my work/study area if I feel they distract my attention.
- 27. I manage my immediate environment so that it stimulates my performance.
- 28. I use reminders to help me remember things I need to do.
- 36. I use reminders to focus my attention on important tasks, goals, or assignments.

Self-Problem Solving

- 9. I solve my own problems without being dependent on solutions from others.
- 37. I find solutions to my problems at school without anyone else's direct input.
- 42. I search for solutions to my problems without guidance from faculty, advisors, or other students.
- 48. I solve problems when they pop up without always checking with others who may be more knowledgeable.

Initiative

- 10. I take initiatives on my own at Virginia Tech.
- 19. I use opportunities to take initiative on my own.
- 33. I assume responsibilities on my own.
- 39. I use opportunities to take on new responsibilities.
- 44. I think of new ways of doing things on my own initiative.
- 46. I make improvements in how I do assignments on my own initiative without being told to do so.

APPENDIX K

LEADER PROTOTYPICALITY

Please rate group member _____ on the degree to which he or she appears to possess the personality characteristics listed below.

Prototypical Traits

1. CONFIDENT

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

3. DECISIVE

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

5. OPEN-MINDED

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

7. INTELLIGENT

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

9. LISTENS WELL

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

10. FRIENDLY

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

11. COMMUNICATES WELL

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

13. ORGANIZED

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

15. HONEST

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

17. RESPONSIBLE

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

19. CARING

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

20. CREATIVE

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

Neutral Traits

2. FLEXIBLE

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

6. DOMINANT

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

12. TACTFUL

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

16. HAPPY

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

Anti-Prototypical Traits

4. CRITICAL OF OTHERS

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

8. UNEMOTIONAL

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

14. MANIPULATIVE

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

18. RESERVED

1-----2-----3-----4-----5
This person possesses this characteristic to a very little extent This person possesses this characteristic to a moderate extent This person possesses this characteristic to a very great extent

APPENDIX L

GLOBAL LEADERSHIP IMPRESSION

The following questions concern your feelings toward and evaluations of group member _____. Please circle the answer which reflects your feelings.

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

1	2	3	4	5
Nothing	Very Little	Moderate Amount	Substantial Amount	Extreme Amount

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

1	2	3	4	5
Nothing	Very Little	Moderate Amount	Substantial Amount	Extreme Amount

3. How much leadership did this member exert?

1	2	3	4	5
Nothing	Very Little	Moderate Amount	Substantial Amount	Extreme Amount

4. How much control over a group's activities did this member exert?

1	2	3	4	5
Nothing	Very Little	Moderate Amount	Substantial Amount	Extreme Amount

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

1	2	3	4	5
Nothing	Very Little	Moderate Amount	Substantial Amount	Extreme Amount

APPENDIX M
BEHAVIORAL OBSERVATION
LEADERSHIP DIMENSIONS

BEHAVIORAL OBSERVATION

DIMENSION ONE

Clarifying the Situation: Offers facts and relevant information to help group discussion. Asks for facts and relevant information from other group members to help group discussion. Assists in developing or clarifying understanding of the goals of the situation and administration of the task.

DIMENSION TWO

Developing Ideas: Offers opinions, ideas, and suggestions to accomplish the goals of the group discussion exercise. Seeks ideas and suggestions for problem solution from the other group members. Assists in building on effective ideas and describing alternative courses of action.

DIMENSION THREE

Influencing Action: Influences the behavior of the group members to facilitate task resolution. Uses techniques such as showing relationships among various ideas, asking for consensus on ideas, and explaining the value of proposed alternatives to influence group decisions and final actions.

DIMENSION FOUR

Acknowledging Contributions: Accepts and supports openness of other group members. Gives recognition and praise for contributions from other group members. Challenges or disagrees with others' positions on group issues and ideas in a constructive, not threatening, manner.

DIMENSION FIVE

Facilitating: Uses a variety of procedural suggestions to encourage the goal achievement of the exercises. Develops plans on how to proceed and focuses attention on the task to be done.

APPENDIX N
BEHAVIORAL OBSERVATION
BEHAVIORAL CHECKSHEET - TASK 1 AND TASK 2

Code Number: _____
Position at Table: _____

SSN: _____

I. Clarifying the Situation

- (1) _ presents factual information regarding (1) _____
- (2) _ purpose of the task (2) _____
- (3) _ climate of the business school (3) _____
- (4) _ applicant profiles (4) _____
- (5) _ criteria for admission into program (5) _____
- 6) _ seeks information regarding (fact-finding) (6) _____
- (7) _ purpose of the task (7) _____
- (8) _ climate of the business school (8) _____
- (9) _ applicant profiles (9) _____
- (10)_ criteria for admission into program (10) _____

TOTAL _____

II. Developing ideas (problem solution)

- (1) _ seeks ideas/suggestions from others (1) _____
- (2) _ builds on others' effective ideas (2) _____
- (3) _ describes alternative courses of action (3) _____
- (4) _ offers own ideas (4) _____
- (5)_ other (5) _____

TOTAL _____

III. Influencing action

- (1) _ explains values of proposed solutions using sound rationale (1) _____
- (2) _ appeals to best interest of the group in trying to reach consensus (2) _____
- (3) _ asks for consensus/agreement on ideas (3) _____
- (4) _ gains consensus/agreement on ideas (4) _____
- (5) _ integrates/shows connections between ideas to gain agreement (5) _____
- (6) _ offers compromise positions (6) _____
- (7) _ other attempts to influence (7) _____

TOTAL _____

IV. Acknowledging contributions

- (1) _ maintains/enhances self-esteem of others (1) _____
- (2) _ acknowledges others' contributions (2) _____
- (3) _ praises others' contributions (3) _____
- (4) _ responds with empathy to the situation (4) _____
- (5) _ redirects discussion when others' self-esteem is threatened (5) _____
- (6) _ disagrees by focusing on facts rather than personal preferences (6) _____
- (7) _ challenges others' positions in a NON-threatening manner (7) _____
- (8) _ other (8) _____

TOTAL _____

V. Facilitating

- (1) _ makes procedural suggestions to move discussion along (1) _____
- (2) _ offers coherent structure to discussion (2) _____
- (3) _ attempts to bring others into discussion (3) _____
- (4) _ checks for understanding/agreement (4) _____
- (5) _ restates information to ensure understanding (5) _____
- (6) _ volunteers/directs others to keep time (6) _____
- (7) _ volunteers/directs others to make chart to organize group ideas (7) _____
- (8) _ establishes framework to help guide others' thinking of the issues (8) _____
- (9) _ summarizes results (9) _____
- (10)_ other (10) _____

TOTAL _____

Code Number: _____
Position at Table: _____

SSN: _____

I. Clarifying the Situation

- (1) _ presents factual information regarding (1) _____
- (2) _ purpose of the task (2) _____
- (3) _ information stated on data cards (3) _____
- (4) _ seeks information regarding (fact-finding) (4) _____
- (5) _ purpose of the task (5) _____
- (6) _ information stated on data cards (6) _____

TOTAL _____

II. Developing ideas (problem solution)

- (1) _ seeks ideas/suggestions from others (1) _____
- (2) _ builds on others' effective ideas (2) _____
- (3) _ describes alternative courses of action (3) _____
- (4) _ offers own ideas (4) _____
- (5) _ other (5) _____

TOTAL _____

III. Influencing action

- (1) _ explains values of proposed solutions using sound rationale (1) _____
- (2) _ appeals to best interest of the group in trying to reach consensus (2) _____
- (3) _ asks for consensus/agreement on ideas (3) _____
- (4) _ gains consensus/agreement on ideas (4) _____
- (5) _ integrates/shows connections between ideas to gain agreement (5) _____
- (6) _ offers compromise positions (6) _____
- (7) _ other attempts to influence (7) _____

TOTAL _____

IV. Acknowledging contributions

- (1) _ maintains/enhances self-esteem of others (1) _____
- (2) _ acknowledges others' contributions (2) _____
- (3) _ praises others' contributions (3) _____
- (4) _ responds with empathy to the situation (4) _____
- (5) _ redirects discussion when others' self-esteem is threatened (5) _____
- (6) _ disagrees by focusing on facts rather than personal preferences (6) _____
- (7) _ challenges others' positions in a NON-threatening manner (7) _____
- (8) _ other (8) _____

TOTAL _____

V. Facilitating

- (1) _ makes procedural suggestions to move discussion along (1) _____
- (2) _ offers coherent structure to discussion (2) _____
- (3) _ attempts to bring others into discussion (3) _____
- (4) _ checks for understanding/agreement (4) _____
- (5) _ restates information to ensure understanding (5) _____
- (6) _ volunteers/directs others to keep time (6) _____
- (7) _ volunteers/directs others to make chart to organize group ideas (7) _____
- (8) _ establishes framework to help guide others' thinking of the issues (8) _____
- (9) _ summarizes results (9) _____
- (10) _ other (10) _____

TOTAL _____

APPENDIX O

TABLES

Table 1

Unadjusted Means and Standard Deviations of Predictor Scores for Gender Subgroups

	<u>Men</u> (n=84)	<u>Women</u> (n=89)	<u>All</u> (n=173)
INTEL			
Mean	28.05 _a	26.09 _b	27.04
SD	5.34	4.60	5.05
DOM			
Mean	28.12 _a	27.83 _a	27.97
SD	5.99	6.35	6.16
SE			
Mean	53.04 _a	51.11 _a	52.05
SD	6.52	7.61	7.15
SM			
Mean	56.95 _a	57.26 _a	57.11
SD	8.99	6.35	7.73
SL			
Mean	213.81 _a	217.74 _a	215.83
SD	26.04	22.65	24.36

Note. Means in the same row that do not share common subscripts differ significantly at $p < .01$, two-tailed. INTEL = Intelligence; DOM = Dominance; SE = Self-Esteem; SM = Self-Monitoring; SL = Self-Leadership.

Table 2

Unadjusted Means and Standard Deviations of Criterion Scores for Gender Subgroups Across Tasks

	Task 1 - Competition			Task 2 - Cooperation		
	Men (n=84)	Women (n=89)	All (n=173)	Men (n=84)	Women (n=89)	All (n=173)
PROTO						
Mean	180.30 _{aA}	190.94 _{bA}	185.77 _A	188.08 _{aB}	197.39 _{bB}	192.87 _B
SD	15.27	18.84	17.96	19.10	18.28	19.20
GLI						
Mean	49.51 _{aA}	50.50 _{aA}	50.02 _A	54.20 _{aB}	56.26 _{aB}	55.26 _B
SD	10.61	9.40	9.99	11.47	9.07	10.33
P-RANK						
Mean	7.95 _{aA}	7.86 _{aA}	7.90 _A	7.81 _{aA}	7.57 _{aA}	7.69 _A
SD	2.83	2.64	2.73	2.67	2.77	2.72
	Men (n=77)	Women (n=79)	All (n=156)	Men (n=77)	Women (n=79)	All (n=156)
BEHAV						
Mean	35.14	31.96	33.50	21.19	20.77	20.98
SD	18.62	18.67	18.62	12.51	12.05	12.24
B-RANK						
Mean	2.38	2.32	2.35	1.91	1.91	1.91
SD	.83	.90	.86	.99	.96	.97

Note. Lowercase subscripts denote differences within tasks, and uppercase subscripts denote differences across tasks. Perceptual means in the same row that do not share common subscripts differ significantly at $p < .001$, two-tailed. Differences in means for the behavioral measures and ranking by observers were not calculated because of the distinctive nature of the tasks, the variation in time, and the different n size. PROTO = Prototypical Attribute Ratings; GLI = General Leadership Impression; P-RANK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RANK = Rank by Observer.

Table 3

Means, Standard Deviations, and Partial Correlations Holding Time Constant Between Leadership Dimensions in Task 1 and Task 2

	Task 1 Competition	Task 2 Cooperation	r
DIMENSION 1			
Mean	4.99	7.15	.20 *
SD	4.09	4.42	
DIMENSION 2			
Mean	11.35	6.63	.08 ns
SD	7.10	4.80	
DIMENSION 3			
Mean	8.44	0.64	.14 ns
SD	5.98	1.33	
DIMENSION 4			
Mean	5.97	2.27	.03 ns
SD	5.09	2.66	
DIMENSION 5			
Mean	2.97	4.46	.00 ns
SD	3.32	4.28	

Note. N = 156 for behavioral dimensions.

Table 4

Individual Deviation Scores by Rotation

Rotation 1 (Women)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	-2	-6	-3	0	-4	-17	-19	0	-17	0	
2	-3	-1	5	1	6	-11	8	-2	-16	-3	
3	-8	3	14	-4	38	-28	-15	7	-16	1	
4	3	-8	6	5	-7	-12	8	-3	-16	1	
5	-2	-3	8	1	11	13	-20	7	-19	1	
6	-1	1	4	-1	10	46	11	-5	-3	-1	
7	-4	11	3	-5	9	29	9	-4	3	-2	
8	11	-2	-3	6	10	15	7	-2	-8	0	
9	-6	11	6	5	9	-1	-18	4	-6	2	
10	1	7	1	2	11	11	18	-4	9	-2	
11	4	-4	-12	-1	-37	-24	-18	7	-2	3	
12	7	6	-20	-14	-40	33	24	-6	44	-3	
13	0	-4	0	0	-28	-16	3	0	7	0	
14	-5	-6	-10	15	30	-10	-11	6	2	2	
15	5	-8	0	0	-6	-18	18	-4	42	-2	
16	-1	4	4	-6	-8	-8	-11	4	-5	3	
Mean	25.31	27.06	52.00	57.25	214.25	395.13	106.63	15.31	41.94	5.00	
SD	5.03	6.32	9.54	6.28	21.45	21.94	15.24	4.76	18.97	2.00	

Rotation 2 (Men)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	-5	-3	6	-1	19	10	3	4	-13	1	
2	-1	-12	-4	-2	-24	9	-2	2	-8	-2	
3	4	-2	5	6	19	2	6	-6	0	1	
4	5	6	-3	-8	-15	-4	14	1	-11	0	
5	4	6	2	-5	29	-9	-3	-1	3	-2	
6	-4	-8	-12	-16	-42	-37	-21	4	-15	1	
7	1	9	4	18	1	6	17	-5	29	-3	
8	-5	4	4	-3	12	5	7	-5	31	1	
9	11	5	1	3	-14	8	12	-3	-2	-2	
10	-4	-5	7	12	33	-55	-56	8	-38	3	
11	0	-7	-9	-3	4	-21	-17	4	-16	2	
12	7	1	-8	-7	-3	25	21	-4	30	-2	
13	0	3	-11	-11	-15	9	-9	1	-17	1	
14	-4	5	4	0	15	31	14	-7	6	0	
15	-15	-6	4	1	-52	-6	-8	3	-10	2	
16	2	9	11	20	39	25	15	-1	27	-2	
Mean	27.75	27.31	56.06	57.25	210.38	383.88	111.56	15.69	51.75	4.94	
SD	6.08	6.53	7.89	9.84	26.15	22.46	19.33	4.38	20.24	1.85	

Note. The scores reported above have been adjusted for the rotation mean. INTEL = Intelligence; DOM = Dominance; SE = Self-Esteem; SM = Self-Monitoring; SL = Self-Leadership; PROTO = Prototypical Attributes; GLI = General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

Table 4 (continued)

Individual Deviation Scores by Rotation

Rotation 3 (Men)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	- 8	2	3	- 6	27	18	7	- 2	- 2	- 1	
2	- 2	-11	-11	-14	-24	-44	-21	- 1	-11	1	
3	0	5	11	7	9	23	27	- 8	1	- 1	
4	4	1	- 6	3	14	-24	-16	3	NA	NA	
5	3	8	- 0	13	20	-12	7	- 4	27	- 1	
6	9	- 8	- 4	-16	10	46	11	- 5	- 3	- 1	
7	3	- 1	- 6	4	-59	-19	1	- 1	NA	NA	
8	2	- 1	- 5	2	5	6	- 9	4	-48	3	
9	2	1	- 1	-15	- 2	38	14	3	NA	NA	
10	- 2	7	11	5	-38	8	19	- 8	NA	NA	
11	- 1	4	6	7	41	- 9	- 3	- 3	NA	NA	
12	- 2	- 1	- 3	- 4	-49	-12	-30	7	NA	NA	
13	- 2	0	0	- 1	9	-30	-23	6	-13	0	
14	- 4	- 9	- 9	- 7	-23	11	9	- 2	18	- 1	
15	- 1	13	10	8	57	37	30	- 3	48	- 3	
16	3	-10	- 2	9	0	- 7	- 4	2	NA	NA	
Mean	28.25	28.00	56.06	56.69	212.81	370.88	100.50	15.69	69.89	4.78	
SD	3.91	6.82	7.50	9.10	31.60	23.49	17.20	4.42	28.28	1.72	

Rotation 4 (Women)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	3	3	2	3	6	24	15	- 5	20	- 1	
2	- 2	0	1	7	22	-31	- 14	4	- 11	2	
3	- 1	1	2	0	- 3	12	9	2	NA	NA	
4	- 5	- 3	5	- 8	6	11	- 8	2	- 5	1	
5	- 1	- 3	8	20	-14	15	10	- 5	-32	1	
6	- 4	- 6	- 3	1	-33	-22	26	- 3	1	- 2	
7	- 2	4	- 3	- 2	1	-15	- 6	0	-33	1	
8	2	- 3	- 4	- 6	-12	-21	-32	- 5	NA	NA	
9	4	- 7	- 6	- 4	10	27	-19	5	NA	NA	
10	5	11	8	4	21	24	6	- 6	NA	NA	
11	7	3	- 5	- 6	-29	43	29	- 8	NA	NA	
12	0	0	- 2	- 1	19	-34	-38	7	NA	NA	
13	2	-15	- 8	-19	-26	-14	10	- 4	32	- 1	
14	- 3	5	- 1	1	2	-15	11	- 1	NA	NA	
15	- 1	6	12	- 4	12	1	13	0	23	- 3	
16	- 1	6	- 1	10	20	- 8	- 6	4	7	1	
Mean	27.19	27.13	55.63	57.75	226.50	380.81	106.38	15.81	60.22	4.89	
SD	3.35	6.27	6.11	8.60	17.76	23.05	19.16	4.58	23.08	1.69	

Note. The scores reported above have been adjusted for the rotation mean. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL = Self-Leadership; PROTO = Prototypical Attributes; GLI=General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

Table 4 (continued)

Individual Deviation Scores by Rotation

<u>Rotation 5 (Women)</u>											
<u>Subject</u>	<u>PREDICTOR SCORES</u>					<u>CRITERION SCORES</u>					
	<u>INTEL</u>	<u>DOM</u>	<u>SE</u>	<u>SM</u>	<u>SL</u>	<u>PRO</u>	<u>GLI</u>	<u>P-RNK</u>	<u>BEH</u>	<u>B-RNK</u>	
1	8	-3	-8	3	-23	-27	-8	-1	0	1	
2	-4	-9	-16	10	-19	-36	-5	0	10	0	
3	-6	4	-1	-4	15	-21	-11	-2	34	-1	
4	-5	-10	-11	-6	-45	-18	-7	3	-37	2	
5	0	-3	-3	-2	-49	11	-9	6	-23	1	
6	-3	3	2	10	52	32	9	4	-13	-3	
7	-4	-4	10	-6	31	4	-20	3	9	1	
8	0	-4	2	-1	-18	21	7	-2	-30	3	
9	2	4	3	5	36	11	-4	3	-17	1	
10	3	12	3	-2	-10	39	15	2	-31	0	
11	-4	7	5	-6	15	19	15	-4	3	-2	
12	-2	0	-4	2	-17	22	6	0	-20	-1	
13	1	6	8	1	12	-36	4	0	66	-2	
14	7	-7	1	-10	-2	-11	-17	3	-18	1	
15	3	2	3	-1	-8	15	11	-1	2	1	
16	9	9	13	6	27	-18	11	-8	68	-2	
Mean	27.31	28.44	54.75	57.50	218.81	380.44	105.81	15.38	72.19	5.00	
SD	4.74	6.49	8.43	5.40	28.73	24.28	11.31	3.46	31.91	1.67	

<u>Rotation 6 (Men)</u>											
<u>Subject</u>	<u>PREDICTOR SCORES</u>					<u>CRITERION SCORES</u>					
	<u>INTEL</u>	<u>DOM</u>	<u>SE</u>	<u>SM</u>	<u>SL</u>	<u>PRO</u>	<u>GLI</u>	<u>P-RNK</u>	<u>BEH</u>	<u>B-RNK</u>	
1	6	5	6	-6	10	-20	-11	3	-19	-1	
2	0	-7	-9	-5	-21	7	18	-5	23	0	
3	0	8	1	13	26	-5	-6	-1	6	-1	
4	0	-2	-7	-8	12	-12	-16	6	-46	3	
5	11	-1	3	-1	-41	-16	0	0	41	0	
6	-9	-1	2	20	45	-42	-15	4	-22	2	
7	0	4	3	6	7	16	27	-9	70	-3	
8	-1	-7	-13	-27	-31	-33	-17	4	-14	2	
9	1	8	-4	3	2	6	14	-4	39	-3	
10	10	12	1	8	19	29	18	-4	19	-1	
11	-2	-4	-1	-2	-13	-6	-5	1	-7	1	
12	-3	-10	5	-9	-15	32	5	-2	8	-1	
13	1	6	6	1	7	-11	-20	7	-34	1	
14	-1	-9	-2	-7	-39	-1	-11	-4	-32	3	
15	0	4	1	5	3	33	14	-4	-21	-1	
16	-6	1	9	12	32	24	4	-1	-10	-1	
Mean	28.44	27.44	57.63	56.19	214.19	360.06	103.94	15.94	61.06	5.00	
SD	5.09	6.65	6.69	11.06	25.08	22.27	14.79	4.49	31.64	1.86	

Note. The scores reported above have been adjusted for the rotation mean. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL = Self-Leadership; PROTO = Prototypical Attributes; GLI=General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

Table 4 (continued)

Individual Deviation Scores by Rotation

Rotation 7 (Men)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	12	-1	-6	1	-20	30	25	-5	0	-2	
2	0	-3	2	-7	10	13	16	-2	5	0	
3	-10	3	7	-4	26	-1	-25	7	-27	2	
4	6	5	8	10	0	4	-2	-1	31	-1	
5	-3	2	-14	4	-15	29	21	-6	16	-2	
6	-7	-1	-6	3	24	-8	-2	5	1	0	
7	1	-9	-14	-7	-32	9	-10	4	8	1	
8	5	11	9	7	63	16	3	0	-7	1	
9	7	7	-5	5	-3	-5	-4	0	28	-2	
10	10	7	2	-13	4	7	19	4	-8	0	
11	5	-8	5	-1	-17	-21	0	1	25	0	
12	-8	3	2	10	-10	5	9	-3	16	-3	
13	-1	-12	0	-13	-64	-13	-17	2	-32	3	
14	-16	-5	-6	2	15	-76	-37	7	-18	2	
15	2	3	7	8	22	-1	1	0	-11	0	
16	1	-2	4	2	2	7	10	-2	-22	1	
Mean	28.25	28.00	59.31	56.44	215.31	361.69	98.44	16.19	52.31	5.00	
SD	7.59	6.35	8.21	7.40	28.51	24.31	16.89	3.99	19.61	1.67	
Rotation 8 (Women)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	-5	3	10	1	28	8	9	-8	29	-2	
2	-6	-12	-18	5	-50	-22	-20	3	-1	0	
3	4	7	-1	-5	19	31	21	-3	47	-3	
4	0	2	-1	-2	13	16	-7	1	18	0	
5	1	10	-2	-7	-17	14	16	-4	14	-1	
6	-1	7	-9	7	-18	28	-12	3	-21	1	
7	-2	-2	7	4	-3	-8	-1	1	-7	1	
8	-2	-3	-1	-1	9	15	-15	7	-33	2	
9	2	-2	3	-5	-19	4	3	-2	-2	1	
10	11	5	4	0	1	18	17	-8	21	-2	
11	-5	0	1	-2	7	-27	3	-1	13	-1	
12	-1	0	8	7	-4	-20	2	4	-12	1	
13	-1	-7	-7	2	-1	-32	-5	0	-12	0	
14	3	-1	5	6	23	12	-4	6	-32	3	
15	-1	-8	-2	-4	11	6	1	2	-20	0	
16	1	6	3	-7	2	-46	-12	5	-4	0	
Mean	25.88	29.31	56.75	57.94	220.50	397.81	108.75	15.38	54.50	5.00	
SD	4.08	6.03	7.41	4.85	18.94	22.84	11.81	4.51	21.92	1.55	

Note. The scores reported above have been adjusted for the rotation mean. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL = Self-Leadership; PROTO = Prototypical Attributes; GLI=General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

Table 4 (continued)

Individual Deviation Scores by Rotation

Rotation 9 (Women)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	7	2	4	2	-13	0	-12	9	-18	0	
2	0	-8	-10	-9	-20	-73	-36	7	-25	2	
3	-2	0	-9	5	-29	-8	9	-3	14	-1	
4	-6	-10	-3	7	-28	-35	-16	3	-5	-1	
5	-12	0	12	7	39	8	-5	0	3	1	
6	3	10	5	-1	6	74	20	2	-2	0	
7	1	-7	4	1	1	30	-15	6	-32	3	
8	8	-2	-1	-5	-36	29	17	-5	18	0	
9	-3	-6	-8	-6	-7	40	17	-2	-6	0	
10	3	3	7	-1	8	12	7	-4	-2	-1	
11	6	-8	-4	3	-10	-40	-9	0	-10	0	
12	5	12	13	10	56	-16	2	4	19	-3	
13	-6	3	-12	-14	15	-5	21	-4	27	-3	
14	4	5	2	-3	-2	-15	-8	1	-13	3	
15	3	9	1	9	28	17	13	-6	26	-2	
16	-4	-2	-5	1	-13	-17	-3	-1	5	0	
Mean	25.44	28.06	56.88	56.38	216.69	387.06	107.13	15.44	40.50	4.88	
SD	5.54	6.80	8.83	6.66	25.27	34.95	15.96	4.47	17.15	1.78	
Rotation 10 (Men)											
Subject	PREDICTOR SCORES					CRITERION SCORES					
	INTEL	DOM	SE	SM	SL	PRO	GLI	P-RNK	BEH	B-RNK	
1	4	0	5	-6	-25	-18	-2	-4	16	-2	
2	-7	-7	7	17	40	-50	-29	5	-23	1	
3	-2	5	13	-10	28	-3	11	-2	9	0	
4	6	2	-6	-3	1	6	18	-3	3	0	
5	0	-2	-5	-6	-1	20	15	-6	4	0	
6	-4	-1	1	-3	12	19	24	-7	39	-3	
7	-6	-1	-9	6	26	12	6	0	-7	0	
8	-2	2	2	-9	-12	28	11	-1	12	-1	
9	0	2	1	19	-19	-1	-5	2	16	0	
10	-5	-4	-1	5	18	-14	-9	2	-7	0	
11	3	5	-11	-5	-29	-18	-23	4	-16	2	
12	5	3	2	-4	-24	8	10	-1	22	1	
13	-2	-2	0	11	13	-9	-21	6	-34	2	
14	2	2	2	-7	10	-3	-10	0	-22	1	
15	-1	-5	-2	-7	-20	-5	-25	8	-35	3	
16	8	3	4	-1	-15	27	23	-5	22	-3	
Mean	27.94	29.13	57.56	57.50	214.19	358.94	101.63	15.88	53.94	5.06	
SD	4.42	3.50	6.80	8.67	21.56	19.98	17.66	4.40	21.60	1.69	

Note. The scores reported above have been adjusted for the rotation mean. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL = Self-Leadership; PROTO = Prototypical Attributes; GLI=General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

Table 4 (continued)

Individual Deviation Scores by Rotation

<u>Rotation 11 (Men)^a</u>											
<u>Subject</u>	<u>PREDICTOR SCORES</u>					<u>CRITERION SCORES</u>					
	<u>INTEL</u>	<u>DOM</u>	<u>SE</u>	<u>SM</u>	<u>SL</u>	<u>PRO</u>	<u>GLI</u>	<u>P-RNK</u>	<u>BEH</u>	<u>B-RNK</u>	
2	- 2	- 8	- 2	- 10	- 11	53	2	6	13	- 2	
4	- 2	7	0	4	32	0	13	- 5	17	- 3	
5	5	2	- 3	- 3	- 28	-52	1	2	2	1	
7	- 2	- 1	6	8	7	0	-17	- 3	-32	3	
Mean	26.50	31.00	61.00	59.75	222.50	394.25	113.75	13.50	51.00	4.75	
SD	3.00	6.27	5.29	7.93	25.17	42.87	12.42	4.44	22.26	2.75	

<u>Rotation 12 (Women)^b</u>											
<u>Subject</u>	<u>PREDICTOR SCORES</u>					<u>CRITERION SCORES</u>					
	<u>INTEL</u>	<u>DOM</u>	<u>SE</u>	<u>SM</u>	<u>SL</u>	<u>PRO</u>	<u>GLI</u>	<u>P-RNK</u>	<u>BEH</u>	<u>B-RNK</u>	
1	- 1	5	2	- 1	4	9	2	0	NA	NA	
3	4	1	2	- 10	0	4	17	- 7	7	- 3	
4	3	- 11	-26	- 1	-34	-37	7	- 1	- 8	- 3	
5	- 4	12	11	1	34	20	- 6	- 3	2	1	
6	3	- 8	5	3	5	- 6	- 9	2	NA	NA	
7	- 2	5	7	- 5	- 4	-44	9	3	- 6	1	
9	-10	- 2	- 8	3	-12	16	- 9	6	5	0	
11	0	- 3	5	- 5	- 4	27	-22	4	NA	NA	
12	6	4	0	8	15	12	13	- 3	43	- 3	
Mean	24.89	26.33	56.11	56.33	203.44	389.11	105.22	15.11	48.44	5.33	
SD	4.88	7.14	12.19	6.65	18.55	24.92	12.62	4.08	18.55	2.18	

Note. The scores reported above have been adjusted for the rotation mean. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; PROTO=Prototypical Attributes; GLI=General Leadership Impression; P-RNK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RNK = Rank by Observer.

^a Data were discarded for individuals who completed a task in mixed-sex groups.

^b One participant failed to attend Phase II; data were discarded for individuals who worked in three-person groups.

Table 5

Correlation Matrix and Alpha Coefficients of Predictor and Criterion Variables for Task 1, Task 2, and Across Both Tasks

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1. INTEL (--)																						
2. DOM	.19*	(.76)																				
3. SE	-.02	.44**	(.86)																			
4. SM	-.10	.26**	.32**	(.85)																		
5. SL	-.16*	.47**	.52**	.43**	(.94)																	
6. GENDER	.00	.00	.00	.00	.00	(--)																
7. PROTO1 ^a	.09	.24**	.13	.01	.12	.00	(.89)															
8. PROTO2 ^b	.16*	.23**	.13	-.01	.04	-.00	.00	(.91)														
9. PROTO	.18*	.33**	.18*	-.00	.11	.00	.68**	.73**	(.90)													
10. GLI1 ^a	.21**	.39**	.13	.07	.05	-.00	.50**	.11	.42**	(.92)												
11. GLI2 ^b	.27**	.20**	.04	-.07	-.01	-.00	-.01	.69**	.49**	.21**	(.92)											
12. GLI	.31**	.38**	.11	.00	.02	.00	.31**	.51**	.59**	.77**	.78**	(.91)										
13. P-RANK1 ^a	-.21**	-.30**	-.15*	-.11	-.02	.00	-.37**	-.16*	-.37**	-.77**	-.19*	-.62**	(--)									
14. P-RANK2 ^b	-.23**	-.19*	-.02	.04	-.01	-.00	-.03	-.30**	-.24**	-.26**	-.71**	-.62**	.21**	(--)								
15. P-RANK	-.28**	-.32**	-.11	-.05	-.02	.00	-.26**	-.30**	-.39**	-.67**	-.58**	-.80**	.78**	.77**	(--)							
16. BEHAV1 ^a	.16*	.35**	.07	.08	.09	.16*	.19*	.11	.21**	.60**	.21**	.53**	-.28**	-.53**	(--)							
17. BEHAV2 ^b	.21**	.20*	.02	-.02	.02	.08	.05	.21**	.19*	.25**	.48**	.48**	-.21**	-.57**	-.50**	.21**	(--)					
18. BEHAV	.22**	.35**	.06	.05	.08	.12	.15	.18*	.23**	.55**	.39**	.62**	-.48**	-.48**	-.63**	.86**	.70**	(--)				
19. B-RANK1 ^a	-.11	-.42**	-.15	-.11	-.13	-.01	-.28**	-.17*	-.31**	-.68**	-.18*	-.56**	.57**	.15	.48**	-.67**	-.24**	-.60**	(--)			
20. B-RANK2 ^b	-.21**	-.17*	-.03	.00	-.14	-.01	-.07	-.22**	-.20*	-.19*	-.55**	-.49**	.14	.60**	.48**	-.28**	-.75**	-.56**	.21**	(--)		
21. B-RANK	-.21**	-.38**	-.11	-.07	-.18*	-.00	-.22**	-.25**	-.33**	-.57**	-.47**	-.65**	.46**	.48**	.62**	-.61**	-.64**	-.75**	.78**	.78**	(--)	

Note. N = 173 for Rows 1-14; N = 156 for Rows 15-20.

^a Variable names that are followed by a 1 are reported for Task 1.

^b Variable names that are followed by a 2 are reported for Task 2.

* p < .05 ** p < .01

Table 6

Partial Correlation Coefficients Among Predictors and Perceptual Measures of Leadership Controlling for SL

Variable	1	2	3	4	5	6	7
INTEL	--						
DOM	.31***	--					
SE	.08	.26**	--				
SM	-.04	.06	.12	--			
PROTO	.20**	.32***	.15	-.05	--		
GLI	.31***	.42***	.11	-.01	.59***	--	
P-RANK	-.29***	-.35***	-.12	-.04	-.39***	-.80***	--

Partial Correlation Coefficients Among Predictors and Behavioral Measures of Leadership Controlling for SL

Variable	1	2	3	4	5	6
INTEL	--					
DOM	.36***	--				
SE	.10	.23**	--			
SM	-.02	.06	.10	--		
BEHAV	.24**	.32***	.02	.00	--	
B-RANK	-.24**	-.35***	-.02	.00	-.70**	--

Note: $N=173$ for perceptual measures; $N=156$ for behavioral measures. INTEL=Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; PROTO=Prototypical Attributes; GLI=General Leadership Impression; P-RANK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RANK = Rank by Observer.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 7

Correlation Matrix of Intelligence with Perceptual Measures of Leadership

Variable	INTEL	PROTO	GLI
PROTO	.18 *		
GLI	.31 ***	.59 ***	
P-RANK	-.28 ***	-.39 ***	-.80 ***

Correlation Matrix of Dominance with Perceptual Measures of Leadership

Variable	DOM	PROTO	GLI
PROTO	.33 ***		
GLI	.38 ***	.59 ***	
P-RANK	-.32 ***	-.39 ***	-.80 ***

Note. N = 173. INTEL = Intelligence; DOM = Dominance; PROTO = Prototypical Attributes; GLI = General Leadership Impression; P-RANK = Perceptual Rank.

*** $p < .001$

Table 7 (continued)

Correlation Matrix of Self-Esteem with Perceptual Measures of Leadership

Variable	SE	PROTO	GLI
PROTO	.18 *		
GLI	.11	.59 ***	
P-RANK	-.11	-.39 ***	-.81 ***

Correlation Matrix of Self-Monitoring with Perceptual Measures of Leadership

Variable	SM	PROTO	GLI
PROTO	.00		
GLI	.00	.59 ***	
P-RANK	-.05	-.39 ***	-.81 ***

Correlation Matrix of Self-Leadership with Perceptual Measures of Leadership

Variable	SL	PROTO	GLI
PROTO	.11		
GLI	.02	.59 ***	
P-RANK	-.02	-.39 ***	-.81 ***

Note. N = 173. SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; PROTO=Prototypical Attributes; GLI=General Leadership Impression; P-RANK = Perceptual Rank.

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

Table 8

Correlation Matrix of Intelligence with Objective Measures of Leadership

Variable	INTEL	BEHAV
BEHAV	.22 **	
B-RANK	- .21 **	- .75 ***

Correlation Matrix of Dominance with Objective Measures of Leadership

Variable	DOM	BEHAV
BEHAV	.35 ***	
B-RANK	- .38 ***	- .75 ***

Note. N = 156. INTEL= Intelligence; DOM=Dominance; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

** p < .01 *** p < .001

Table 8 (continued)

Correlation Matrix of Self-Esteem with Objective Measures of Leadership

Variable	SE	BEHAV
BEHAV	.06	
B-RANK	-.11	-.75 ***

Correlation Matrix of Self-Monitoring with Objective Measures of Leadership

Variable	SM	BEHAV
BEHAV	.05	
B-RANK	-.07	-.75 ***

Correlation Matrix of Self-Leadership with Objective Measures of Leadership

Variable	SL	BEHAV
BEHAV	.08	
B-RANK	-.18 *	-.75 ***

Note. N = 156. SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

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

Table 9

T-Test for Differences Between Self-Monitoring Extremes

Variable	Mean	SD	t	df
<u>Perceptual</u>				
<u>PROTO</u>				
Group 1 (HSM) ^a	- 2.67	25.53	0.13	39
Group 2 (LSM) ^b	- 3.77	29.99		
<u>GLI</u>				
Group 1 (HSM)	- 2.84	18.03	- 0.26	39
Group 2 (LSM)	- 1.39	17.68		
<u>P-RANK</u>				
Group 1 (HSM)	0.34	4.17	0.00	39
Group 2 (LSM)	0.34	4.17		
<u>Behavioral</u>				
<u>BEHAV</u>				
Group 1 (HSM)	2.73	24.91	0.72	39
Group 2 (LSM)	- 2.68	22.54		
<u>B-RANK</u>				
Group 1 (HSM)	- 0.28	2.04	- 0.59	39
Group 2 (LSM)	0.09	1.93		

Note. All t-values were nonsignificant. HSM=High Self-Monitor; LSM=Low Self-Monitor; PROTO=Prototypical Attributes; GLI=General Leadership Impression; P-RANK=Perceptual Rank; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

^a n=22.

^b n=19.

Table 10

Summary of Regression Analysis for Variables Predicting Perceptions of Prototypical Leadership Attributes (PROTO)

Variable	<u>B</u>	<u>SE B</u>	<u>β</u>	<u>Total R²</u>
All Variables Entered in Step 1:				.13 ***
INTEL	0.51	.37	.10	
DOM	1.22	.35	.31 ***	
SE	0.32	.30	.09	
SM	- 0.27	.25	- .09	
SL	- 0.03	.10	- .03	

Summary of Regression Analysis for Variables Predicting Perceptions of General Leadership Impressions (GLI)

Variable	<u>B</u>	<u>SE B</u>	<u>β</u>	<u>Total R²</u>
All Variables Entered in Step 1:				.21 ***
INTEL	0.65	.23	.21 **	
DOM	1.01	.21	.40 ***	
SE	0.02	.19	.01	
SM	- 0.06	.15	- .03	
SL	- 0.08	.06	- .12	

Note. N = 173. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; PROTO=Prototypical Attributes; GLI=General Leadership Impression.

** p < .01 *** p < .001

Table 10 (continued)

Summary of Regression Analysis for Variables Predicting Perceptions of Leader Rank (P-RANK)

Variable	<u>B</u>	<u>SE B</u>	<u>β</u>	<u>Total R²</u>
<u>All Variables Entered in Step 1:</u>				.16 ***
INTEL	- 0.18	.07	- .20 **	
DOM	- 0.22	.06	- .32 ***	
SE	- 0.02	.05	- .04	
SM	- 0.02	.04	- .03	
SL	0.02	.02	.13	

Note. N= 173. INTEL= Intelligence; DOM=Dominance; SE=Self-Esteem; SM=Self-Monitoring; SL=Self-Leadership; P-RANK=Perceptual Rank.

** p < .01 *** p < .001

Table 11

Summary of Regression Analysis for Variables Predicting Number of Leader Behaviors (BEHAV)

Variable	<u>B</u>	<u>SE B</u>	<u>β</u>	<u>ΔR²</u>	<u>Total R²</u>
Step 1:				--	.09 ***
TIME	0.75	.20	.30 ***		
Step 2:				.14 ***	.23 ***
INTEL	0.53	.35	.12		
DOM	1.34	.39	.36 ***		
SE	-0.24	.29	-.07		
SM	0.02	.23	.00		
SL	-0.05	.10	-.05		

Summary of Regression Analysis for Variables Predicting Leader Rank (B-RANK)

Variable	<u>B</u>	<u>SE B</u>	<u>β</u>	<u>ΔR²</u>	<u>Total R²</u>
Step 1:				--	.00
TIME	0.00	.02	.03		
Step 2:				.17 ***	.17 ***
INTEL	-0.05	.03	-.13		
DOM	-0.10	.03	-.36 ***		
SE	0.02	.02	.07		
SM	0.00	.02	.02		
SL	-0.00	.00	-.06		

Note. N = 156. INTEL = Intelligence; DOM = Dominance; SE = Self-Esteem; SM = Self-Monitoring; SL = Self-Leadership; BEHAV = Number of Coded Leader Behaviors; B-RANK = Rank by Observer.

*** p < .001

Table 12

Correlations and R² for Specific Combinations of Predictors with Leader Emergence in Task 1 and Task 2

Variable	Task 1 - Competition		Task 2 - Cooperation		
	DOM+SE	INT+SL	DOM+SE	INT+SL	
GLI ^a	Corr	.29 ***	.10	.13	-.06
	R ²	.09 ***	.01	.02	.00
P-RANK ^a	Corr	-.26 ***	-.06	-.12	-.06
	R ²	.07 ***	.00	.01	.00
BEHAV ^b	Corr	.23 **	.12	.12	.07
	R ²	.05 **	.01	.01	.00
B-RANK ^b	Corr	-.32 ***	-.16 *	-.11	-.18 *
	R ²	.10 ***	.03 *	.01	.03 *

Note. Task 1 correlations and R² for behavioral measures control for Time1; Task 2 correlations and R² for behavioral measures control for Time2.

DOM+SE=Summed Dominance and Self-Esteem Scores; INT+SL=Summed Intelligence and Self-Leadership Scores; GLI=General Leadership Impression; P-RANK=Perceptual Rank; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

^a N=173.

^b N=156.

* p < .05

** p < .01

*** p < .001

Table 13

Partial Correlation Matrix of Perceptual Measures with Objective Measures of Leadership Controlling for TIME

Variable	PROTO	GLI	P-RANK
BEHAV	.24 **	.62 ***	- .63 ***
B-RANK	- .33 ***	- .65 ***	.62 ***

Note. N = 156. PROTO = Prototypical Attribute Ratings; GLI = General Leadership Impression; P-RANK = Perceptual Rank; BEHAV = Number of Coded Leader Behaviors; B-RANK = Rank by Observer.

** p < .01 *** p < .001

Table 14

Correlation Matrix of Perceived Attributes with Leader Emergence

Variable	P-INTEL (INTEL)	P-DOM (DOM)	P-SE (SE)
<u>Perceptual^a</u>			
PROTO	.71 *** (.18 *)	.39 *** (.33 ***)	.62 *** (.19 *)
GLI	.47 *** (.31 ***)	.77 *** (.38 ***)	.75 *** (.11)
P-RANK	-.31 *** -.28 ***	-.64 *** (-.32 ***)	-.59 *** (-.11)
<u>Behavioral^b</u>			
BEHAV	.26 *** (.22 **)	.60 *** (.35 ***)	.54 *** (.06)
B-RANK	-.29 *** (-.21 **)	-.58 *** (-.38 ***)	-.55 *** (-.11)

Note. P-INTEL=Perceived Intelligence; INTEL= Intelligence; P-DOM=Perceived Dominance; DOM=Dominance; P-SE=Perceived Self-Esteem; SE=Self-Esteem; PROTO=Prototypical Attributes; GLI=General Leadership Impression; P-RANK= Perceptual Rank; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

^a N=173.

^b N=156.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 15

T-Test for Differences Between HHHHH Profiles and LLLLL Profiles

Variable	n	Mean	SD	t	df
<u>Perceptual</u>					
<u>GLI</u>					
Group 1 (HHHHH)	16	8.07	10.33	3.65***	31
Group 2 (LLLLL)	17	- 8.87	15.91		
<u>P-RANK</u>					
Group 1 (HHHHH)	16	- 2.38	4.35	- 3.52***	31
Group 2 (LLLLL)	17	2.54	3.67		
<u>Behavioral</u>					
<u>BEHAV</u>					
Group 1 (HHHHH)	15	18.34	28.25	3.39**	29
Group 2 (LLLLL)	16	-10.48	18.34		
<u>B-RANK</u>					
Group 1 (HHHHH)	15	- 1.32	1.46	- 3.91***	29
Group 2 (LLLLL)	16	0.75	1.49		

Note. HHHHH=High Intelligence, High Dominance, High Self-Esteem, High Self-Monitoring, High Self-Leadership; LLLLL=Low Intelligence, Low Dominance, Low Self-Esteem, Low Self-Monitoring, Low Self-Leadership; GLI=General Leadership Impression; P-RANK=Perceptual Rank; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 16

T-Test for Differences Between HHHHH Profiles and All Other Profiles

Variable	<u>n</u>	<u>Mean</u>	<u>SD</u>	<u>t</u>	<u>df</u>
<u>Perceptual</u>					
<u>GLI</u>					
Group 1 (HHHHH)	16	8.07	10.34	2.23*	164
Group 2 (All Others)	150	- 0.93	15.74		
<u>P-RANK</u>					
Group 1 (HHHHH)	16	- 2.38	4.35	- 2.39*	164
Group 2 (All Others)	150	0.25	4.17		
<u>Behavioral</u>					
<u>BEHAV</u>					
Group 1 (HHHHH)	15	18.34	28.25	3.34***	154
Group 2 (All Others)	141	- 1.67	21.34		
<u>B-RANK</u>					
Group 1 (HHHHH)	15	- 1.32	1.46	- 3.13**	154
Group 2 (All Others)	141	0.12	1.72		

Note. HHHHH=High Intelligence, High Dominance, High Self-Esteem, High Self-Monitoring, High Self-Leadership; All Others=All other combinations of profiles; GLI=General Leadership Impression; P-RANK=Perceptual Rank; BEHAV=Number of Coded Leader Behaviors; B-RANK=Rank by Observer.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 17

Discriminant Analyses Statistics for Emergent Leaders

Variable	<u>Perceptual Ranks</u>		<u>Behavioral Ranks</u>	
	Standardized Coefficient	Structure Coefficient	Standardized Coefficient	Structure Coefficient
INTEL	0.50	.63	0.47	.56
DOM	0.65	.78	0.79	.88
SE	0.39	.51	- 0.25	.22
SM	0.13	.22	0.05	.14
SL	- 0.33	.16	0.27	.40
Wilk's λ		.93		.87
Canonical Correlation		.27		.36
Chi-square		12.47		21.27
df		5		5
p		.0289		.0007

Note. INTEL = Intelligence; DOM = Dominance; SE = Self-Esteem; SM = Self-Monitoring; SL = Self-Leadership.

Table 18

Gender Differences Across Tasks for INTEL and DOM

Variable	<u>INTEL</u>		<u>DOM</u>	
	Men	Women	Men	Women
<u>Perceptual^a</u>				
GLI1	.32**	.06	.39**	.40**
GLI2	.21	.35**	.27*	.12
GLI	.34**	.26*	.42**	.33**
P-RANK1	-.25*	-.17	-.31**	-.29**
P-RANK2	-.20	-.26*	-.32**	-.08
P-RANK	-.29**	-.27**	-.41**	-.23*
<u>Behavioral^b</u>				
BEHAV1	.17	.13	.33**	.38**
BEHAV2	.25*	.16	.24*	.16
BEHAV	.25*	.18	.36**	.35**
B-RANK1	-.22	.00	-.43**	-.42**
B-RANK2	-.19	-.22	-.26*	-.09
B-RANK	-.26*	-.15	-.44**	-.33**

Note. INTEL= Intelligence; DOM=Dominance; GLI1=General Leadership Impression in Task 1; GLI2=General Leadership Impression in Task 2; GLI=General Leadership Impression in both tasks; P-RANK1= Perceptual Rank in Task 1; P-RANK2= Perceptual Rank in Task 2; P-RANK= Perceptual Rank in both tasks; BEHAV1=Number of Coded Leader Behaviors in Task 1; BEHAV2=Number of Coded Leader Behaviors in Task 2; BEHAV=Number of Coded Leader Behaviors in both tasks; B-RANK1=Rank by Observer in Task 1; B-RANK2=Rank by Observer in Task 2; B-RANK=Rank by Observer in both tasks.

^a N=173.

^b N=156.

* p < .05

** p < .01

APPENDIX P
FIGURES

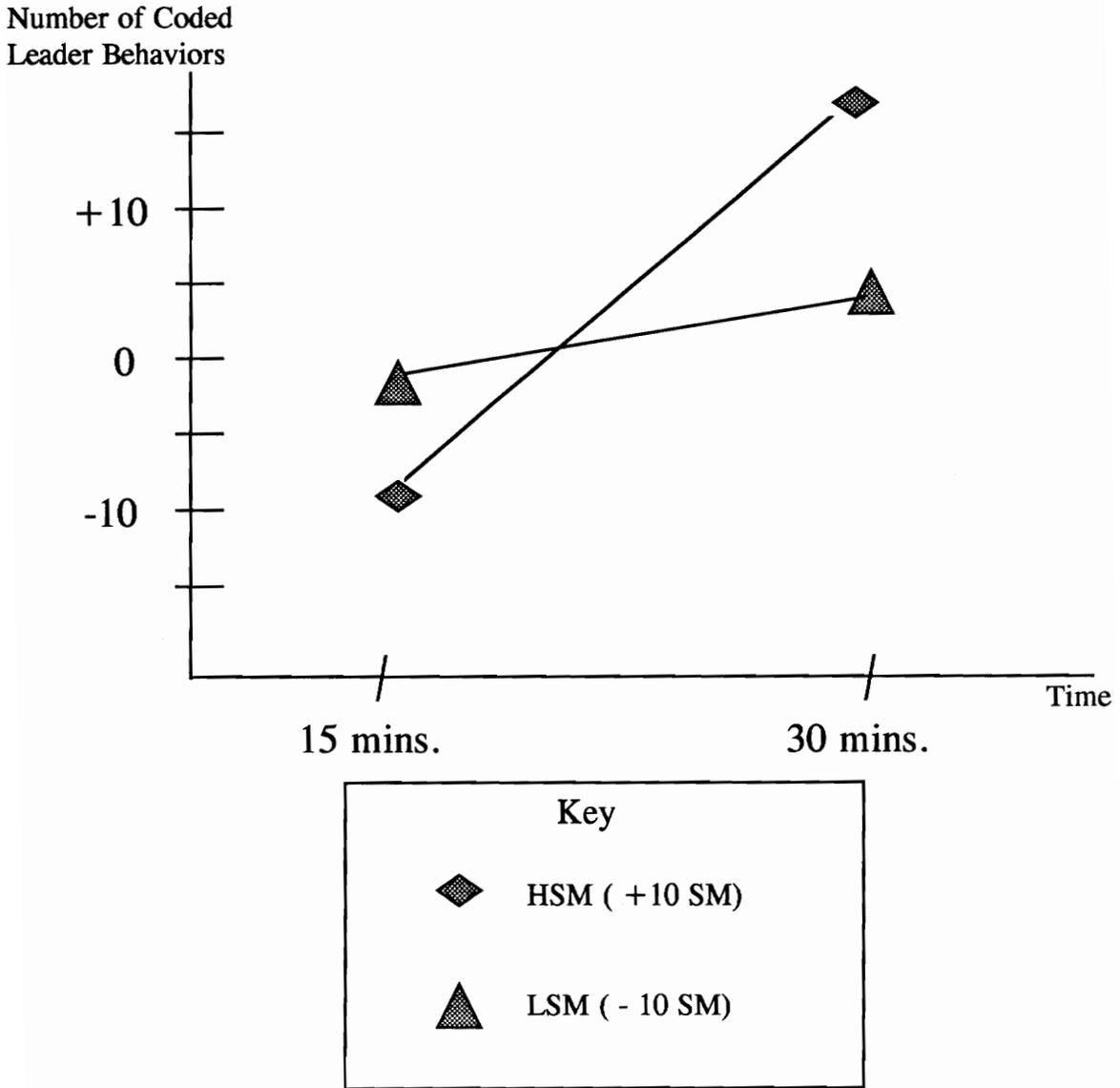


Figure 1: Interactional Effects of Self-Monitoring and Time

$$Y = -21.88 + .98 (TIME1) - 1.42 (SM) + .07 (TIME1 \times SM)$$

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EDUCATION:

Virginia Polytechnic Institute and State University Blacksburg, Virginia

Doctor of Philosophy in Psychology, May 1995.

Concentration: Industrial and Organizational Psychology

Dissertation Title: Investigating the Role of Personal Attributes in Leadership Emergence

Master of Science Degree in Psychology, May 1993.

Concentration: Industrial and Organizational Psychology

Thesis Title: The Role of Self-Leadership and Employment Characteristics in Predicting Job Satisfaction and Performance

Loyola College

Baltimore, Maryland

Bachelor of Arts Degree with Honors in Psychology, May 1991.

HONORS/AWARDS:

Dean's List, Psi Chi, National Merit Commended Student, cum laude distinction at graduation, Virginia Tech Research Grant

PROFESSIONAL EXPERIENCE:

United States Air Force Office of Scientific Research

**Manpower and Personnel Research Division, Human Resource Directorate
Armstrong Laboratory, Brooks Air Force Base, Texas**

Research Associate - May 1994 to Aug 1994

- Investigated and documented the racial and gender equity of the Air Force Officer Qualifying Test for predicting Officer Training School performance.
- Prepared and conducted a briefing for the Department of Defense and Armstrong Laboratory scientists on project results and made recommendations for future test use in the U.S. Air Force.

The Marlin Group - Baltimore, Maryland

Associate Consultant - May 1993 to Sept 1993

- Developed a structured panel interview for the position of Customer Representative for a large utility company. Compiled job analysis information, evaluated critical job dimensions, formulated questions for the structured panel interview, developed training manual for interview panel members and trained panel on interviewing skills.

**PROFESSIONAL
EXPERIENCE:**

The Marlin Group - Baltimore, Maryland (continued)

- Designed and generated an employee attitude survey for a manufacturing organization. Developed the questions and format for the employee attitude survey, performed the statistical analyses on results, and prepared results for presentation to higher management. Made recommendations to management for the interpretation of results and providing feedback.
- Conducted job analysis interviews for the implementation of a performance-based management system. Prepared job evaluation documentation including job descriptions for individual positions.
- Surveyed area law firms regarding policies and education on sexual harassment to develop a gender awareness/sexual harassment training workshop for law firms.

**Blue Cross and Blue Shield of Maryland
Corporate Headquarters - Owings Mills, Maryland**

Organizational Development Intern - July 1992 to Aug 1992

- Created a feedback and action planning workshop for HR personnel and management as part of the enterprise-wide employee survey process.
- Developed the feedback manual to accompany the workshop (materials available upon request).

Bell-Atlantic Corporation - Arlington, Virginia

Test Administrator - January 1992

- Administered concurrent validation selection test for the Universal Test Battery to approximately 100 of the randomly sampled employees at the C & P location in Baltimore.

McCormick & Company, Inc.

Corporate Headquarters - Hunt Valley, Maryland

Human Relations Intern - May 1990 to Aug 1991

- Assisted Director, Human Relations and Human Relations Specialists in daily, monthly, and annual HR assignments.

**TEACHING/ADVISING
EXPERIENCE:**

Virginia Polytechnic Institute and State University

- Instructor of Social Psychology - Aug 1994 to May 1995
- Undergraduate Advising Coordinator - Jan 1992 to May 1994
- Graduate Teaching Assistant - Aug 1991 to Dec 1991

GRANTS:

Manpower and Personnel Research Division, Human Resource Directorate
Armstrong Laboratory, USAF

Proposal submitted for an award of \$50,000 to investigate the equity of the ASVAB for minority enlisted personnel by investigating differences in performance scores of airmen in instructor-led versus instructor-less training programs. Award pending notification.

Virginia Polytechnic Institute and State University

Received a Graduate Research Development Project grant for the amount of \$500 for dissertation research.

**TECHNICAL
REPORTS:**

Roberts, H. E. (1994). Gender and Racial Equity of the Air Force Officer Qualifying Test (AFOOT) in Officer Training School Selection Decisions. Final report submitted to the Manpower and Personnel Division, Armstrong Laboratory, Brooks AFB, Texas.

**MANUSCRIPTS
UNDER REVIEW:**

Roberts, H. E., & Skinner, M. J. Gender and racial equity of the Air Force Officer Qualifying Test in officer cadet selection decisions. Manuscript submitted to Military Psychology.

Roberts, H. E., & Foti, R. J. Investigating the interactional effects of self-leadership and work structure in predicting job satisfaction. Manuscript submitted to Journal of Business and Psychology.

**PAPER
PRESENTATIONS:**

Roberts, H. E., & Skinner, M. J. Equity of the Air Force Officer Qualifying Test in selection. Paper to be presented at the Tenth Annual Conference of the Society for Industrial and Organizational Psychology, May 1995.

Roberts, H. E., & Foti, R. J. Variation in implicit leadership theories of student leaders and nonleaders. Paper to be presented at the 103rd Annual Convention of the American Psychological Association, August 1995.

Roberts, H. E., & Foti, R. J. Investigating differences in self-leadership, self-monitoring, and leader prototypes held by student leaders and nonleaders. Paper to be presented at the 103rd Annual Convention of the American Psychological Association, August 1995.

Roberts, H. E., & Foti, R. J. (July, 1994). Evaluating the interaction between self-leadership and work structure in predicting job satisfaction. Paper presented at the Sixth Annual Convention of the American Psychological Society, Washington DC.

Franke, R. H., & Roberts, H. E. (February, 1991). Gender gap in aptitude test scores: Exploratory analysis of possible determinants. Paper presented at the annual meeting of AAAS, Washington, DC.

**PROFESSIONAL
AFFILIATIONS:**

Student Affiliate of the American Psychological Association
Student Affiliate of the American Psychological Society
Student Affiliate of the Society for Industrial and Organizational Psychology
Student Affiliate of the Personnel Testing Council of Metropolitan Washington
Student Affiliate of the Society for Human Resource Management
Member of National Psi Chi

**RELEVANT
COURSEWORK:**

Organizational Psychology I and II
Industrial Psychology I and II
Organizational Behavior
Employee Selection and Performance Appraisal
Human Resource Management
Advanced Topics in Applied Psychology: Cognition and Decision Making
Advanced Topics in Applied Psychology: Leadership Theory
Advanced Psychometric Theory
Psychological Tests and Measurement
Quantitative Topics in Applied Psychology
Research Methods
General Statistics
Multiple Regression Analysis
Multivariate Statistics

**COMPUTER
SKILLS:**

SPSS-X	WordPerfect for DOS	dBASE III
SPSS-PC	WordPerfect for Windows	Harvard Graphics
SPSS-PC for Windows	Microsoft Word	Power Point
SAS	Word for Windows	
SAS-PC for Windows	Lotus 1-2-3	

Heather E. Roberts