

**Individual Differences and Leader Emergence in a Transformational Context: An  
Examination of Person and Process**

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(ABSTRACT)

The primary purpose of this research was to extend current knowledge of the individual differences that are traditionally associated with leadership emergence and to determine whether the individuals characterized by individual differences attributed to transformational leaders were also likely to emerge as a leader in a leaderless group. Leadership behaviors and followers' perceptions of emergent leadership of individuals with Ross and Offermann's (1997) enabling and forceful personality patterns were examined in an emergence setting that facilitates transformational leadership. A secondary purpose of this research was to further our knowledge of the process of leadership. The leadership process defined by Lord and his associates (Lord, Fot & Phillips, 1982; Lord, Foti & DeVader., 1984) was expanded to include relevant elements of Mischel's theory of personality (Mischel, 1999). The contextual influence of the task situation and feedback from others were examined. Individuals did not differ on transformational leadership behavior, but forceful individuals did exhibit a greater proportion of initiating structure behaviors than other individuals and were rated highest on leadership. In addition, there was no evidence of changes in the leadership process due to feedback based on the perceptions of others. Limitations and implications for future research are discussed.

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*You must do the thing you think you cannot do.*

-Eleanor Roosevelt (1960)

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Individual Differences and Leader Emergence in a Transformational Context: An Examination  
of Person and Process

Two influential reviews published over four decades ago detailing potential links between the individual differences and leadership literatures were decidedly pessimistic (Stogdill, 1948; Mann, 1958). However, since the mid-1980s there has been a resurgence of interest in individual differences variables among leadership researchers. This interest was stimulated by meta-analytic findings indicating that prior reviews may have drastically underestimated relationships between individual differences and leadership outcomes (Lord, DeVader, and Alliger, 1986). Subsequent research has been focused largely in two areas of leadership research: leader emergence (Zaccaro, Foti, & Kenny, 1991) and transformational leadership (Ross & Offermann, 1997).

Interestingly, the two streams of research have identified rather different groups of traits as worthy of study. This is not entirely surprising, as some researchers have noted that the characteristics and behaviors necessary to be identified or selected as a leader in a leaderless group may differ from those required for long-term success in that leadership position (Lord, Foti, & DeVader, 1984), and persons who may be perceived as being leader-like may or may not have the skills necessary to build and guide effective teams over time (Hogan, Curphy, & Hogan, 1994). Despite these propositions, there are several reasons to believe that in addition to the individual differences traditionally associated with leadership emergence, the individual differences associated with transformational leadership should also be linked to leadership emergence.

First, the characteristics associated with both transformational leadership and leadership emergence have been related to subordinates or followers leader prototypes. Leader prototypes

are abstract representations of what individuals believe leaders are like (Lord, Fotti, & Phillips, 1982). Leadership perception results from a comparison of the attributes and behaviors of the individual to followers' leader prototypes. A research study by Bass and Avolio (1989) found that attributes associated with participants' prototypical or ideal leader were highly correlated with the charisma, intellectual stimulation, and individual consideration dimensions of transformational leadership ratings. These authors stated that when people think about leaders, they think about transformational characteristics. That is, the individual differences associated with transformational leadership are the same as those contained in individuals' leader prototypes. In addition, because both transformational leadership and leadership emergence are defined by the perceptions of subordinates or followers, they are both measured by how well the leader fits subordinates' images of a prototypical leader. Transformational leadership is typically assessed by asking subordinates to rate their immediate supervisors' behaviors using the Multifactor Leadership Questionnaire (MLQ; Bass 1985). Similarly, emergent leadership is assessed as the participant who is perceived as most leader-like by others in a leaderless group.

Second, in a recent paper, Shamir and Howell (1999) propose that the both the emergence and effectiveness of transformational leadership may be facilitated by some contexts and inhibited by others. According to these authors, the same conditions that contribute to emergence of transformational leadership by creating a need for it or making followers more receptive to it, also contribute to the effectiveness of transformational leadership by making followers more receptive to their influence. Thus, it is important to understand if people who possess individual differences associated with transformational leadership are recognized as leaders by followers in a leaderless group when the contextual variables facilitate transformational leadership.

In order to address this issue, this study represents an attempt to bridge the gap between research on personality variables associated with transformational leadership and leadership emergence. Specifically, in the current research individuals characterized by individual differences associated with an “enabling pattern” identified by Ross and Offermann (1997) were compared to individuals characterized by individual differences associated with a pattern termed the “forceful pattern” by Ross and Offermann (1997). The enabling pattern consists of high levels of pragmatism, nurturance, and femininity, while the forceful pattern is characterized by high levels of dominance and masculinity. To date, the variables associated with the forceful pattern have been linked to leader emergence but the variables related to the enabling pattern diverge from those associated with leader emergence. Therefore, the primary aim of the current study is to determine whether the enabling pattern identified by Ross and Offermann (1997) also plays a role in the leader emergence process.

Prior to a discussion of the current research, the relationships between individual difference variables and both leader emergence and transformational leadership are reviewed. However, I must first define in a general sense what I mean by leadership, as this is centrally related to the importance of this study. Traditionally, leadership emergence has been defined as a fundamentally social-cognitive process (Lord and Maher, 1990). Essential to the realization of the leadership role is the role of followers; without the followers’ perceptions of emergence and effectiveness, leadership, by definition, could not occur (Hollander, 1992; Hollander & Offermann, 1990). Based on information-processing theories of leadership categorization (Lord et al., 1982), leadership has been thought to result as an outcome of traits associated with, behaviors emitted, and outcomes produced by the leader, and then *perceived* by followers. In this sense, leadership is a perceptual process occurring in “the eyes of the followers.”

This information processing conceptualization has done much to progress our understanding of leadership over the past twenty years. However, in a recent review of leadership literature, Lowe and Gardner (2001) call for more research focused toward understanding leadership as a process and for attention to be paid to contextual influences on leadership. In an exchange of theoretical letters, Sternberg and Vroom (2002) agreed that an emphasis on person-situation would advance our understanding of leadership. At the same time, in a review of personality psychology, Funder (2001), declared the person-situation debate in personality as nearly over, citing new theories that attempt to integrate individual differences and contexts into the social-cognitive approach to personality. In particular, Funder (2001) recognizes the potential of Mischel's cognitive-affective personality system (CAPS) theory (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) to further understanding of personality as a dispositionally and situationally influenced process. The current research borrows relevant elements from Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) theory and applies it to the domain of leadership to answer Lowe and Gardner's (2001) call for a greater understanding of leadership as a process. Therefore, another contribution of this research is to further our understanding of how the leadership process changes or maintains over time.

I incorporated contextual influences to further our understanding of the leadership process by operationalizing the enabling pattern using a quantitatively different methodology than that employed by Ross and Offermann (1997). Ross and Offermann (1997) established the importance of the enabling pattern through an examination of the relationships between traits and subordinate perceptions of transformational leadership. Using correlational methods, the individual importance of the five traits was established. However, by using a pattern approach a

broader picture of the individual is captured, which is more consistent with the way Mischel (1999) conceptualizes personality. In addition, Lord and Emrich (2001) suggest that because patterns of traits contain important information beyond their specific elements, it may be more useful for the effect of the traits to be examined in an interactive, multivariate sense. Therefore, the enabling variables were operationalized as a personality pattern in the current study. The adoption of the “pattern approach” (Magnusson, 1995; Smith & Foti, 1998) allows the enabling and forceful patterns to be explored at the person level. In other words, rather than studying the independent relationships between the enabling or forceful traits and leader emergence, I explored the tendency of *individuals* characterized by the enabling and forceful patterns to emerge as leaders.

A conceptual framework is also presented to demonstrate how elements of Mischel’s personality theory (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) can add to our understanding of how the leadership process changes or maintains over time. First, this research incorporated Mischel and Shoda’s (1995; 1998) assertion that contextual variables that affect the psychological features of situations interact with individuals’ dispositions to influence behavior and consequences. Therefore, in the present study, the leadership behaviors and emergence of individuals with the enabling and forceful patterns are studied in a context that is designed to facilitate transformational leadership. Second, this study examined how feedback from other group members about individuals’ leadership emergence affected individuals’ behavior on subsequent tasks with similar psychological features.

In brief, since both transformational leadership and leadership emergence depend critically on follower perceptions, it is important to determine whether the “enabling” personality profile identified by Ross and Offermann (1997) also predicts leader emergence. The primary

aim of this study was to compare the influence of individuals with the enabling and forceful personality patterns in an emergence setting that facilitates transformational leadership. A secondary focus of this study was to incorporate contextual influences and further our understanding of the leadership process.

### *Overview of Transformational Leadership*

Before delving into the literature on transformational leadership and leadership emergence, it is important to understand the conceptual history of transformational leadership and how this conceptualization of leadership behaviors is related to important organizational outcomes. In 1978, descriptive research by Burns on political leaders identified an early theory of a transforming leadership process. In Burns' (1978) conception, the transforming leadership style was described as a process in which leaders seek to raise the moral consciousness of followers by appealing to their higher-order moral values such as liberty, justice, peace and humanitarianism, inspiring followers to look beyond more basic emotions such as jealousy, greed, or hatred. According to Burns, transforming leaders were enlightened leaders who lead followers to self-actualize beyond their typical selves and become their "better selves" (Yukl, 1998).

Burns (1978) distinguished the transforming leadership from the more traditional exchange process of transactional leadership. The explicit exchange between a leader and his or her followers captured by transactional leadership has been explored in several leadership theories including the contingency model (Fiedler, 1967), path-goal theory (House, 1971; House & Mitchell, 1974) and vertical dyad linkage theory (Dansereau, Graen, & Haga, 1975). Transactional leaders motivate subordinates by appealing to their self-interests. In contrast, a transforming leader might achieve organizational goals by motivating followers to identify with

and align their personal values with the values and mission of the organization. Thus, Burns (1978) viewed transforming and transactional leadership as polar opposites.

Bass (1988, 1998) expanded upon the early work of Burns (1978), and has identified two conceptually distinct categories of leader behavior, transactional and transformational. Similarly to Burns (1978), Bass (1988, 1998) conceptualizes transactional leaders as attempting to identify the needs of subordinates and provide them with valued rewards, contingent upon a pre-established level of performance. However, the theories differ in that Burns (1978) distinguishes between the transactional and the transforming as two essentially distinct *leader types*, whereas Bass (1988, 1998) distinguishes between these concepts in terms of different *leader behaviors*. Furthermore, Bass (1988, 1998) conceptualizes transforming leadership as transformational leadership. Though similar, Bass' (1988, 1998) conceptualization of this phenomenon lacks the developmental focus of followers inherent in Burns' (1978) conceptualization of transforming leaders. That is, Bass (1988, 1998) regards as transformational any leader who motivates followers to transcend their own needs to adhere to the values of the organization, increasing motivation and commitment, regardless of the benefit to the followers. Finally, whereas Burns' (1978) studied transforming leaders as rare and extraordinary political leaders, Bass (1988, 1998) introduced the concept of transformational leadership into the more common area of organizations.

Bass (1996) distinguished between behaviors associated with transformational and transactional leadership. Transactional leaders generally engage in a passive form of management, and may only intervene if performance standards are not met. They may engage in Laissez-faire leadership; showing indifference to work tasks and subordinates by not responding to subordinate needs, not monitoring their progress or ignoring problems (Yukl, 1998). In

contrast, transformational leader behaviors are active in nature. Rather than simply *meeting* the needs of subordinates, such leaders induce subordinates to *transcend* their own self-interests and focus on organizational goals and company vision (Yammarino, Spangler, & Bass, 1993).

The leader behaviors enacted in the pursuit of transforming the needs of subordinates include forming individual bonds with employees, and stimulating their intellectual curiosity. In addition, such leaders also engage in charismatic behaviors that involve transmitting a mission to subordinates inspiring them to sacrifice personal concerns for the collective good (Bass & Avolio, 1994). Specifically, Bass' (1985; 1996; 1998) formulation of transformational leadership included four dimensions:

*Idealized influence/Charisma*: behavior that activates strong individual identification with followers; conveys a vision and a mission; generate enthusiasm, trust, and pride in subordinates

*Individualized consideration*: behavior that provides support and encouragement to followers; gives personal attention to subordinates concerns; coaches and develops subordinates

*Inspirational motivation*: behavior that portrays a compelling vision, sometimes using symbols; models appropriate behavior through self-determination and commitment to obtaining objectives

*Intellectual stimulation*: behavior that makes followers aware of problems and influences them to view problems in creative new ways; stress intelligent reexamination of problems and support subordinates in exploring innovate approaches to problem solving

Bass' (1985; 1996; 1998) conceptualization of transformational leadership in terms of behaviors is significant as these behaviors have been linked to many important organizational

outcome variables. For example, employees' perceptions of transformational behaviors have been shown to increase followers' affective commitment (Bycio, Hackett, & Allen, 1995), follower reverence, perceptions of task performance and collective identity (Conger, Kanungo & Menon, 2000), task performance and adjustment (Howell & Frost, 1989; Shea & Howell, 1999) social change (Foil, Harris & House, 1999), and group creativity (Jung, 2001). In addition, transformational leadership may indirectly drive subordinate organizational citizenship behaviors by generating increased trust and job satisfaction (Podsakoff, MacKenzie, Moorman, & Fetter, 1990, Shea & Howell, 1999). Transformational leadership behaviors have also been linked to effective job performance assessed at both individual (Podsakoff, MacKenzie, & Bommer, 1996; Sosik, Potosky, & Jung, 2002) and group levels (Clover, 1990; Howell & Avolio, 1993). Finally, recent research indicates that transformational leadership is positively related to followers' development (Dvir, Eden, Avolio, & Shamir, 2002) and followers' feedback-seeking intentions (Levy, Cober, & Miller, 2002), which may have implications for leadership coaching.

#### *Individual Differences and Transformational Leadership*

Given such findings, which support the important influence of transformational leadership on organizational outcomes, it is critical to understand what factors might pre-dispose an individual to be perceived as a transformational leader. Several researchers have stressed the importance of exploring the individual differences of transformational leaders (e.g., Avolio & Bass, 1988; Avolio & Gibbons, 1988; Bass, 1985; House, 1977) because identification of transformational characteristics could have implications for organizational recruitment, selection and training.

An attempt at identifying individual differences in seven areas of personal characteristics (emotional coping, behavioral coping, abstract orientation, risk taking, innovation, use of humor,

and experience) related to transformational leadership found mixed success (Dubinsky, Yammarino, & Jolson, 1995). However, there has been support for a relationship between individual differences and transformational leadership. For example, individuals with the personality orientation of inventors and motivators are more transformational in their leadership style than managers and implementers (Church & Waclawski, 1998). In addition, transformational leadership has been associated with secure attachment (Popper, Mayseless & Castelnovo, 2000) and some elements of the Big Five personality factors, including extraversion, agreeableness, and openness to experience (Judge & Bono, 2000). Furthermore, Crant and Bateman (2000) found that self-reported proactive personality of managers is related to supervisors' ratings of charismatic leadership, and accounts for a significant amount of variance in charismatic leadership beyond the Big Five personality factors, in-role behavior, and social desirability. Finally, Atwater and Yammarino (1993) found supervisors' intelligence to be associated with subordinates' ratings of transformational leadership.

In a research study conducted at the United States Air Force Academy, Clover (1988) assessed the transformational leadership of commissioned officers using the MLQ (Bass, 1985). He compared the individual differences of transformational leaders to those of nontransformational leaders. Clover (1988) found that transformational leaders scored higher than nontransformational leaders on scales measuring the attributes of femininity, nurturance and pragmatism and lower on scales measuring the attributes of masculinity, dominance, criticalness and aggression. Clover (1988) concluded that transformational leaders in his study had characteristics consistent with the intellectual stimulation and individualized consideration aspects of transformational leadership. These results were rather surprising because these traits are not stereotypically associated with military officers.

Ross and Offermann (1997) replicated and extended Clover's (1988) research by having cadet subordinates rate the extent to which certain adjectives described the personality of the commissioned officers who served as their supervisors. In addition, subordinate ratings were also utilized to assess a supervisor's level of transformational leadership. Ross and Offermann's (1997) findings yielded positive correlations between transformational leadership and self-confidence, pragmatism, nurturance, and feminine attributes, and negative correlations between transformational leadership and criticalness and aggression. They found that subordinates' perception of an "enabling" personality pattern of supervisors was positively associated with subordinate ratings of transformational leaders. This pattern consisted of high levels of pragmatism, nurturance, and feminine attributes, and low levels of criticalness and aggression. The enabling pattern accounted for 38% of the variance in transformational leadership.

Ross and Offermann (1997) also found that a secondary, "forcefulness" pattern of supervisors, consisting of self-confidence, dominance, and masculinity, accounted for an additional 10% of the variance in transformational leadership after enabling was already in the model. However, forcefulness was not a significant predictor of transformational leadership in and of itself. Ross and Offermann (1997) concluded that the enabling pattern was the *core* personality pattern associated with transformational leadership. Thus, the variables associated with the enabling personality pattern are important predictors of transformational leadership, and are studied in the present investigation of transformational leadership in an emergence setting.

There is clearly an association between some individual differences and transformational leadership. However, the characteristics that comprise the enabling personality pattern are not necessarily the characteristics associated with leadership emergence. In fact, past research shows that the characteristics that comprise the forceful personality pattern have been traditionally

associated with leadership emergence. Next, I review previous research on the relationship between traits and leadership emergence and present a review of the characteristics that have been associated with leadership emergence. In the section that follows, I discuss the similarities and differences between the characteristics associated with transformational leadership and the characteristics associated with leadership emergence.

### *Individual Differences and Leadership Emergence*

Leadership emergence occurs when an individual in a group of people without a clearly defined leader exhibits notably high leadership behavior and is thereby perceived by the other group members as the leader (Berdahl, 1996). Early research on leadership emergence sought to identify those traits that distinguished leaders from followers (Bird, 1940; Jenkins, 1947).

Although Mann (1959) supported Stogdill's (1948) findings indicating that intelligence and dominance were traits associated with leaders, he found the relationships to have little strength (median  $r = .25$ ). Furthermore, Barnlund's (1962) failure to find stable and consistent leadership characteristics through the variation of both group membership and task using a rotation design seemed to negate the trait hypothesis of leadership emergence. Taken together, these findings severely reduced research on individual differences in leadership emergence.

Research in the 1980s on the relationship between traits and leadership emergence suggested that stable differences do exist, renewing interest in this area of study. Kenny & Zaccaro (1983) reexamined Barnlund's (1962) findings using the Social Relations Model (Kenny, 1981) and found that 49 to 82 percent of the variance in leadership can be attributed to a stable characteristic. Lord et al. (1986) reanalyzed Mann's (1959) qualitative findings using meta-analysis, and found sizable and consistent associations between some traits (e.g., intelligence, dominance, and masculinity-femininity) and leadership emergence. Several studies

have subsequently shown stable and consistent trait associations with the perception of leadership. For example, a recent meta-analysis (Judge, Bono, Ilies, & Gerhardt, 2002) found the 5-factor model (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness; McCrae & Costa, 1997) to have a multiple correlation of .53 with leadership emergence. In addition, a significant relationship between intelligence and leadership emergence has been consistently demonstrated by several researchers (Gershenoff & Foti, 2003; Lord, et al. 1986; Lord et al., 1984; Smith & Foti, 1998; Taggar, Hackett, & Saha, 1999; Zaccaro et al., 1991).

Many of the traits associated with Ross and Offermann's (1997) forceful pattern have been associated with leadership emergence. For example, dominance has been associated with leadership emergence in groups (Lord et al., 1986; Mann, 1959; Megargee 1969; Smith & Foti, 1998) as well as dyads (Carbonell, 1984; Hegstrom & Griffith, 1992; Nyquist & Spence 1986). Masculinity has also been associated with leadership emergence (Gershenoff & Foti, 2003; Hall, Workman, & Marchioro, 1998; Kent & Moss, 1994; Moss & Kent, 1996). In addition, self-efficacy, which is conceptually similar to self-confidence, also has long been accepted as a predictor of leadership emergence (Chemers, Watson, & May, 2000; Foti & Hauenstein, 2001; Smith & Foti, 1998).

A recent meta-analysis assessing traits predictive of leader emergence was conducted for two reasons (Keeney & Marchioro, 1998). First, enough studies assessing such issues had been conducted in the twelve years since the Lord et al. (1986) meta-analysis to warrant additional meta-analytic work. Furthermore, the methods used by Lord and his colleagues to correct for measurement unreliability and range restriction were criticized by Hunter and Hirsh (1987). Specifically, Hunter and Hirsch (1987) speculated that Lord et al. (1986) might have used a

correction for range restriction developed specifically for testing cognitive ability in selection situations; this method had not been validated for other applications.

Many of the conclusions reached by Lord et al. (1986) were consistent with those resulting from the later meta-analysis. However, though many of the same traits were identified as predictive of leader emergence, the magnitude of their relationships with emergence were different in the two reviews. For example, while adjustment and extraversion did not predict emergence in the Lord et al. (1986) study, they correlated .23 and .22, respectively, in the later meta-analysis (Keeney & Marchioro, 1998). Moreover, Keeney and Marchioro (1998) concluded that Lord et al. (1986) overestimated the relationships between emergence and intelligence, while underestimating the links between emergence and other traits such as masculinity, dominance, extraversion, and authoritarianism. This is particularly interesting as masculinity and dominance are key components of Ross and Offermann's (1997) forceful personality pattern.

Thus, there is a significant amount of research that points to the relationship between individual differences and leadership emergence. The individual differences associated with Ross and Offermann's (1997) forceful personality pattern have consistently been found to be related to leadership emergence. Although there is some overlap, for the most part the individual differences associated with leadership emergence differ from those linked to transformational leadership that were discussed earlier. A discussion of possible reasons for why these individual differences are discrepant follows.

*Similarities and Discrepancies Between Individual Differences Associated with Transformational Leadership and Emergence*

It is clear that the individual differences predominantly associated with transformational leadership and the individual differences identified as predictive of leader emergence are quite different. There may be some methodological and contextual differences that contribute to the discrepant findings in these areas of leadership study. In addition, there are some similarities between the individual differences associated with transformational leadership and leadership emergence that should not be overlooked.

Commenting on a previous version of Ross and Offermann's (1997) paper, House and Howell (1992) note that the individual differences emerging as important from Ross and Offermann's (1997) study are not only divergent with findings from the emergence literature, they are also at odds with the stereotype of a traditional military leader. House and Howell (1992) offered two potential explanations: First, they note that Bass (1988) argues that charismatic leaders are highly considerate of and sensitive to the needs of followers and the individual differences identified by Ross and Offermann (1997) are consistent with that argument. Second, Path-Goal Theory (House, 1971) predicts that supportive leadership is most satisfying to followers when conditions are stressful or dissatisfying. Therefore, the Air Force leaders who were high in enabling traits were likely to generate more follower satisfaction under the highly demanding and stressful conditions found at the Air Force Academy.

It is also important to consider the participants who comprise the samples and settings studied in transformational leadership and emergence research. Judge et al. (2002) found that the prediction of leadership was stronger for individual differences in student samples than in military or business samples, and was slightly stronger in studies of leadership emergence than

leadership effectiveness. In addition, the rank order of individual differences' influence on leadership varied in studies of leadership emergence and effectiveness. The focal leaders in Ross and Offermann's (1997) study were forty U. S. Air Force Academy commissioned officers, whose students provided ratings of individual differences and of transformational leadership. As such, this sample is quite different from the college students employed in most studies of leader emergence. In research with a sample of squad leaders at a military academy, which is more similar to college students in a typical emergence study, Atwater and Yammarino (1993) found an association between student subordinates' perceptions of transformational leadership and intelligence, which has a robust association with leadership in traditional emergence studies.

Another potential explanation for the divergence between individual differences variables associated with transformational leaders and leadership emergence may be that traditional studies of leadership emergence have not included tasks that allow transformational leaders to be identified. Traditionally, studies of leadership emergence employ tasks that require initiating structure leadership behaviors rather than transformational leadership behaviors. Specifically, the manufacturing game (Zacarro, et al., 1991) which involves manufacturing Lego products and a planning period in which participants need to come up with a cost-effective buying and manufacturing strategy, has been used in recent studies (e.g. Smith & Foti, 1998; Foti & Gershenoff, 1999). These researchers have found a relationship between leadership emergence and individual differences more closely associated with Ross and Offermann's (1997) forceful than enabling personality pattern. Other studies of leadership emergence have used "neutral tasks", such as class projects or small group discussions, in an effort to maximize the effects of gender role in leadership emergence (e.g. Goktepe & Schneier, 1988; Holmes, Sholley, & Walker, 1980; Kent & Moss, 1994; Moss & Kent, 1996). The problem with this approach is that

the task does not provide cues for a relevant leadership style. In order for transformational leadership to be recognized by followers, tasks that require transformational leadership styles must be used.

Just as laboratory research on leadership emergence has neglected to create situations that allow for transformational behaviors to become salient, when transformational leadership has been studied in laboratory settings, it has not been in an emergence situation. Typically, transformational leadership style has been manipulated by placing a scripted confederate in a laboratory situation and measuring perceptions of that person on transformational characteristics. The tasks in these studies tend to be mundane, so as to maximize the saliency of the confederate leader's characteristics. For example, Kirkpatrick and Locke (1996) used a bookbinding task. Furthermore, Howell and Frost (1989) examined the interactive influence of three different leadership styles (charismatic, structuring, or considerate) and two levels of productivity (high or low) on a decision-making task to assess productivity, task adjustment, and adjustment to the leader, rather than leader emergence. Participants worked on the task with two confederates who demonstrated either high or low productivity on the task, and under the direction of a confederate leader who displayed one of the manipulated leadership styles. Shamir and Howell (1999) argue that both transformational leadership and leadership emergence are affected by situational constraints. Thus, in the present study tasks were designed to facilitate both transformational leadership and leadership emergence.

Despite the discrepancies that exist between the individual differences variables identified as important in the transformational and emergence literatures, some similarities also exist. For example, Keeney and Marchioro (1998) identified adjustment as a personality trait related to leadership emergence; this trait may share some similarities with Ross and

Offermann's (1997) enabling pattern variables such as nurturance and pragmatism. In the domain of leadership effectiveness, McClelland has identified a pattern of motives labeled the "Leadership Motive Pattern" (McClelland & Boyatzis, 1982). This pattern consists of a high need for power in conjunction with low affiliation needs and high activity inhibition. It is the notion of activity inhibition that may share some conceptual similarities with enabling variables such as femininity and nurturance, as activity inhibition is defined as "an unconscious motive to use social influence, or to satisfy the power need, in socially desirable ways, for the betterment of the collective rather than for personal self-interest" (House & Howell, p. 95). McClelland and Boyatzis (1982) illustrate the importance of activity inhibition by noting that it can modify the nature and expression of the power motive. For example, men low in activity inhibition who have a dominant power motive tend to focus on personal dominance or winning at the expense of others. On the other hand, men who have a dominant power motive with high degrees of activity inhibition focus on doing good for humanity and supporting worthy and moral causes.

In sum, although the individual difference variables associated with Ross and Offermann's (1997) enabling pattern are discrepant from the individual differences variables typically associated with leadership emergence, it would be premature to conclude that this means the enabling traits are not perceived as leader-like in emergence settings. It is important to realize that while the individual differences associated with emergence are derived from an established line of research, the importance of the enabling profile was established on the basis of a single study. Ross and Offermann (1997) suggest that their findings be replicated in nonmilitary settings. Thus, the current study attempted to extend the literature that demonstrates a link between individual differences associated with the forceful pattern and leadership

emergence by providing additional support for the association between the enabling pattern and perceptions of leadership in an emergence situation that facilitates transformational leadership.

*Patterns and Leadership Emergence*

Although it is clear that most of the research conducted to date has attempted to identify specific traits that correlate with leadership emergence, there exists evidence indicating that studying groups of relevant variables together in the form of a multivariate pattern is a more useful approach (Holmes, Sholley, & Walker, 1980; Magnusson, 1995; Smith & Foti, 1998). By using a pattern approach, it is the interaction between variables rather than the individual variables that is the focus of study. Instead of exploring the relationship between individual variables and a criterion (e.g., examining the extent to which intelligence predicts leadership), the interactionist approach attempts to describe the person in terms of his or her pattern or profile across variables that are relevant to the person's behavior in a particular domain (Gustafson, 1994). The pattern approach makes it possible to view the gestalt of the person rather than his or her individual traits. Thus, the unit of analysis is the individual and not the variable.

In addition to providing a more holistic picture of the individual than the trait approach, the pattern approach is also useful for studying individuals in context. For example, suppose while assessing a potential job candidate, a personnel manager learns that the candidate is highly extroverted, assertive and has a high need for affiliation. The personnel manager would likely want to consider the candidate's personality in light of the context for which he or she would be hired. For example, an individual who has this personality pattern may not be suitable for a position in informational technology, as this position requires a lot of independent, analytic work with little opportunity to interact with others. However, a person with this personality pattern may be very effective in a sales position. As discussed in greater detail in the next section,

contextual constraints have implications for how individuals with different personality patterns behave and are perceived by followers.

Using a pattern approach involves the application of a statistical method which groups individuals together based on categories that are homogenous with respect to their patterns of values for the variables being studied (Magnusson, 1995). One method used to classify individuals as to their personality pattern on relevant variables is through cluster analysis. For example, Magnusson, Anderson, and Törestad (1993) examined six variables and classified individuals into eight homogenous groups based on their pattern of scores. The significance of each variable is derived in a contextually driven manner; it is not the individual variable, but the variable in combination with other factors in the total pattern at the individual level. Thus, the pattern approach is noncompensatory; high scores on one variable in the pattern do not make up for low scores on another in the prediction of leadership emergence.

According to Smith and Foti (1998), there are three key aspects of the personality pattern approach that must be present to differentiate among individuals. First, the variables in the pattern must have a theoretical basis and must be supported by past empirical research. Second, every individual is categorized based on one of the patterns of selected variables. Finally, individuals are grouped for study based on their personality pattern and are differentiated based on these sub-groups.

The pattern approach has been beneficial in research across a variety of domains. For example, Gibbs (1982) classified female delinquents into four distinct personality patterns based on their composite score on three instruments. Using scores on the MMPI, Goeke, Tosi, and Eshbaugh (1993) found eight separate personality profiles of male felons living in a correctional halfway house. In addition, Tango and Uziuban (1984) used this approach to categorize the

personalities of students who are undecided about their career choice. Recent research in the area of industrial/organizational psychology has incorporated this data analytic approach to studies of career transition (McGonigle & Gustafson, 2000) and employee selection (Russell & Craig, 2000).

The pattern approach has also been a useful tool in the study of individual differences and leadership. McClelland and Boyatzis (1982) supported their hypothesis that the Leadership Motive Pattern, which includes moderate to high need for power, low need for affiliation, and high activity inhibition was related to managerial success for nontechnical managers in a longitudinal study after eight and sixteen years. Moreover, Sorrentino and Field (1986) classified individuals according to their achievement-related and affiliation-related motives, and placed them into four person work groups, with each person varying on their combination of these traits. They found that over the course of five weeks, subjects who were high on both of these variables scored the highest on two measures of leadership emergence and persons who were low on both variables scored the lowest. Finally, Smith and Foti (1998) classified subjects based on their pattern of dominance, general self-efficacy, and intelligence and found that subjects who were high on all three traits emerged significantly more than subjects who were low on all three traits. Subjects who were high on all three traits also emerged significantly more than subjects who were low on one trait but still high on the other two, demonstrating the interactional and critical role of all three elements of the pattern. Thus, by studying traits in a pattern rather than individually, more information is available about the individual as a potential leader.

*The Enabling and Forceful Personality Patterns*

The personality patterns examined in the current study consisted of the following variables: pragmatism, nurturance, femininity, dominance, and masculinity. Pragmatism, nurturance, and femininity represent the “core” personality variables associated with transformational leadership, with the exceptions of aggression and criticalness (Ross & Offermann, 1997). Dominance and masculinity represent the variables associated with forceful pattern identified by Ross and Offermann (1997), with the exception of self-confidence. Aggression and criticalness were excluded from the current study in order to maximize the parsimonious nature of the pattern. Aggression and criticalness were correlated with dominance and masculinity in Ross and Offermann’s (1997) study (correlations ranged from  $r = .29$  to  $r = .49$ ). Self-confidence was excluded from the present study because it was correlated with all the other enabling and forceful variables (except for femininity) in Ross and Offermann’s (1997) study (correlations ranged from  $r = .33$  to  $r = .76$ ). As self-confidence and intelligence have both been correlated with leadership emergence in previous research, these variables were not used to classify individuals in the present study. Rather, self-confidence and intelligence were measured as covariates in this study.

While Ross and Offermann (1997) demonstrated the importance of such variables acting independently of one another, the current study conceptualizes these variables as a true personality pattern at the level of the person. Although Ross and Offermann (1997) labeled the enabling cluster of variables as a “personality pattern,” this label does not define a true personality pattern. A personality pattern, according to Magnusson (1995), can only be explored when the individual is the unit of analysis. Ross and Offermann (1997), on the other hand, focus on personality traits as the unit of analysis. These two approaches can be distinguished by the

basic question each attempts to answer. While Ross and Offermann's (1997) variable-centered approach asks "What individual difference variables are associated with leadership perceptions?", using the person-centered pattern approach asks "Do individuals characterized by an enabling personality pattern emerge as leaders more often than other individuals?" It is clear that the former approach examines bivariate relationships, while the latter approach adopts a multivariate perspective.

In the current study, individuals were classified based on their standing on the five variables. From these five variables, the following three patterns were studied:

*Enabling Pattern:* Individuals showing a pattern of high pragmatism, nurturance, and femininity, coupled with low dominance and masculinity

*Forceful Pattern:* Individuals showing a pattern of low pragmatism, nurturance, and femininity, coupled with high dominance and masculinity

*Mixed Pattern:* Individuals showing a pattern consisting of any other combination of these traits

Although it is not necessary that individuals with the enabling pattern be low on dominance and masculinity, nor that individuals with the forceful pattern be low on pragmatism, nurturance, and femininity, I intended to restrict the patterns this way in order to identify the best exemplars of the patterns, and to make the most stringent comparison of individuals with the enabling and forceful patterns. In the following section, the influence of patterns and other contextual variables in the process of leadership is discussed.

### *The Process of Leadership*

In the early 1980's, Robert Lord and his associates (Lord et al., 1982; Lord et al., 1984) developed an information-processing perspective of leadership perceptions based on cognitive

theories of object categorization (Rosch, 1978, Rosch & Mervis, 1975) and person perception (Cantor & Mischel, 1979). Lord and his associates (Lord et al., 1982; Lord et al., 1984) defined leadership as a fundamentally social-cognitive process in which leadership results as an outcome of traits associated with leaders, behaviors emitted by leaders and outcomes produced by leaders, which are then perceived by followers as either matching or not matching their prototypes for leaders (Lord & Maher, 1990). In this sense, leadership is a perceptual process said to occur in “the eyes of the followers.”

The current research expands upon Lord’s theory, and draws upon the research of Walter Mischel and his associates (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) to explore a conceptual framework (see Figure 1) that attempts to further our understanding of how leadership changes or maintains over time. As can be seen in Figure 1, clearly, this conceptualization is grounded in the theory of Lord and his associates cited above. This is exemplified by the assertion that an individual’s pattern, which is comprised of individual differences, influences behaviors and subsequently influences followers’ perceptions of that individual in terms of leadership (i.e., as emergent or not emergent). Mischel’s personality theory informs the latter part of the framework, which describes the way that leadership is changed or maintained over time, in three important ways. Before explaining how Mischel’s theory informs the process of leadership, it is important to describe the how Mischel conceives personality.

Mischel (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) conceptualizes personality as an organizing system of cognitive and affective units (e.g., encoding processes, expectancies, subjective values, competencies and self-regulatory processes) chronically accessible to individuals. In this approach, individual differences are seen as

reflecting in part, the difference in the chronically accessible cognitions and affects an individual has available (Mischel & Shoda, 1998). Individual differences can be understood as differences in the structure and processing of these units across individuals. Furthermore, Lord and Engle (1996) assert that where these structures and processes are similar across individuals, individuals may be said to have similar processing dispositions. As such, individuals with similar processing dispositions can be expected to process contextual and social information in similar and consistent ways.

Although Mischel's theory is quite different from the trait approach to personality, Mischel and Shoda (1998; 1999) contend that trait theories, such as the Big Five (McCrae & Costa, 1997), can be useful in explaining individual differences in behavior to the extent that they contextualize dispositions in relation to the situations in which they function. In addition, dispositional approaches are more useful to the extent that they address the coherent functioning of the whole person. Studying individuals based on their pattern of relevant traits is one such way to contextualize dispositions.

It is important to make clear that Mischel and his associates do not define situations in nominal terms, such as places or activities in which behaviors occur. Examples of these types of situations include classroom settings, school dances, and company board rooms, and these situations present limited opportunities for generalizability. Instead, they define situations in terms of contextual variables that capture particular psychological features of situations. For example, these variables may create contexts that are stressful, ambiguous, or comforting. These variables can be present across a variety of nominal situations, improving the prediction of individual behavior in these situations. Furthermore, the psychological features of situations interact with the individuals' processing dispositions to influence differences in the expression of

individuals' behavior. For example, a situation with psychological features of a crisis may activate different processes in individuals with different dispositions such that some exhibit leadership behaviors and others exhibit follower behaviors.

In brief, Mischel and Shoda (1999) do not dispute that stable differences exist between people. However, they argue that the nature of the stability and consistency that exists in the behavioral expressions of dispositions is best understood in terms of the signature behaviors shared by individuals with shared dispositions across situations. In the same way, Mischel and Shoda (1999) are able to distinguish individuals with different dispositions based on their differing behavioral signatures within situations. That is, a single context may activate different processing dynamics for individuals with different dispositions.

Mischel's framework also indicates that individuals' behaviors generate consequences that in turn affect the psychological features situations that are subsequently encountered. Consistent with Lord and Maher's (1991) conception of leadership, this explains that the behaviors exhibited by a potential leader are perceived by other group members when they evaluate the potential leader. Just as an individual's behaviors are influenced by contextual variables, the perceptions of an individual's behaviors by others depends not only on the actual behavior the individual exhibits but also on the situation in which it is contextualized. Thus, if an individual's behavior is consistent with other group members' leader prototypes in light of the situation in which the behavior is contextualized, other group members are likely to perceive that individual as the leader. As such, feedback regarding the reactions and evaluations from other group members leads to subtle changes in the psychological features of the situation that interacts with an individual's processing disposition to influence behavior in similar situations that are subsequently encountered. If feedback is positive, then an individual can be expected to

maintain consistency of behavior in a comparable situation. If feedback is negative, then individuals may change their behavior in similar situations.

The personality framework of Mischel and his colleagues expands upon the earlier work of Lord and his associates to influence the conceptualization of the leadership process in the current study in three important ways. First, as described earlier, individuals in this study were classified based on their pattern of relevant traits. This interactionist approach is more consistent with Mischel's conceptualization of dispositions as it views the influence of individual difference variables contextually and captures a more holistic picture of individuals than the traditional trait approach to leadership. Thus, comparing individuals with enabling and forceful patterns at the person level should allow for greater variance in behaviors than examining differences at the trait level.

Second, attention was paid to contextual influences on behavior and perceptions of leadership in the current study. The behaviors and leadership emergence of individuals with enabling and forceful personality patterns were examined in a context designed to facilitate transformational leadership. Specifically, tasks were designed to reflect Shamir and Howell's (1999) suggestion that transformational leadership is more likely to be facilitated by environmental circumstances which present opportunity for change, and on tasks which have ambiguous performance goals, no standard protocols, require creativity and intense effort, and are complex and challenging. The psychological features of these situations require leaders to motivate followers by appealing to their sense of social responsibility, service and altruism (Howell, 1997). Thus, as previous research on leadership emergence has included tasks that cue task-oriented, directive behaviors associated with individuals with forceful patterns, the tasks in

this study are designed to cue transformational behaviors associated with individuals with enabling patterns.

Finally, as can be seen in Figure 1, in the current study, individuals were given feedback from other group members regarding their perceptions of individuals as emergent leaders after completing the initial task. The presentation of emergence feedback to individuals was expected to slightly alter the psychological features of the situation on the subsequent similar task. It was expected that those who are given feedback that they emerged would maintain their level of task appropriate leadership behavior, while those who were given feedback that they did not emerge would decrease their behavior on a subsequent task.

#### *Overview of Current Research*

In sum, the primary purpose of this research was to extend our knowledge of the individual differences that are traditionally associated with leadership emergence and to determine whether the individuals characterized by individual differences attributed to transformational leaders were also likely to emerge as a leader in a leaderless group. Thus, I examined Ross and Offermann's (1997) enabling and forceful personality patterns in an emergence setting that facilitates transformational leadership. As can be seen in Hypothesis 1 (a and b), it was expected that individuals with the enabling pattern would exhibit a greater proportion of transformational leadership behaviors than individuals with any other pattern, while individuals with the forceful pattern were expected to exhibit a greater proportion of initiating structure leadership behaviors than individuals with any other pattern. Hypothesis 2a predicted that individuals with the enabling pattern would be perceived as more leader-like than individuals with any other pattern, as indicated by higher leadership ratings and rankings. Hypotheses 2b predicted that proportion of transformational leadership behaviors would mediate

the relationship between pattern and leadership ratings and rankings. This would provide evidence that leadership emergence is predicted by individual differences through the followers' perceptions of the leader's behavior.

A secondary purpose of this research was to further our knowledge of the process of leadership. The leadership process defined by Lord and his associates was expanded to include relevant elements of Mischel's theory of personality (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998). This theory helps to incorporate contextual influences and followers' feedback to extend our knowledge about how the leadership process changes or maintains over time. Specifically, it was expected that individuals' changes in the proportion of transformational leadership behavior over time would be a function of emergence feedback from the followers as followers' perceptions would impact the psychological features of the situation as perceived by the potential leaders (hypothesis 3). In addition, as can be seen in hypothesis 4, proportion of transformational leadership behaviors was expected to influence followers' ratings and ranking of leaders at Time 2.

### Hypotheses

*Hypothesis 1a.* Individuals with the enabling personality pattern will exhibit a greater proportion of transformational leadership behaviors than individuals with forceful or mixed personality patterns at Time 1 as well as at Time 2.

*Hypothesis 1b.* Individuals with the forceful personality pattern will exhibit a greater proportion of initiating structure leadership behaviors than individuals with enabling or mixed personality patterns at Time 1 as well as at Time 2.

*Hypothesis 2a.* Individuals with the enabling personality pattern will be rated and ranked higher on leadership than individuals with forceful or mixed personality patterns at Time 1 as well as at Time 2.

*Hypothesis 2b.* Transformational leadership behavior will mediate the relationship between pattern and leadership ratings and rankings at Time 1. Individuals with the enabling personality pattern will exhibit a greater proportion of transformational leadership behaviors than individuals with forceful or mixed patterns and thereby will receive higher leadership ratings and rankings than individuals with forceful or mixed patterns.

*Hypothesis 3.* Changes in proportion of transformational leadership behavior from Time 1 to Time 2 will be a function of emergence feedback after Time 1; those who receive higher emergence feedback after Time 1 will maintain their proportion of transformational leadership behavior from Time 1 to Time 2, while those who receive lower emergence feedback after Time 1 will decrease their proportion of transformational leadership behavior from Time 1 to Time 2.

*Hypothesis 4.* Transformational leadership behavior at Time 2 will be positively related to leadership ratings and rankings at Time 2. Individuals who exhibit greater proportions of transformational behavior will receive higher leadership ratings and rankings than those who exhibit smaller proportions of transformational behavior.

## Method

### *Identification of Sample*

Participants for the focal study were identified based on their standing on the variables Ross and Offermann (1997) found to be relevant to enabling and forceful personalities. Participants completed the pragmatism, nurturance, femininity, dominance, and masculinity scales of the Adjective Checklist (ACL; Gough & Heilbrun, 1983). After data were gathered

from 181 male and 303 female participants on these scales using the ACL (Gough & Heilbrun, 1983), cluster analyses were conducted on the data to identify individuals who fell into the enabling pattern (high on pragmatism, nurturance and femininity and low on dominance and masculinity), the forceful pattern (low on pragmatism, nurturance and femininity and high on dominance and masculinity), and the mixed pattern (having any other combination of these traits).

*Cluster Analysis.* It is worth noting that the cluster analysis in this study was not intended to be a taxonomic study of the correct cluster solution in the population. Rather, the purpose of cluster analysis in this study was to determine whether or not the enabling and forceful patterns existed in the sample and to identify the participants who fell into the relevant patterns. Groups in the focal study were intended to contain same sex members because previous research has shown that males are more likely to emerge as leaders in mixed sex groups (Hegstrom & Griffith, 1992; Karakowsky & Siegel, 1999; Kent & Moss, 1994). Thus, cluster analysis was run separately for the male and female samples.

As an initial step in cluster analysis, all cases were subjected to hierarchical agglomerative cluster analysis using Ward's (1963) minimum variance method, standard scores, and squared Euclidean distance as the similarity index. Ward's minimum variance method was chosen over other methods such as the average linkage method or complete linkage method because past research with Monte Carlo simulations has frequently found Ward's minimum variance method to be superior to other methods for recovering known cluster structures (Aldenderfer & Blashfield, 1984; Milligan, 1981). In addition, Ward's minimum variance has the advantage of estimating error sum of squares (ESS) at each iteration, which is helpful in identifying the appropriate number of clusters to retain (Borgen & Barnett, 1987). Scores on all

five scales were standardized before clustering so that scales with higher variance would not be disproportionately weighted in the calculation of similarity indices. Squared Euclidean Distance was chosen as the similarity index over examining similarity with correlation because correlational methods restrict information to shape, whereas Squared Euclidean Distance encompasses shape, level and scatter (Cronbach & Gleser, 1953).

Ward's minimum variance method yields an output of the increase in ESS at each step of the clustering process. Thus, the last 30 fusions were examined to identify where a disproportionately large increase in ESS results from fusing two clusters together. This large increase in ESS suggests that the two clusters that were fused were markedly less similar relative to the fusions that had been fused previously (Hair & Black, 2000). Thus, the cluster solution that occurred just before the fusion of the dissimilar clusters is chosen as the best compromise between parsimony and within cluster homogeneity. In this sample, five clusters were retained for males, and eight clusters were retained for females.

After determining the number of clusters to retain for the male and female samples, those cluster solutions were submitted to a "k-means" iterative partitioning cluster analysis. Whereas the hierarchical agglomerative cluster analysis is exploratory with regard to the number of clusters retained, the k-means procedure uses the cluster solution from the hierarchical cluster analysis as its starting point. The k-means procedure re-evaluates each case's cluster assignment and reassigns cases to different clusters if the total ESS can be reduced by reassignment. This process iterates and clusters' means are recalculated each time a new case is added until the ESS can no longer be reduced. The k-means procedure is necessary because cluster assignments are essentially "locked-in" during the hierarchical analysis and centroid drift can occur when new cases are added to existing clusters. The k-means process ensures that cases are reassigned to

different clusters if later additions to clusters shift their centroids (means), rendering previous assignments suboptimal (Bergman & El-Khoury, 1998; Borgen & Barnett, 1987).

An eight cluster solution, shown in Figure 2, best described the data for females on the five relevant variables. As can be seen in Figure 3, two of these clusters matched the theoretical enabling (cluster 5) and forceful (cluster 3) patterns. The remaining six clusters were considered to be mixed pattern individuals. Five hundred eighty-six additional female participants were screened on the five relevant variables and placed into patterns based on this cluster solution. Of the total female sample screened for participation in the focal study ( $N = 889$ ), 226 participants were characterized by the enabling pattern and 116 were characterized by the forceful pattern. The shape of the cluster solution was the same for the screened and focal samples. These analyses revealed that the theoretical patterns proposed by Ross and Offermann (1997) did not hold for males in this sample ( $N = 181$ ; see cluster solution for males in Figure 4). Thus, males were not used in the focal study.

#### *Focal Study Participants*

Once participants' patterns were identified, 132 female participants were called back to participate in the focal study. Four participants were assigned to each group. One member of each group was characterized by the enabling personality pattern, and one was characterized by the forceful pattern. The final two participants in each group were classified as mixed pattern individuals and were randomly placed into groups. Four of the original 33 groups were ultimately dropped from the study because of low agreement among followers on the Transformational Leadership Inventory (TLI), leaving 29 groups (116 participants) for inclusion in the focal study.

Participants were offered one extra credit point in their psychology classes for completing the ACL, and two extra credit points and a five dollar payment for participating in the focal study. In addition, all participants were entered into a raffle for the chance to win one of twenty \$10 prizes and a grand prize of one hundred dollars. Funding for this research was provided by the College Alcohol Abuse Prevention Center.

### *Procedure*

*Phase I.* Eight hundred eighty-nine female participants were recruited from the psychology department participant pool at Virginia Tech between March and October of 2002, and were asked to complete the pragmatism, nurturance, femininity, dominance, masculinity and self-confidence scales of the ACL on-line. Participants were told that the ACL was being used to assess the diversity of students at the university. Participants were classified as enabling pattern individuals, forceful pattern individuals or mixed pattern individuals based on their pattern of responses to measures of the five relevant traits (pragmatism, nurturance, femininity, dominance and masculinity). Descriptive statistics for individuals in each of the three patterns on all of the individual difference measures are provided in Table 1.

*Phase II.* One hundred thirty-two participants were selected to take part in the focal study. Participants were placed in one of thirty-three 4-person groups that participated in two leaderless group exercises and then completed questionnaires about the other group members. Group membership was established such that each group contained one enabling pattern member, one forceful pattern member and two mixed pattern members.

Participants were asked to participate in a focus group to make recommendations to the university administration about two alcohol-related issues on campus. Both of these exercises were designed to require the same behaviors for an individual to be perceived as a leader by the

other group members. The four-person groups worked together on each of the tasks (described below) for twenty minutes. The order of presentation of the tasks was randomly assigned and counterbalanced to avoid any biasing effects of order. Protocol instructions were provided to each research assistant and were read verbatim to each group in order to standardize the procedure (see Appendix A for protocol). All group discussions were conducted in two small conference rooms with a video camera placed in the doorway approximately five feet away from the participants. In order to ensure confidentiality, all participants were given an identification number (1-4), and these identification numbers were used in place of names on all dependent measures.

After the first task was completed, group members were asked to turn away from one another and rate the leadership abilities of each of the other group members using the Transformational Leadership Questionnaire (TLI), and to rank themselves and others in order of leader preference if the group were to meet again to work on a similar task. Following the completion of these questionnaires, the research assistant presented the group members with the ranking perceptions provided by the other members and asked them to review their ranking. This indicated to the participants how other group members perceived them in terms of leadership emergence.

After reviewing the ranking perceptions, the research assistant presented the group with the second task. Once the second task was completed, participants again completed the TLI and ranked themselves and other group members in terms of their leader preference should the group meet for another similar task. In addition, the participants each completed the Wonderlic Personnel Test (WPT: Wonderlic, 1983) and a brief questionnaire for the College Alcohol Abuse Prevention Center regarding their recent alcohol consumption behaviors. After all the

questionnaires were collected, the research assistants debriefed the participants as to the true purpose of the study. The sessions lasted approximately one and a half hours, including the completion of both of the tasks, the WPT and dependent variable measures.

As stated earlier, all group sessions were videotaped. Trained raters, who were blind to the participants' patterns and to the ratings and rankings given by other group members, observed and coded the videotaped behaviors of all group members on a behavior checklist.

#### *Leaderless Group Discussion Tasks*

Shamir and Howell (1999) propose that some contexts facilitate transformational leadership more than others. The two leaderless group discussion tasks used in this study were designed to reflect Shamir and Howell's (1999) proposition that contexts that facilitate transformational leadership involve creativity, initiative, social responsibility, and are related to dominant social values to which followers are exposed. Care was taken when these tasks were designed to ensure that the topics were meaningful to undergraduate students, and that they required students to think outside of themselves and consider what is best for the university community. The tasks required participants to share their ideas and work together to come to agreement. In addition, participants were offered additional rewards for thinking creatively and doing their best.

Participants were asked to participate in groups to discuss two alcohol-related issues on campus and provide feedback to the university administration. In one task, participants were asked to work together to create an innovative new program to educate students about alcohol abuse prevention. In the other task, participants were asked to make suggestions to improve the current rules and sanctions for violations of the university's policy on alcohol. The specific task instructions are provided in Appendix B.

Both tasks require participants to share ideas, reach consensus, and summarize the group's position on the issues for the administration. Group members were asked to engage in a discussion of the issues and come to a conclusion about the best recommendation. Participants were given ambiguous goals to "do their best" and were told that a reward of \$100 would be given to the group that came up with the most creative recommendations.

A pilot study asked female participants to indicate, on a 5-point scale, the degree to which the tasks met the criteria put forth by Shamir and Howell (1999) for facilitating transformational leadership. Results indicated that participants found both the education program task ( $M = 3.98$ ,  $SD = .36$ ) and the policy task ( $M = 3.92$ ,  $SD = .42$ ) to facilitate transformational leadership. The tasks were deemed to be similar in their facilitation of transformational leadership because the means were so similar. The 14-item pilot study questionnaire is provided in Appendix C.

### *Predictor Variables*

*Individual Differences.* Individual differences were measured using the pragmatism, nurturance, femininity, dominance, and masculinity scales of the ACL (Gough & Heilbrun, 1983). Though self-confidence has been associated with leadership in previous research, this trait was associated with both the enabling and forceful traits in the Ross and Offermann (1997) study. For this reason, participants also completed the self-confidence scale of the ACL, but the self-confidence variable was not used to distinguish individuals as having the enabling, forceful, or mixed patterns. Rather, self-confidence was measured as a control variable in the present study. This measure was chosen in an effort to replicate the procedure used by Ross and Offermann (1997). The intercorrelations of the relevant individual difference measures from the

original screening sample on which cluster analyses were conducted ( $N = 303$ ) and the total sample of participants screened ( $N = 889$ ) are provided in Table 2.

The original scales of the ACL contain items which load on more than one scale. Allowing items to cross-load in this way violates an assumption of the pattern approach that variables used for categorizing individuals are independent. Thus, three upper level graduate students served as subject matter experts (SMEs) to determine which subscale the forty-five cross-loading items best indicated. The SMEs were provided with definitions of each construct from the ACL Manual (Gough & Heilbrun, 1983; see Appendix D for construct definitions) and were asked to make independent decisions about the cross-loading items. Initially, the all three SMEs agreed on the assignment of items to scales for 60% of the items, and two of the three SME's agreed on the assignment of the remaining 40% of the items. After the initial independent decisions were made, the SMEs discussed discrepancies and came to agreement about the assignment of the remaining 40% of the items. The reliabilities and possible score ranges for the original and revised scales are provided in Table 3. Correlation coefficients between the ACL scales scored using the original scoring system and the revised scoring system ranged from .90 to .98, with an average correlation of .95. The items that comprise the five scales are listed in Appendix E.

*Wonderlic Personnel Test (WPT)*. Due to the relationship between intelligence and subordinates' perceptions of transformational leadership ( $r = .20$ , Atwater & Yammarino, 1993), intelligence was also measured as a control variable in the present study. The WPT, form A, developed by Wonderlic (1983) was used as a measure of intelligence. The 50-item paper and pencil test was administered over 12 minutes with the items presented in order of increasing difficulty. An individual's score was calculated as the number of correct responses out of 50.

This test has been demonstrated to be valid and reliable as a measure of intelligence (Dodrill, 1981; Dodrill, 1983; Dodrill & Warner, 1988). The mean and standard deviation of scores on the WPT in this sample are provided in Table 1.

### *Mediator Variable*

*Behavioral Measures.* As leadership emergence is a within-group phenomenon, transformational and initiating structure leadership behaviors were operationalized as the proportions of behavior an individual exhibited relative to the total behaviors exhibited by the group as a whole. That is, the proportion of transformational leadership behaviors exhibited by a given group member was calculated by dividing the frequency of transformational leadership behaviors exhibited by that group member by the total frequency of transformational leadership behaviors exhibited by the group. Proportion of initiating structure leadership behaviors was calculated in the same way.

Transformational and initiating structure leadership behaviors were measured by having trained raters observe small group interactions and code the number of transformational and initiating structure leadership behaviors exhibited by each group member. Assessments of videotaped group interactions are common (Byham, 1986, cited in Gatewood, Thornton, and Hennessey, 1990). In order to measure behaviors associated with transformational and initiating structure leadership styles, a behavior checklist was constructed. The items were developed based on the leader behavior literature (e.g., Avolio, Bass, & Jung, 1999; Carless, Wearing, & Mann, 2000; Conger & Kanungo, 1994; Howell & Frost, 1989; Howell and Higgins, 1990; Pearce & Sims, 2002; Shea & Howell, 1999).

For ease of conceptualization, the checklist contains three dimensions that tap transformational leadership behavior and three dimensions that tap initiating structure leadership

behavior. The three transformational dimensions included: (1) Charismatic/Visionary (2) Supportive Leadership and (3) Innovative Thinking; the three dimensions that tap initiating structure behavior included: (1) Task-Orientation (2) Adherence to Rules and Standards and (3) Directive. The dimensions were collapsed into transformational and initiating structure behaviors for the analyses.

In order to assess reliability of the ratings made using the behavior checklist, two reliability coders recoded two randomly chosen tapes from each original observer. Correlation coefficients between the original coders and the reliability coders ranged from .74 to .94, with an average of .84 across all six raters. The checklist is provided in Appendix F.

In order to ensure that the behavioral observation ratings were not confounded with the observer, several precautions were taken before the videotapes of the group interactions were coded. First, the research assistant who scheduled participants via telephone and knew participants' names and patterns did not code any of the videotaped group interactions. Second, all raters verified with the experimenter that they did not know any of the participants in the task sessions they were rating. Third, each observer verified that they were not the research assistant who administered the task sessions they were rating. Fourth, in order to avoid any carryover effects, all raters observed and rated each participant only once. Fifth, the raters were blind to the participants' personality patterns while coding the videotapes. Lastly, the number of leadership behavior dimensions was limited to six (three transformational and three initiating structure) in order to reduce the cognitive load of the raters.

*Rater Training.* Six undergraduate research assistants served as independent raters for the videotaped group task interactions. The raters were extensively trained in leaderless group discussion observation and evaluation for approximately 15 hours (spread over three sessions)

prior to coding the videotapes. In addition to reading relevant literature, training included classroom instruction on systematic errors of observation and scoring, discussion of the dimensions and behavioral examples, practice with the two tasks, coding of transcribed task sessions, group observation of practice videotapes and individual practice ratings of videotapes.

Rater training was administered by the primary researcher. The training was based on the recommendations set forth by Thornton and Zurich (1980) for improving observer accuracy through careful observation of specific behaviors, the use of a behavior checklist, and observer training. The training protocol was similar to observer training administered by researchers in previous studies (e.g., Foti & Hauenstein, 2001).

Initially, the training consisted of approximately one hour of familiarizing the raters with the purpose of leaderless group discussions as a means of observing individual behavior and the rationale for the type of tasks developed for this study. For the following two hours, the training covered a lecture and discussion of several systematic errors of observation. Raters were cautioned to only code observable behaviors and to avoid inferring intentions or making judgments. Next, for approximately two hours, the specific tasks used in the study were discussed, each of the six behavioral dimensions was defined, and raters discussed behavioral examples of each dimension. For approximately four hours, raters practiced coding behavioral examples from the two different task scenarios and observed and watched and discussed practice tapes. For the remaining six hours of training, raters individually practiced coding behaviors from transcribed sessions and practice videotapes from both of the two tasks. Raters were considered to be adequately trained and allowed to code videotapes independently when they obtained a reliability score with the primary researcher and the other raters of .90 or better.

*Interrater Reliability.* Reliability was assessed by examining the correlation of ratings between raters. This method of reliability assessment is appropriate because the leadership behavior dependent variables were calculated as proportions. Interrater reliability was assessed through two checks. First, each observer was subject to at least one check of reliability with the primary researcher. Raters coded the behaviors of four group members in each of the two task sessions on practice tapes. Their scores for transformational and initiating structure leadership behaviors were correlated with the primary researchers target scores. Raters' scores had to correlate with the target score .90 or better before moving on to the second check. After reaching a .90 or greater correlation with the primary researcher's target scores, a second check was conducted in which the raters coded the behaviors of all group members in the two task sessions from additional practice tapes. Once raters reached a .90 correlation with each other they were considered to be proficient.

#### *Dependent Variables*

*Transformational Leadership Impression.* Leader emergence was measured using the Transformational Leadership Impression (TLI), a modified version of the five-item General Leadership Impression scale (GLI: Lord et al., 1984) designed to assess the degree to which individuals were perceived to be effective and in-control leaders. The GLI was modified to contain nine items that assessed the degree to which individuals were perceived as leaders in tasks that are designed to facilitate transformational leadership (see Appendix G). For example, one item asks, "How much did this member help the group come to agreement on this task?" Participants rated each of the other group members on these items. A composite variable was created, consisting of the average of the other three group members' rating of each individual's leadership. The possible scores range from 9 (low leadership) to 45 (high leadership). This scale

had high internal consistency (Cronbach's alpha = .95 at Time 1; Cronbach's alpha = .96 at Time 2).

*Rankings.* In addition to the TLI measure, leadership emergence was measured by using a ranking measure identical to the one used in past research on patterns and leadership emergence (e.g., Gershenoff & Foti, 2003; Smith & Foti, 1998; see Appendix H). Group members were asked the following question, "If you were asked to meet a second time with this same group to work on the same type of 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." Group members ranked themselves and each other based on their preference for individuals as leaders. Based on these rankings, ignoring the self-ranking, a score was computed for the percentage of times an individual was ranked by the others as number one. Thus, an individual's score could range from .00 if no other group member ranked her number one to .75 where all three other group members saw her as number one.

Although the ranking data is technically ordinal, it is being treated as interval data for the purpose of this study. This is common practice among researchers who treated Likert-scale and intelligence scores as interval data. Current thinking on the matter is that the decision to treat ordinal data as interval is a pragmatic one (Crocker & Algina, 1986). Citing agreement with Lord and Novik (1968, p.22), Crocker and Algina (1986) state that if treating scores as interval data provides more useful information for placement or prediction, they should be treated as such. The decision to treat the ranking data as interval in the current study is justified, as treating it as ordinal data would limit the statistics available for analysis to non-parametric methods and

would therefore limit the information provided. According to McDonald (1999), limiting statistical operations in this way would be a mistake.

*Emergence Feedback.* In addition to indicating leadership emergence as a dependent variable, the ranking data were also used to provide feedback to participants about how others perceived them in terms of leadership emergence after completing the first task. Before beginning the second task, participants were shown the ranking sheets completed by other group members and were asked to “review feedback given by other group members on their perceptions of you from the last task. Please review your feedback and then turn it back in”. The emergence feedback variable reflected scores on the ranking. Thus, individuals who received a score of .00 on ranking were considered to have received low emergence feedback, those who received a score of .25 on ranking were considered to have received moderately low emergence feedback, those who received a score of .50 on ranking were considered to have received moderately high emergence feedback, and those who received .75 were considered to have received high emergence feedback. In this study, 57 participants received low emergence feedback, 33 participants received moderately low emergence feedback, 18 participants received moderately high feedback, and 8 participants received high emergence feedback after Time 1.

### Results

Due to the problems associated with assessing interrater agreement between small numbers of raters (Brown & Hauenstein, 2002), the appropriateness of aggregating followers’ ratings of the target individual on the TLI was assessed by thoroughly examining the ratings of each target in each of the 33 groups. Since all group members rated each other, there were three ratings of each target resulting in a total of 12 ratings in each group (four individuals rating each of the other three group members). For each individual participant, ratee variance was calculated

as the variance in ratings across raters within the group (the variance of the ratings from the three raters). This was calculated separately at Time 1 and Time 2. Next, I calculated the mean and standard deviation of rater variance in the ratings on the TLI. In the following step, a determination was made as to individual targets that had rater variance scores that were one standard deviation above the mean rater variance. In other words, in this step, I identified individuals for which there was a lack of agreement in ratings. Next, I examined participants at the group level, identifying the number of individuals within a group with high rater variance. Four groups had two or more individuals with high rater variances at Time 1 and Time 2. These groups were dropped from further analysis because the variability in ratings for these groups was too high to justify aggregation of the ratings on the TLI. All subsequent analyses were based on the 29 remaining groups.

As can be seen in Table 3, some of the revised ACL scales used to measure individual differences on the relevant variables in the patterns had low reliabilities. In particular, the pragmatism, femininity, and masculinity scales had low reliability ( $\alpha < .70$ ). Scale scores were recalculated using the scoring system reported to have high reliability in the ACL Manual (Gough & Heilbrun, 1983). Correlation coefficients between the ACL scales scored using the original scoring system and the revised scoring system ranged from .90 to .98, with an average correlation of .95. The correlations between the individual differences measures in this study (see Table 2) did not reflect the same strength they did in the Ross and Offermann (1997) study. In addition, unlike the results in Ross and Offermann's (1997) study, masculinity was positively related to both pragmatism and femininity in the present study.

Descriptive statistics and intercorrelations of the independent and dependent variables in the focal study are provided in Table 4. Interestingly, none of the three traits positively

associated with the enabling pattern (pragmatism, nurturance, and femininity) were positively associated with the transformational leadership behaviors or leadership ratings or rankings at Time 1 or Time 2. This may be due to the low reliability of the pragmatism and femininity scales. In addition, nurturance was negatively related to initiating structure behavior at Time 1 and Time 2, and was negatively related to leadership ratings at Time 1. The forceful traits, dominance and masculinity, were positively associated with initiating structure behaviors at both Time 1 and Time 2, and to leadership ratings at Time 1.

To avoid possible bias due to order of task presentation, the order in which participants completed the two tasks was randomly assigned and counterbalanced across the groups. As can be seen in Table 5, the similar means for the dependent variables revealed that order of task presentation did not have an effect on any of the dependent variables.

#### *Tests of Hypotheses 1 and 2*

To test hypotheses 1 and 2, a series of comparisons were tested using ANCOVA, with intelligence and self-confidence entered as covariates. All *a priori* contrasts were tested at alpha level .05. In addition, all follow-up exploratory analyses were tested at alpha level .05.

Hypothesis 1 (a and b) made predictions about the behaviors of individuals based on their personality patterns. The mean and standard deviations of proportions of transformational and initiating structure behaviors for each personality pattern are presented in Table 6. In contrast to expectations, Table 6 shows that the mean proportions of transformational behaviors reflect the opposite of the expected direction. Hypothesis 1a predicted that individuals with the enabling personality pattern would exhibit a greater proportion of transformational leadership behaviors than individuals with forceful or mixed personality patterns at Time 1 as well as at Time 2. To test this hypothesis, separate ANCOVAs for Time 1 and Time 2 were conducted comparing the

three patterns (enabling, forceful, and mixed) on proportion of transformational leadership behavior.

The ANCOVA for Time 1 was not significant ( $F(2,111) = .48, p \text{ ns}; \eta^2 = .01$ ), indicating that there were no mean differences between individuals with the three patterns on proportion of transformational leadership behavior. Consistent with the finding for Time 1, the ANCOVA for Time 2 was not significant ( $F(2,111) = .62, p \text{ ns}; \eta^2 = .01$ ), indicating that again there were no mean differences between individuals with the three patterns on proportion of transformational leadership behavior. Thus, hypothesis 1a was not supported.

Hypothesis 1b predicted that individuals with the forceful personality pattern would exhibit a greater proportion of initiating structure leadership behaviors than individuals with enabling or mixed personality patterns at Time 1 as well as at Time 2. To test this hypothesis, separate ANCOVAs for Time 1 and Time 2 were conducted comparing the three patterns (forceful, enabling, and mixed) on proportion of initiating structure leadership behavior.

The ANCOVA for Time 1 was significant ( $F(2,111) = 7.97, p < .05; \eta^2 = .13$ ), indicating mean differences between individuals with the three patterns on proportion of initiating structure leadership behavior. *A priori* contrasts were conducted comparing individuals with the forceful pattern to individuals with the enabling and mixed patterns. In support of this hypothesis, the results of the *a priori* contrasts indicate that individuals with the forceful personality pattern ( $M = .38, SD = .22$ ) exhibited a greater proportion of initiating structure leadership behaviors than individuals with the enabling personality pattern ( $M = .14, SD = .14; t(111) = 3.82, p < .05; \eta^2 = .12$ ) and the mixed pattern ( $M = .24, SD = .17; t(111) = 3.19, p < .05; \eta^2 = .08$ ) at Time 1.

The ANCOVA for Time 2 was also significant ( $F(2,111) = 3.34, p < .05; \eta^2 = .06$ ), indicating that again there were mean differences between individuals with the three patterns on

proportion of initiating structure leadership behavior. *A priori* contrasts were conducted comparing individuals with the forceful pattern to individuals with the enabling and mixed patterns. Interestingly, the results of the *a priori* contrasts indicate that individuals with the forceful personality pattern ( $M = .35$ ,  $SD = .21$ ) did not exhibit a greater proportion of initiating structure leadership behaviors than individuals with the enabling personality pattern ( $M = .21$ ,  $SD = .22$ ;  $t(111) = 1.62$  *p* ns;  $\eta^2 = .02$ ) at Time 2. However, individuals with the forceful pattern did exhibit a greater proportion of initiating structure behaviors than individuals with the mixed pattern ( $M = .22$ ,  $SD = .17$ ;  $t(111) = 2.58$ ,  $p < .05$ ;  $\eta^2 = .06$ ) at Time 2. Thus, hypothesis 1b was partially supported.

Hypothesis 2a predicted that individuals with the enabling personality pattern would be rated and ranked higher on leadership than individuals with forceful or mixed personality patterns at Time 1 as well as at Time 2. The mean and standard deviations of leadership ratings and rankings for each personality pattern are presented in Table 7. To test this hypothesis, separate ANCOVAs for Time 1 and Time 2 were conducted comparing the three patterns (enabling, forceful, and mixed) on leadership ratings.

The ANCOVA for leadership ratings at Time 1 was significant ( $F(2,111) = 4.94$ ,  $p < .05$ ;  $\eta^2 = .08$ ), indicating mean differences between individuals with the three patterns on leadership ratings. *A priori* contrasts were conducted comparing individuals with the enabling pattern to individuals with the forceful and mixed patterns. In contrast to expectations, the results of the *a priori* contrasts indicate that individuals with the forceful personality pattern ( $M = 35.53$ ,  $SD = 3.95$ ) were rated higher on leadership than individuals with the enabling personality pattern ( $M = 29.78$ ,  $SD = 6.15$ ;  $t(111) = 3.01$ ,  $p < .05$ ;  $\eta^2 = .08$ ) at Time 1. In addition, individuals with the

mixed pattern ( $M = 33.86$ ,  $SD = 5.55$ ) were rated higher on leadership than individuals with the enabling personality pattern ( $t(111) = 2.48$ ,  $p < .05$ ;  $\eta^2 = .05$ ) at Time 1.

Consistent with the finding for Time 1, the ANCOVA for leadership ratings at Time 2 was significant ( $F(2,111) = 4.01$ ,  $p < .05$ ;  $\eta^2 = .07$ ), indicating that again there were mean differences between individuals with the three patterns on leadership ratings. Again, in contrast to expectations, the results of the *a priori* contrasts indicate that individuals with the forceful personality pattern ( $M = 35.64$ ,  $SD = 4.93$ ) were rated higher on leadership than individuals with the enabling personality pattern ( $M = 30.45$ ,  $SD = 5.93$ ;  $t(111) = 2.74$ ,  $p < .05$ ;  $\eta^2 = .06$ ) at Time 2. In addition, individuals with the mixed pattern ( $M = 34.16$ ,  $SD = 5.29$ ) were rated higher on leadership than individuals with the enabling personality pattern ( $t(111) = 2.24$ ,  $p < .05$ ;  $\eta^2 = .04$ ) at Time 2.

Hypothesis 2a also predicted that individuals with the enabling personality pattern would be ranked higher on leadership than individuals with forceful or mixed personality patterns. To test this hypothesis, separate ANCOVAs for Time 1 and Time 2 were conducted comparing the three patterns (enabling, forceful, and mixed) on leadership rankings.

The ANCOVA for leadership rankings at Time 1 was not significant ( $F(2,111) = 1.10$ ,  $p$  ns;  $\eta^2 = .02$ ), indicating that there were no mean differences between individuals with the three patterns on leadership rankings. Consistent with the finding for Time 1, the ANCOVA for leadership rankings at Time 2 was not significant ( $F(2,111) = 2.40$ ,  $p$  ns;  $\eta^2 = .04$ ), indicating that again there were no mean differences between individuals with the three patterns on leadership rankings. Thus, hypothesis 2a was not supported.

Hypothesis 2b predicted that transformational leadership behavior would mediate the relationship between pattern and leadership ratings and rankings at Time 1. According to Baron

and Kenney (1986) a relationship between the independent variable and the mediating variable is necessary to test for mediation. This hypothesis was not tested given that there was no evidence for a relationship between pattern and proportion of transformational leadership behaviors.

Thus, support for hypotheses 2b was not found.

#### *Tests of Hypotheses 3 and 4*

Hypothesis 3 predicted that changes in proportion of transformational leadership behavior from Time 1 to Time 2 would be a function of emergence feedback after Time 1; those who received higher emergence feedback after Time 1 were expected to maintain their proportion of transformational leadership behavior from Time 1 to Time 2, while those who received lower emergence feedback after Time 1 were expected to decrease their proportion of transformational leadership behavior from Time 1 to Time 2. To test this hypothesis, a 2 (Time) by 4 (Emergence Feedback) Repeated Measures ANOVA was conducted on proportion of transformational leadership behavior. Time was the within subject factor and emergence feedback was the between subjects factor. A Time by Emergence Feedback interaction was expected. Results indicate that the Time by Emergence Feedback interaction was not significant ( $F(3,112) = .28, p$  ns;  $\eta^2 = .01$ ). Thus, hypothesis 3 was not supported. However, there was a main effect for Emergence Feedback, such that those who received higher emergence feedback exhibited a greater proportion of transformational leadership behavior ( $F(3,112) = 18.30, p < .05; \eta^2 = .33$ ). There was no main effect found for Time ( $F(3,112) = .02, p$  ns;  $\eta^2 = .00$ ).

Hypothesis 4 predicted that transformational leadership behavior at Time 2 would be positively related to leadership ratings and rankings at Time 2. Individuals who exhibited greater proportions of transformational behavior at Time 2 were expected to receive higher leadership ratings and rankings than those who exhibited smaller proportions of transformational behavior

at Time 2. This hypothesis was tested by correlating leadership ratings and rankings at Time 2 with proportion of leadership behaviors at Time 2. Results indicate that proportion of transformational leadership behaviors was significantly related to leadership ratings ( $r = .61, R^2 = .37, p < .001$ ) and rankings ( $r = .43, R^2 = .18, p < .001$ ) at Time 2. Thus, hypothesis 4 was supported.

### Discussion

The primary purpose of this research was to extend our knowledge of the individual differences that are traditionally associated with leadership emergence and to determine whether the individuals characterized by individual differences attributed to transformational leaders were also likely to emerge as a leader in a leaderless group. Previous research clearly demonstrates a link between individuals differences associated with Ross and Offermann's (1997) forceful pattern and leadership emergence. However, Ross and Offermann's (1997) unique finding that individual differences associated with an enabling personality were related to subordinates' perceptions of transformational leadership made it plausible that such individual differences could also be related to leadership emergence. Thus, the current study examined both enabling and forceful personality patterns in an emergence setting designed to facilitate transformational leadership.

The secondary purpose of this study was to contribute to the current understanding of the leadership process, by expanding upon the leadership theory of Lord and his associates (Lord et al., 1982; Lord & Maher, 1990; 1991). Recently, leadership scholars (Lowe & Gardner, 1999; Sternberg & Vroom, 2002) have suggested that leadership research should focus on understanding leadership as a process, with particular attention paid to contextual influences on the leadership. In response to this suggestion, this research borrowed relevant elements from

Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) CAPs theory of personality to further our understanding of how the leadership process changes or maintains over time. Specifically, a conceptual framework of the leadership process (Figure 1) that is based on Lord's theory of leadership and incorporates relevant elements of Mischel's personality theory was examined.

Generally, the hypotheses proposed based on the framework presented in Figure 1 were not supported. There was no evidence for the emergence of individuals with the enabling personality pattern in a situation designed to have psychological features that facilitate transformational leadership. In addition, there was no evidence for changes in the leadership process due to feedback based on the perceptions of others. The findings of the hypotheses will be reviewed separately before discussing potential explanations for the findings.

Hypothesis 1 (a and b) made predictions about the behaviors of individuals based on their personality patterns. Contrary to hypothesis 1a, individuals with the enabling personality pattern did not exhibit a greater proportion of transformational leadership behavior than individuals with forceful or mixed personality patterns at either Time 1 or Time 2. In fact, the means for proportion of transformational leadership behavior were in the opposite direction of what was expected. These results suggest that individuals characterized by a pattern of enabling traits were no more likely than other individuals to engage in visionary, innovative thinking, or supportive leadership behaviors associated with transformational leadership.

Partial support was found for hypothesis 1b, which predicted that individuals with the forceful personality pattern would exhibit a greater proportion of initiating structure leadership behaviors than individuals with enabling or mixed personality patterns at Time 1 as well as at Time 2. Individuals with the forceful pattern did exhibit a greater proportion of initiating

structure behaviors than individuals with the enabling pattern at Time 1 and individuals with the mixed pattern at Time 1 and Time 2. This finding confirms the conclusion of previous research that has attributed the emergence of individuals characterized by patterns high in dominance and masculinity to the initiating structure leadership behaviors assumed exhibited by these emerging individuals.

Hypothesis 2a predicted that individuals with the enabling personality pattern would be rated and ranked higher on leadership than individuals with forceful or mixed personality patterns at Time 1 as well as at Time 2. This hypothesis was not supported. Contrary to expectations, individuals with the forceful and mixed patterns were rated significantly higher on leadership than individuals with the enabling pattern at Time 1 and Time 2. These results are more in-line with the findings of previous research on leadership emergence than transformational leadership. Although Ross and Offermann (1997) found a relationship between individual differences associated with an enabling personality pattern and subordinates' perceptions of transformational leadership, those results were not replicated in this study. In fact, individuals with the enabling pattern received lower leadership ratings than individuals with both the forceful and the mixed patterns.

These results are consistent with previous research that has established a link between individual differences associated with Ross and Offermann's (1997) forceful personality pattern and leadership emergence. Specifically, several researchers have demonstrated that dominance is predictive of leadership emergence (Carbonell, 1984; Hegstrom & Griffith, 1992; Lord et al., 1986; Mann, 1959; Megargee 1969; Nyquist & Spence 1986; Smith & Foti, 1998). Similarly, masculinity has consistently been related to leadership emergence (Gershenoff & Foti, 2003; Hall, Workman, & Marchioro, 1998; Kent & Moss, 1994; Moss & Kent, 1996).

Hypothesis 2b predicted that transformational leadership behavior would mediate the relationship between pattern and leadership ratings and rankings at Time 1. According to Baron and Kenney (1986) there are three conditions that must be met in order to test for mediation. First, the independent variable must be related to the dependent variable. Second, the independent variable must be related to the mediating variable. Third, the relationship between the independent and dependent variable must become non-significant when the mediating variable is entered in the model. Although pattern was related to leadership ratings in the current study, there was no evidence for a relationship between pattern and proportion of transformational leadership behavior. Thus, a test of hypothesis 2b was not possible.

Hypothesis 3 predicted that changes in proportion of transformational leadership behavior from Time 1 to Time 2 would be a function of emergence feedback after Time 1; those who received higher emergence feedback after Time 1 were expected to maintain their proportion of transformational leadership behavior from Time 1 to Time 2, while those who received lower emergence feedback after Time 1 were expected to decrease their proportion of transformational leadership behavior from Time 1 to Time 2. In contrast to hypotheses, results indicated that there was no change in proportion of transformational leadership behavior regardless of level of emergence feedback. This finding diverges from Mischel's theory of personality (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) which suggests that feedback from others will lead to subtle changes in the psychological aspects of the situation, which may lead to changes in behavior on a subsequent task.

Hypothesis 4 predicted that transformational leadership behavior at Time 2 would be positively related to leadership ratings and rankings at Time 2. As expected, individuals who exhibited greater proportions of transformational behavior at Time 2 received higher leadership

ratings and rankings than those who exhibited smaller proportions of transformational behavior at Time 2. As can be seen in Table 4, proportion of initiating structure behavior was also correlated with leadership ratings at Time 2, but not as strongly as proportion of transformational leadership behavior.

Overall, support was not found for Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) CAPS theory in the present study. Although as expected, individuals with the forceful pattern did exhibit a greater proportion of initiating structure behaviors than individuals with enabling or mixed patterns, individuals with the enabling pattern did not exhibit a greater proportion of transformational leadership behavior than individuals with the forceful or mixed patterns. According to Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) CAPS theory and theorizing by Lord and Engle (1996), individuals with different processing dispositions, as operationalized by personality patterns in this study, have different CAPS. Individual differences in processing dispositions should lead to differences in encoding processes, beliefs, competencies and self-regulatory processes chronically available. Individuals with differing processing dispositions or personality patterns should therefore behave differently based on their processing of the psychological features of situations.

The tasks in this study were specifically designed to facilitate transformational leadership according to propositions by Shamir & Howell (1999) that transformational leadership is facilitated by situations that involve creativity, initiative, social responsibility, and are related to dominant social values to which followers are exposed. The tasks asked participants to discuss alcohol consumption issues, which are generally accepted as being personally meaningful to undergraduates. In addition, the tasks required participants to cooperate and consider the welfare of the rest of the student body. It can be concluded that the tasks in this study did facilitate

transformational leadership as 67% of the total leadership behaviors observed at Time 1 and 75% of the total leadership behaviors observed at Time 2 were transformational leadership behaviors.

If the task was successful at facilitating transformational leadership, what explains the finding that individuals with the enabling pattern did not exhibit a greater proportion of transformational leadership behaviors as was predicted by the theorizing of Mischel and his associates (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) and Lord and Engle (1996)? One potential explanation for why individuals with different patterns did not differ on transformational leadership lies in the classification of individuals on personality patterns. The reliabilities of 3 of the 5 ACL scales on which patterns were designated (pragmatism, femininity, and masculinity) were below the generally acceptable level of alpha greater than .70. The low reliability of these scales may have contributed somewhat to inaccurate categorizations of individuals on these traits. For example, the mean femininity score did not differ for the enabling, forceful, and mixed patterns for participants in the focal study. Although the enabling and forceful patterns were identified for females by cluster analysis in this sample, the stability of these clusters is questionable due to the unreliable measure of the individual differences variables that comprised the patterns. In addition, low reliability may have contributed to the failure to replicate the forceful and enabling patterns found by Ross and Offermann (1997) for males.

In this study, the reliability for these scales ranged from alpha of .44 to .57. As shown in Table 3, the reliability of the scales in the present study differed from the acceptable internal-consistency reliabilities for these scales reported in the ACL manual (Gough & Heilbrun, 1983). Ross and Offermann (1997) do not report the reliabilities of the scales in their study, but it is presumed that they reflect the internal-consistency reliabilities reported in the ACL manual.

Additional analyses were conducted to examine the correlations between scoring the scales using the ACL as I revised it for the purposes of this study and the method described in the ACL manual. Improvement in subscale reliability was only evident for the masculinity scale and the correlations between the two scoring systems was high for all of the scales, indicating that the scoring methodology used in the present study was not likely the cause of the poor reliability of the scales.

This sample may be different from the sample on which reliability for the scales was calculated and reported in the ACL manual (Gough & Heilbrun, 1983) and the military officers sampled in Ross and Offermann's (1997) study. The low reliability of these scales may be due to the unique characteristics of the undergraduate females who participated in this study. In addition, the data collection methodology used in this study differed from the paper and pencil administration reported in the ACL manual and used by Ross and Offermann (1997). The low reliability of these scales may be an artifact of the on-line methodology used to collect data on the scales. Although preliminary research on the use of the internet for survey data collection yields results consistent with data a paper and pencil methodology (Stanton, 1998), more research is needed on the validity implications of this relatively new methodology for collecting personality data (Stanton, & Rogelberg, 2002).

Another plausible explanation for why the conceptual model of leadership proposed in this study was not supported may lie within contextual influences. Although as mentioned earlier, the tasks were successful at facilitating transformational leadership, the context in this study may have actually created a situation so facilitative of transformational leadership that individuals did not vary in their transformational leadership behaviors. That is, the psychological features of the task may not have interacted differently with the processing

dispositions of individuals with the enabling, forceful, and mixed patterns, leading to a lack of differences in transformational leadership behavior. As stated earlier, the majority of the available leadership behaviors exhibited at either time were transformational. In addition, individuals with the three patterns did not differ on the proportion of transformational leadership behaviors they exhibited. The strong situation may explain why individuals with different patterns did not process the transformational cues of the situation differently, and why individuals did not change their transformational leadership behaviors over time as proposed in hypothesis 3.

Although the tasks appear to have strongly facilitated transformational leadership, there may have been other unintentional aspects of the task that explain why individuals with the enabling pattern did not receive higher leadership ratings than forceful or mixed individuals. Specifically, a short interaction time (40 minutes of interaction over the two tasks) may have been encoded by individuals with the forceful pattern to require more initiating structure behaviors than individuals with the other two patterns. As individuals with forceful patterns are more likely to be sensitive to subtle environmental cues that suggest the need for initiating structure, they may have interpreted the leadership situation in this study as more structuring than other individuals.

Lord and his associates (Brown & Lord, 2001; Lord, Brown, Harvey, & Hall, 2001) state that followers' leadership prototypes are also activated by contextual influences in the environment. They would hypothesize that followers' perceptions are also likely to be impacted by contextual influences. This was not shown in the current study. Rather, in contrast to expectations, individuals with the forceful pattern received the highest leadership ratings and individuals with the enabling pattern received the lowest leadership ratings. Perhaps since

individuals did not differ by pattern on transformational leadership behaviors, followers' formed their leadership judgments based on initiating structure behaviors because those were the leadership behaviors that saliently differentiated individuals. Hence, because individuals with the forceful pattern displayed a greater proportion of initiating structure leadership behaviors, they may have been seen as more emergent by followers.

Both transformational and initiating structure behaviors influenced leadership ratings. Trends in the data suggest that at Time 2, the addition of proportion of transformational leadership behaviors accounts for more variance in leadership ratings than proportion of initiating structure leadership behaviors. This provides some initial evidence to corroborate Lord et al.'s (1984) assertion that the characteristics and behaviors necessary to be identified or selected as a leader in a leaderless group may differ from those required for long-term success in that leadership position and Hogan et al.'s (1994) assertion that the skills necessary to emerge as a leader in small groups may or may not be the skills necessary to build and guide effective teams over time. Further research on the relative importance of transformational and initiating structure leadership behaviors as teams interact over longer periods of time is necessary before any firm conclusions can be drawn from the present study.

### *Limitations*

This study was not without limitations. First, as described earlier, the unreliability in the measurement of some of the individual difference variables that comprised the patterns in this study may lead to generalizability issues. In addition, unlike the findings in Ross and Offermann's (1997) study, evidence of males characterized by the enabling and forceful patterns was not found in the current study. This may be due to a male sample size too small to detect the

clusters of interest. Future research should continue to try to replicate the enabling and forceful patterns found by Ross and Offermann (1997) and found for females in the current study.

Another potential limitation of this study lies in the way emergence feedback was presented to the participants. Although Mischel and Shoda (1995) do not state that feedback needs to be explicit, the lack of changes in transformational leadership behaviors in the present study may be attributed to the manner in which feedback was delivered to participants in the present study. Specifically, participants were simply shown the ranking feedback provided by other group members. Thus, it is not possible to be sure how participants interpreted the feedback. Furthermore, presenting the ranking in this way may have been too much of a cognitive load for participants to accurately decipher the feedback. In future studies, the feedback should be delivered more clearly. One suggestion would be for feedback to be summarized and explained to individuals in a manner similar to the way 360-degree feedback is delivered in organizations. Followers' could be asked to substantiate their ratings with qualitative justifications and the researcher could summarize the feedback before presenting it to participants.

### *Contributions and Conclusions*

This study contributed to the literature on transformational leadership and leadership emergence in several ways. First, this study represents the first attempt to bridge the gap between individual differences associated with transformational leadership and individual differences that have been associated with leadership emergence in leaderless groups. A relationship between the enabling personality pattern and leadership emergence was not supported in this study. The results indicate that, at least initially, individuals characterized by

forceful personality patterns are most likely to be perceived as emergent leaders in leaderless groups, even on tasks that facilitate transformational leadership.

The implication of this finding for organizations is that individuals with traits associated with transformational leadership may not emerge initially on teams working on ambiguous, unstructured tasks or on teams that interact over short periods of time. The tasks in this study reflect some of the conditions proposed by Shamir and Howell (1999) to facilitate transformational leadership, but future research should be conducted to determine if individuals with enabling characteristics would be perceived as more leader-like in groups that interacted on tasks that have other features that might facilitate transformational leadership without overpowering the effect of individual differences.

Another potential contribution of the present study is that this research represents an initial attempt to better understand the process of leadership by borrowing from Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) personality theory and incorporating contextual influences on leadership and examining changes in leadership over time. Contextual influences were incorporated in the present study by designing tasks that are very different from the tasks traditionally studied in leadership emergence research, and creating psychological features that required transformational leadership behaviors. No other study to date has examined transformational leadership behaviors in an emergence setting. Although the results indicated that initiating structure behaviors were also important predictors of leadership ratings, initial evidence suggests a trend that initiating structure behaviors may become less important, and transformational behaviors may become more important to the leadership perceptions of followers after the initial structure is set and the group continues to work together.

Future research should study groups that will work together on a transformational task over several occasions to test this hypothesis.

In the present study, personality was operationalized as an individual's pattern across the five relevant individual differences. Using a pattern approach (Magnusson, 1995) allows for a more holistic view of the individual by examining the person and not the variables as the unit of analysis. This method of studying dispositions is closer to Mischel and Shoda's (1998; 1999) conceptualization of dispositions in that it addresses the coherent functioning of the whole person. However, future research might benefit from identifying individuals based on stable situation-behavior *if...then* profiles. Specifically, measures could be developed to identify clusters of individuals based on their responses to questions about how they would react to situations with different psychological features.

Although Mischel's theory is quite different from the trait approach to personality, Mischel and Shoda contend that trait theories, such as the Big Five (McCrae & Costa, 1997), can be useful in explaining individual differences in behavior to the extent that they contextualize dispositions in relation to the situations in which they function. In addition, dispositional approaches are more useful to the extent that they Studying individuals based on their pattern of relevant traits is one such way to contextualize dispositions.

This study also attempted to study the effect of followers' perceptions of leadership on changes in leadership behavior. Although leadership behavior did not change as a function of emergence feedback in this study, further investigations of the effects of followers' perceptions of leadership are necessary. One way this could be accomplished is with a stronger manipulation of the emergence feedback. In addition, it may be useful to examine individuals' interpretation of the feedback they receive from others and their scripts or plans for subsequent behaviors in

similar situations. In addition, future research should study the effects of feedback on changes in individual leadership behavior on subsequent tasks with groups comprised of new members who do not have previous experience with the potential leader.

In sum, the current research contributed to the literature by comparing individuals with enabling and forceful personality patterns in an emergence setting designed to facilitate transformational leadership. In addition, while Lord and Engle (1996) theorize that Mischel's (Mischel, 1999; Mischel & Shoda, 1995; Mischel & Shoda, 1998) personality theory is applicable to the leadership process, this study was the first known attempt to apply this theory to leadership. The idea proposed by Lord and his associates (Brown & Lord, 2001; Lord, Brown, Harvey, & Hall, 2001) that second order constructs such as context influence the leadership process makes conceptual sense. However, testing this idea proved to be difficult in the current study as manipulating the contextual influences on leadership behavior to be transformational may have overwhelmed the effect of individual differences between people. Further research is necessary to examine differences in leadership behaviors exhibited by individuals with enabling and forceful patterns. In addition, the conceptual framework of the leadership process provided in this study should be further investigated in both laboratory and applied settings.

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Table 1

*Means and Standard Deviations for Participants in each Hypothesized Pattern*

	Pragmatism		Nurturance		Femininity		Dominance		Masculinity		Self-Confidence		Intelligence	
Pattern	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Enabling	10.03	.87	13.62	2.08	11.97	1.09	.07	2.33	5.52	1.50	9.03	3.5	25.14	4.74
Mixed	9.83	1.55	12.00	3.67	11.97	1.74	3.38	3.04	7.22	2.02	11.02	3.33	27.14	4.91
Forceful	9.21	1.15	7.72	2.58	11.31	1.85	6.62	2.56	9.66	1.57	12.41	2.56	27.41	3.75

*Note.*  $N = 29$  for the Enabling and Forceful Patterns.  $N = 58$  for the Mixed Pattern.

Total  $N = 116$ .

Table 2

*Intercorrelations of Independent Variables from Screening*

Variable			1	2	3	4	5
	M		9.58	12.17	11.83	3.66	7.10
	M	SD	1.78	3.80	1.94	3.60	2.39
1. Pragmatism	9.65	1.64	--	.22**	.52**	-.04	.25**
2. Nurturance	12.29	3.87	.30**	--	.13*	-.13*	-.39**
3. Femininity	11.86	1.85	.43**	.14**	--	-.05	.23**
4. Dominance	3.39	3.50	.00	-.03	-.08*	--	.44**
5. Masculinity	6.88	2.23	.15**	-.34**	.18**	.37**	--

*Note.* Correlations provided above the diagonal are for individuals in the original sample screened for pattern designations ( $N = 303$ ), while correlations below the diagonal are for all individuals screened for participation ( $N = 889$ ). \* designates a statistic that is significant at the .05 level. \*\* designates a statistic that is significant at the .001 level.

Table 3

*Subscale Reliabilities and Ranges for the Original and Revised Scoring of the ACL*

Original ACL Scoring for the 1983 Sample <sup>a</sup>			
<u>N = 588</u>	<u>Alpha</u>	<u>Minimum<sub>b</sub></u>	<u>Maximum<sub>b</sub></u>
Pragmatism	.72	1	17
Nurturance	.83	-22	24
Femininity	.76	1	22
Dominance	.78	-21	19
Masculinity	.75	1	22
Self-Confidence	.77	-14	20
Revised ACL Scoring for Present Sample			
<u>N = 303</u>	<u>Alpha</u>	<u>Minimum<sub>b</sub></u>	<u>Maximum<sub>b</sub></u>
Pragmatism	.44	1	13
Nurturance	.77	-18	17
Femininity	.51	1	15
Dominance	.73	-16	10
Masculinity	.57	1	15
Self-Confidence	.78	-8	16
Original ACL Scoring for Present Sample			
<u>N = 303</u>	<u>Alpha</u>	<u>Minimum<sub>b</sub></u>	<u>Maximum<sub>b</sub></u>
Pragmatism	.51	1	17
Nurturance	.80	-22	24
Femininity	.54	1	22
Dominance	.79	-21	19
Masculinity	.72	1	22
Self-Confidence	.83	-14	20

*Note.* <sup>a</sup> Data for the Original ACL from the Adjective Checklist Manual, (Gough & Heilbrun, 1983). <sup>b</sup> Minimum and Maximum refer to the possible range of scores on each scale.

Table 4

*Intercorrelations of Independent and Dependent Variables in the Focal Study*

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Pragmatism	9.72	1.34															
2. Nurturance	11.34	3.77	.32 <sup>†</sup>														
3. Femininity	11.80	1.64	.27**	.15													
4. Dominance	3.36	3.60	.05	-.10	-.11												
5. Masculinity	7.41	2.31	.01	-.50 <sup>†</sup>	.02	.42 <sup>†</sup>											
6. Self-Confidence	10.87	3.40	.21*	.19*	.05	.66 <sup>†</sup>	.29**										
7. Intelligence	26.71	4.66	-.06	-.02	-.04	.20*	.02	.16									
8. TB Time 1	0.25	0.12	-.01	-.14	.14	.09	.15	.13	.23*								
9. TB Time 2	0.25	0.13	-.03	-.17	.13	.09	.13	.21*	.27**	.44 <sup>†</sup>							
10. ISB Time 1	0.25	0.19	-.07	-.27**	-.01	.38 <sup>†</sup>	.30 <sup>†</sup>	.34 <sup>†</sup>	.32 <sup>†</sup>	.39 <sup>†</sup>	.45 <sup>†</sup>						
11. ISB Time 2	0.25	0.20	-.05	-.19*	.05	.18*	.25**	.24**	.23**	.54 <sup>†</sup>	.48 <sup>†</sup>	.51 <sup>†</sup>					
12. TLI Time 1	33.26	5.73	.03	-.24**	.16	.24**	.24**	.25**	.39 <sup>†</sup>	.53 <sup>†</sup>	.57 <sup>†</sup>	.58 <sup>†</sup>	.52 <sup>†</sup>				
13. TLI Time 2	33.60	5.66	-.01	-.14	.17	.17	.17	.21*	.39 <sup>†</sup>	.44 <sup>†</sup>	.61 <sup>†</sup>	.43 <sup>†</sup>	.46 <sup>†</sup>	.80*			
14. Rank #1 Time 1	0.20	0.24	.05	-.12	.09	.13	.18*	.23**	.16	.45 <sup>†</sup>	.48 <sup>†</sup>	.53 <sup>†</sup>	.56 <sup>†</sup>	.60*	.47 <sup>†</sup>		
15. Rank #1 Time 2	0.20	0.26	-.03	-.06	.12	.15	.11	.14	.24**	.36 <sup>†</sup>	.43 <sup>†</sup>	.39 <sup>†</sup>	.37 <sup>†</sup>	.53*	.49 <sup>†</sup>	.66 <sup>†</sup>	

Note. N = 116. TB = Transformational Behavior; ISB = Initiating Structure Behavior; TLI = Transformational Leadership Impression.

\* denotes a statistic that is significant at the .05 level.

\*\* denotes a statistic that is significant at the .01 level.

† denotes a statistic that is significant at the .001 level.

Table 5

*Effect of Order of Task Presentation on Dependent Variables*

Dependent Variables	Order 1		Order 2	
	M	SD	M	SD
TB Time 1	0.25	0.13	0.25	0.16
TB Time 2	0.25	0.15	0.25	0.11
ISB Time 1	0.25	0.23	0.25	0.15
ISB Time 2	0.25	0.20	0.25	0.20
TLI Time 1	33.33	6.23	33.21	5.39
TLI Time 2	32.86	6.34	34.13	5.12
Rank #1 Time 1	0.21	0.24	0.19	0.24
Rank #1 Time 2	0.20	0.27	0.20	0.25

*Note.* TB = Transformational Behavior, ISB = Initiating Structure Behavior, TLI = Transformational Leadership Impression. Order 1 = Education Task before Policy Task,  $N = 48$ . Order 2 = Policy Task before Education Task,  $N = 68$ .

Table 6

*Means and Standard Deviations of Transformational and Initiating Structure Leadership Behavior for all Patterns at Time 1 and Time 2*

Pattern	Transformational Leadership Behavior				Initiating Structure Leadership Behavior			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Enabling	.22	.14	.21	.16	.14	.14	.21	.22
Mixed	.25	.11	.26	.11	.24	.17	.22	.17
Forceful	.27	.12	.28	.11	.38	.22	.35	.21

*Note.*  $N = 29$  for the Enabling and Forceful Patterns.  $N = 58$  for the Mixed Pattern.

Total  $N = 116$ .

Table 7

*Means and Standard Deviations of Leadership Ratings and Rankings for all Patterns at Time 1 and Time 2*

Pattern	Leadership Ratings				Leadership Rankings			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Enabling	29.78	6.15	30.45	5.93	.12	.20	.09	.20
Mixed	33.86	5.55	34.16	5.29	.21	.23	.23	.25
Forceful	35.53	3.95	35.64	4.93	.27	.26	.26	.29

*Note.*  $N = 29$  for the Enabling and Forceful Patterns.  $N = 58$  for the Mixed Pattern.

Total  $N = 116$ .

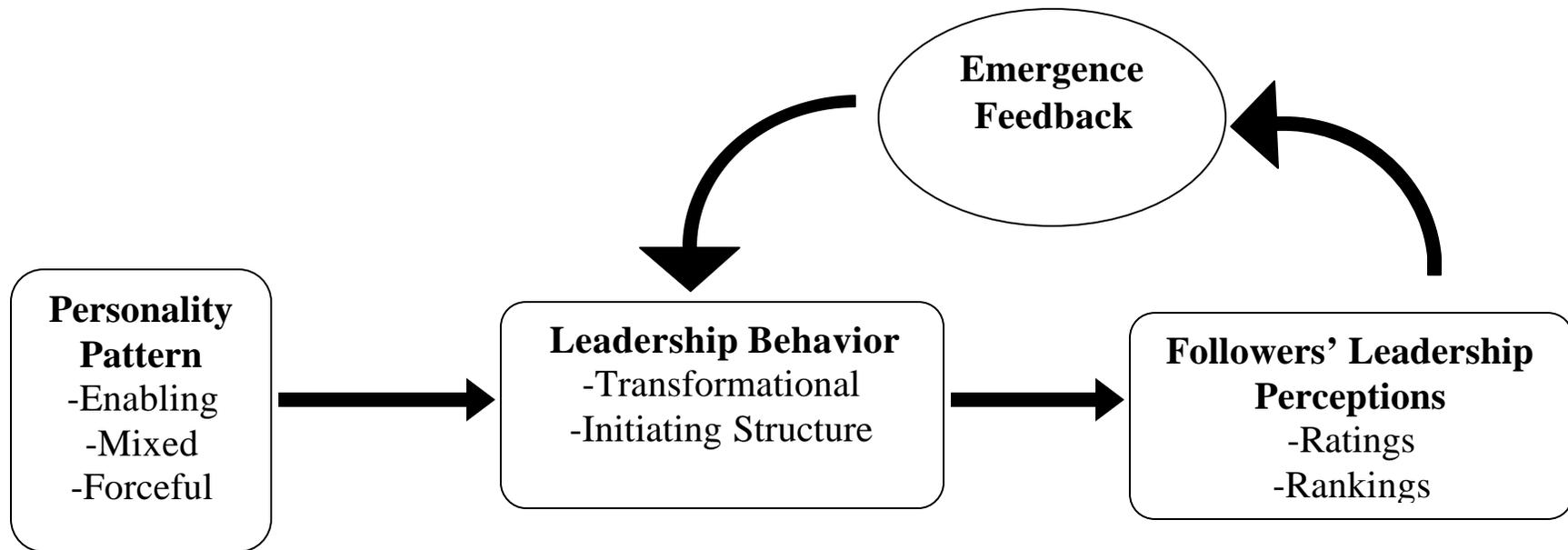


Figure 1

Conceptual framework of the leadership process

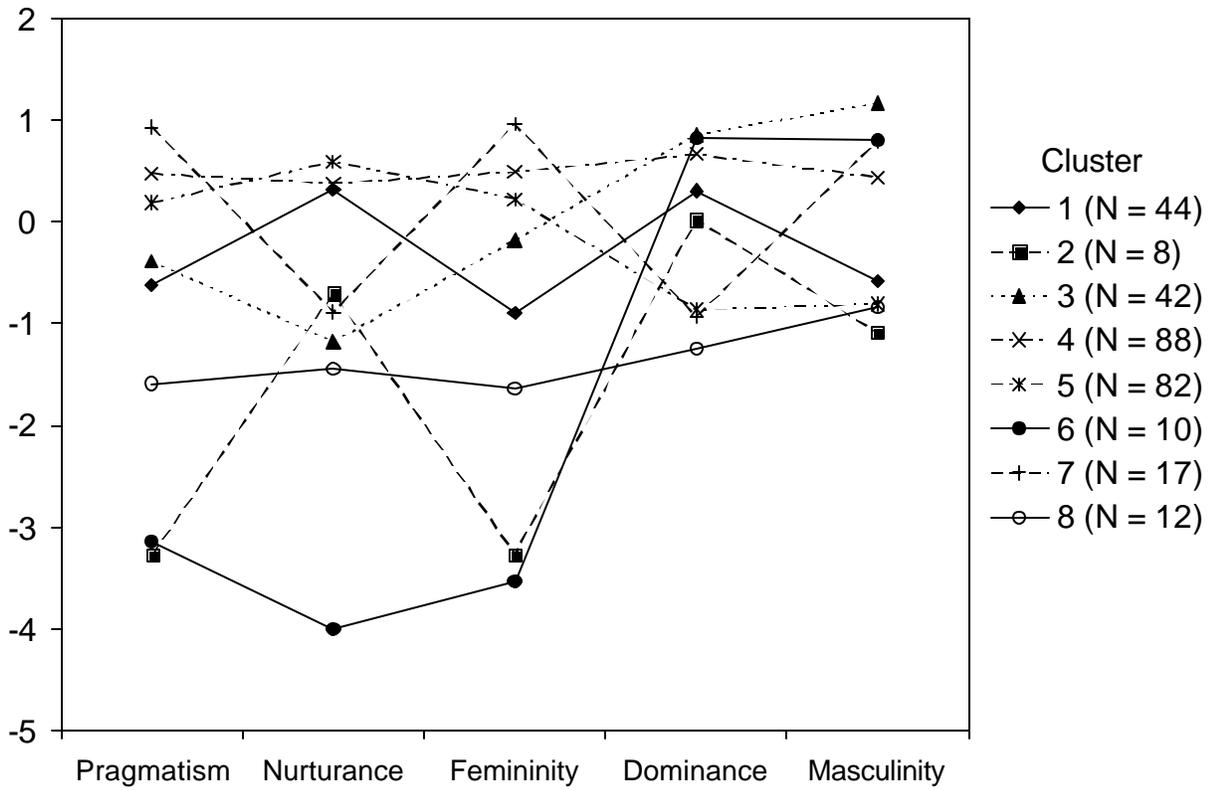


Figure 2

Cluster centroids for females

Note. Standard scores shown. Total N = 303.

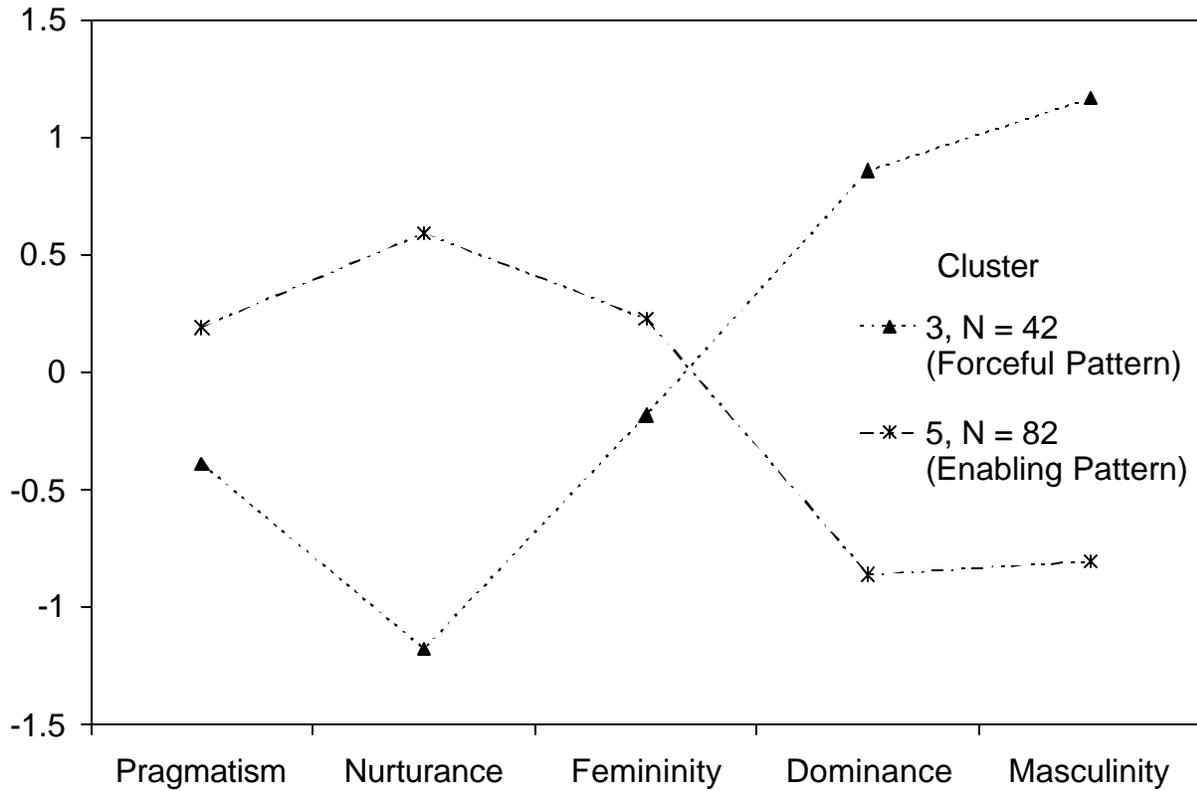


Figure 3

Enabling and forceful cluster centroids for females

Note. Standard scores shown. Total  $N = 303$ .

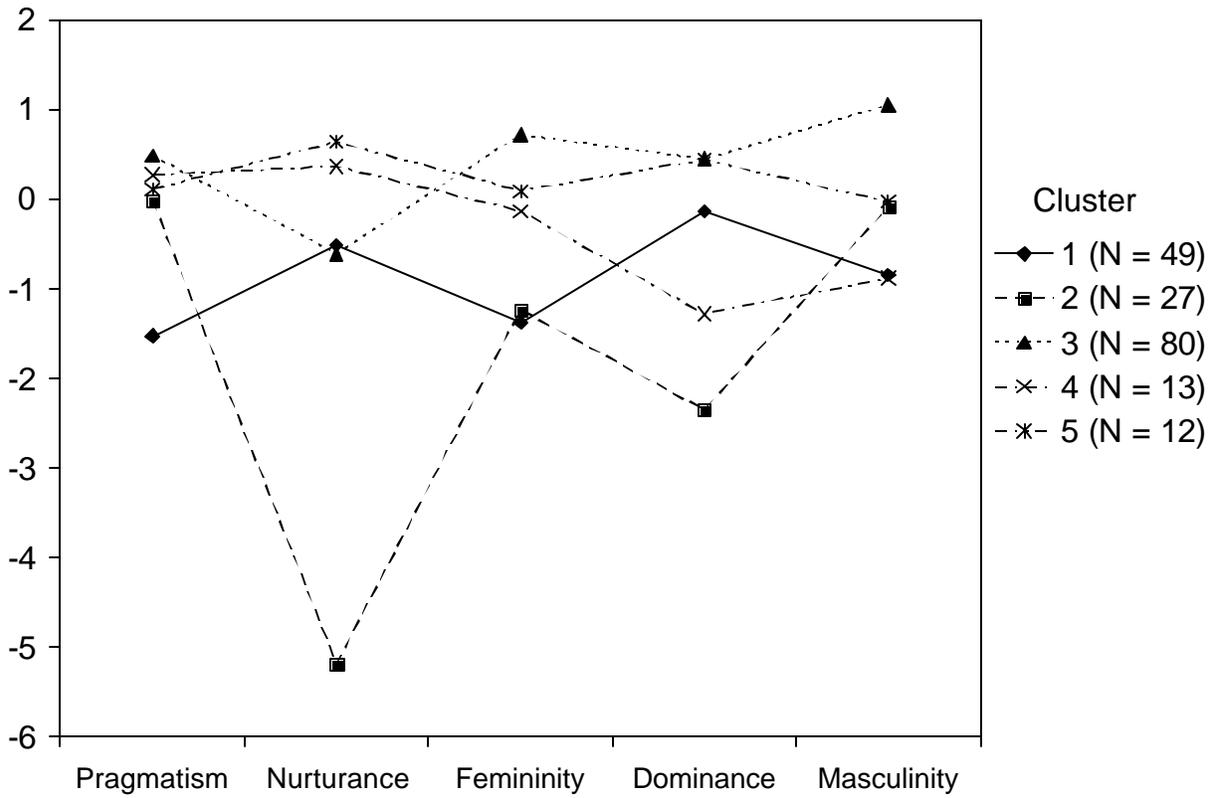


Figure 4

Cluster centroids for males

Note. Standard scores shown. Total  $N = 181$ .

Appendix A

Leaderless Group Discussion Protocol

Set the room up before subjects arrive. Place 4 pads and 4 pencils in the center of the table. Set up the camera. Code the dependent variable questionnaires.

1. Distribute 2 copies of consent form, collect one copy, remaining copy is for the participant. Make sure you can see everyone on camera. Distribute stickers. Remember to record on sign up sheet which subject had which number, and to mark off any no-shows.

TURN THE CAMERA ON and have participants state their number for the camera.

2. Pass out the first activity sheet to each person in the group and read the instructions aloud as they follow along. For the policy change activity, also give them each a copy of the current policy from the Hokie Handbook.

Ask: Do you have any questions? SET THE TIMER FOR 20 MINUTES.

**3. Once the 20 minutes have elapsed and the task is completed, turn the camera off and collect their worksheets. Staple the sheets together and label with group number (e.g. group #12).**

**4. Distribute the dv questionnaires. Remember to match sticker number with number in the upper right hand corner of the questionnaire.**

Say: Now, please turn away from each other. We would like you to fill out the following questionnaires about each group member. Please think carefully about your responses, and answer all the questions.

5. Collect questionnaires and check to see if information is complete. Pull the ranking sheets apart from the rest of the packets and pass the ranking around.

**Say: At this time, we would like you to review feedback given by other group members on their perceptions of you from the last task. Please review your feedback and then turn it back in.**

TURN THE CAMERA ON.

6. Pass out the second activity sheet to each person in the group and read the instructions aloud as they follow along. For the policy change activity, also give them each a copy of the current policy from the Hokie Handbook.

Ask: Do you have any questions? SET THE TIMER FOR 20 MINUTES.

**7. Once the 20 minutes have elapsed and the task is completed, turn the camera off and collect their worksheets. Staple the sheets together and label with group number (e.g. group #12).**

**8. Distribute the questionnaires. Remember to match sticker number with number in the upper right hand corner of the questionnaire.**

**Say: Now, please turn away from each other. We would like you to fill out the following questionnaires about each group member. Please think carefully about your responses, and answer all the questions.**

9. Collect questionnaires and check to see if information is complete.

10. Administer the Wonderlic. Give them time to read instructions and fill out cover page. Tell them not to start until instructed. Time subjects 12 minutes.

**SET THE TIMER FOR 12 MINUTES.**

11. Have participants fill out questionnaire from CAAPC.

12. Have participants fill out a W-9 form and sign the receipt sheet in ink. THEN pay them.

13. Debrief.

14. Put all questionnaires, worksheets and consent forms in the marked shelves.

15. Code the DV's as follows:

Group: 01-30 is the range of group numbers

Task: E for educational program task

P for policy task

Time: 01 for first task

02 for second task

Person: 01

02

03

04

For example, on the sheets for the fourth person in the fifteenth group doing the educational program task at time one would be: **15 E 01 04**.

15. Code the videotapes and place them on the shelf. Include GROUP, DATE & TIME GROUP STARTED. Ex. 15 9/3/02 5:30pm.

*PLEASE BE ORGANIZED & NEAT WHEN LABELING & FILING DATA. CHECK FOR COMPLETENESS.*

## Appendix B

### Education and Policy Tasks Instructions

#### EDUCATION TASK

Virginia Tech is currently in a planning phase involving alcohol abuse prevention education. The College Alcohol Abuse Prevention Center is interested in your ideas for an educational program about alcohol-related issues that would be most beneficial for students at Virginia Tech. Please brainstorm ideas and work together to reach a consensus about the best educational program. Write a brief description of the program you recommend (i.e., what would be the content, who would it target, and how would you reach the target audience, etc.) and provide reasons why you made that recommendation.

You will have 20 minutes to work on this. How you structure the task, the roles you play, and what you decide to do is completely up to you. A \$100 reward will be given for the group that comes up with the most creative recommendation, so do your best!

#### POLICY TASK

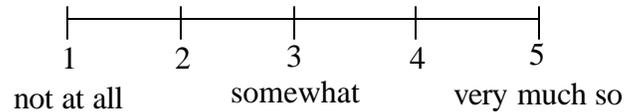
Virginia Tech is currently in a reevaluation phase of the university policy on alcohol. The College Alcohol Abuse Prevention Center is interested in your ideas for changes to the current rules and sanctions for violations of the alcohol policy that would be beneficial for students at Virginia Tech. Please brainstorm ideas and work together to reach a consensus about the best changes. Write a brief description of the changes you recommend (i.e., how should the policy be changed, what should new sanctions entail) and provide reasons why you made those recommendations.

You will have 20 minutes to work on this. How you structure the task, the roles you play, and what you decide to do is completely up to you. A \$100 reward will be given for the group that comes up with the most insightful recommendations, so do your best!

## Appendix C

## Pilot Questionnaire

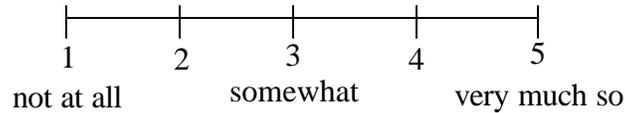
Think back to the exercise in which you were asked to make recommendations for **a new educational program for students about alcohol-related issues on campus**. Please read the following statements and use the scale to indicate how well they describe that task overall.



The Alcohol Education task:

1. Allowed you to think of new or unique ideas
2. Provided specific and detailed instructions for how to do the task
3. Rewards were tied to your individual contribution
4. Provided you an opportunity to make a change to the way something is currently done at the university
5. Provided you an opportunity to introduce new strategies to the way something is currently done at the university
6. Required collaboration among group members
7. Asked you to be accurate
8. Allowed you to use your own wisdom and intuition
9. Allowed for innovation and creativity
10. Allowed you to demonstrate social responsibility or service to the university
11. Required strict distribution of labor
12. Provided a highly structured environment with formal rules
13. Allowed for teamwork and candid communication among group members
14. Was linked to social issues on campus

Think back to the exercise in which you were asked to make recommendations regarding **changes to Virginia Tech's current policy on alcohol violations on campus**. Please read the following statements and use the scale to indicate how well they describe that task overall.



The Alcohol Policy task:

15. Allowed you to think of new or unique ideas
16. Provided specific and detailed instructions for how to do the task
17. Rewards were tied to your individual contribution
18. Provided you an opportunity to make a change to the way something is currently done at the university
19. Provided you an opportunity to introduce new strategies to the way something is currently done at the university
20. Required collaboration among group members
21. Asked you to be accurate
22. Allowed you to use your own wisdom and intuition
23. Allowed for innovation and creativity
24. Allowed you to demonstrate social responsibility or service to the university
25. Required strict distribution of labor
26. Provided a highly structured environment with formal rules
27. Allowed for teamwork and candid communication among group members
28. Was linked to social issues on campus

## Appendix D

### Construct Definitions for the Relevant Adjective Checklist Scales

#### **Dominance**

**HIGH-SCORERS:** influential and controlling in individual relationships, strong-willed, ambitious, affiliative, determined, and forceful, free of self-doubt in the pursuit of goals, and little if at all inhibited by the disapproval or opposition of others.

**LOW-SCORERS:** lack confidence, shun situations calling for competition or the assertion of self.

#### **Femininity**

Not a polar opposite of Masculinity.

**HIGH-SCORERS:** prompt positive reactions from others and in turn treat them in an appreciative, cooperative, considerate, warm, cheerful and sympathetic manner. Values intimacy and mutuality in relationships with others.

**LOW-SCORERS:** fault-finding, hard-headed, opinionated, keep others at a distance, is skeptical of their intentions, and reject their overtures. Values autonomy and detachment.

#### **Masculinity**

Not a polar opposite of Femininity.

**HIGH-SCORERS:** ambitious, impatient when blocked or frustrated, quick to take the initiative, and stubbornly insistent on own goals.

**LOW-SCORERS:** kind, fatalistic, use fantasies to substitute for tangible experience.

#### **Nurturance**

Definition: To engage in behaviors that provide material or emotional benefits to others.

**HIGH-SCORERS:** appear to like people; to have a cooperative, and tactful; and to be sympathetic and supportive in temperament.

**LOW-SCORERS:** avoid close ties, wary of others, and dubious of others' intentions and defensive of his or her own.

#### **Pragmatism**

**HIGH-SCORERS:** affiliative, respectful of others' rights and wishes, and conciliatory, unpretentious, uncomplicated, forbearing individual, protective of close friends, forthright, rule-

respecting, and content with his or her role and station in life. They should also be benign in their evaluations of self and others, and well adjusted to the demands of everyday life.

LOW-SCORERS: intelligent and inventive, but at the same time anxious, ill at ease, worrying, and preoccupied; keeping people at a distance, the low-scorer is skeptical about their intentions and tends to feel alienated.

**Self-Confidence**

HIGH-SCORERS: initiators, confident in their ability to achieve goals, not above cutting a few corners to create a good impression assertive, enterprising and self-confident.

LOW-SCORERS: shy, inhibited, and withdrawn.

Appendix E

Revised ACL Scales

Masculinity

- 1. handsome
- 3. masculine
- 8. cool
- 24. egotistical
- 36. robust
- 57. clever
- 72. aggressive
- 79. sarcastic
- 88. frank
- 98. complicated
- 101. heard-headed
- 103. conservative
- 110. argumentative
- 113. stern
- 128. steady

Femininity

- 16. natural
- 27. worrying
- 28. sentimental
- 44. tactful
- 56. cheerful
- 58. cooperative
- 59. hurried
- 75. considerate
- 87. nervous
- 89. feminine
- 95. attractive
- 112. dreamy
- 121. sincere
- 124. flirtatious
- 127. conscientious

Pragmatism

- 12. hasty
- 18. organized
- 29. practical
- 38. mild
- 42. jolly
- 45. appreciative
- 73. pleasure-seeking
- 76. contented
- 80. trusting
- 86. pleasant
- 93. wholesome
- 97. touchy
- 115. good-natured

Dominance

Indicative

- 11. demanding
- 19. opinionated
- 43. forceful
- 65. strong
- 74. alert
- 90. dominant
- 102. active
- 107. outgoing
- 119. responsible
- 123. outspoken

Contraindicative

- 10. lazy
- 4. apathetic
- 6. unambitious
- 9. fearful
- 14. dependent
- 26. meek
- 30. retiring
- 40. inhibited
- 50. irresponsible
- 62. submissive
- 67. timid
- 68. spineless
- 106. self-pitying
- 109. shy
- 122. weak
- 125. unassuming

Nurturance

Indicative

- 5. dependable
- 13. understanding
- 15. forgiving
- 17. kind
- 25. helpful
- 46. generous
- 52. friendly
- 64. thoughtful
- 81. sympathetic
- 83. tolerant
- 91. gentle
- 99. peaceable
- 100. warm
- 104. sociable
- 108. unselfish
- 116. soft-hearted
- 126. affectionate

Contraindicative

- 20. intolerant
- 21. arrogant
- 22. selfish
- 35. aloof
- 49. rude
- 53. autocratic
- 54. hostile
- 60. cynical
- 61. impatient
- 63. distrustful
- 70. stingy
- 71. snobbish
- 82. fault-finding
- 84. hard-hearted
- 92. self-centered
- 94. self-seeking
- 105. unkind
- 111. bitter

Self-Confidence

Indicative

- 23. ambitious
- 31. healthy
- 32. self-confident
- 33. sharp-witted
- 39. enterprising
- 47. confident
- 51. energetic
- 55. determined
- 66. courageous
- 69. assertive
- 77. intelligent
- 85. enthusiastic
- 96. humorous
- 117. clear-thinking
- 118. resourceful
- 120. good-looking

Contraindicative

- 2. commonplace
- 7. quiet
- 34. suspicious
- 37. withdrawn
- 41. dull
- 48. reserved
- 78. silent
- 114. nagging

Appendix F

Behavior Observation Checklist

Participant's Code: \_\_\_\_\_ Participant's Student ID: \_\_\_\_\_  
 Full Session Code (Group, Task, Time, Person: 15 E 01 04): \_\_\_\_\_  
 Evaluated By: \_\_\_\_\_ Date: \_\_\_\_\_

---

I. Charismatic/Visionary

- |  |              |       |
|--|--------------|-------|
| 1. talks about values or ideals                    | 1            | _____ |
| 2. provides new information about important issues | 2            | _____ |
| 3. persuades others                                | 3            | _____ |
| 4. talks about change                              | 4            | _____ |
|  | <b>Total</b> | _____ |

II. Supportive Leadership

- |  |              |       |
|--|--------------|-------|
| 1. praises others' contributions         | 1            | _____ |
| 2. seeks suggestions/ideas from others   | 2            | _____ |
| 3. asks for consensus/agreement on ideas | 3            | _____ |
| 4. seeks compromise                      | 4            | _____ |
|  | <b>Total</b> | _____ |

III. Innovative Thinking

- |   |              |       |
|---|--------------|-------|
| 1. expands upon others' ideas                               | 1            | _____ |
| 2. restates information from others to ensure understanding | 2            | _____ |
| 3. describes alternative courses of action                  | 3            | _____ |
| 4. suggests new ideas                                       | 4            | _____ |
| 5. encourages others to think about problems in new ways    | 5            | _____ |
|   | <b>Total</b> | _____ |

IV. Task-Orientation

- |                                    |              |       |
|------------------------------------|--------------|-------|
| 1. keeps time                      | 1            | _____ |
| 2. summarizes/reviews results      | 2            | _____ |
| 3. volunteers to record group work | 3            | _____ |
| 4. keeps group on-task             | 4            | _____ |
| 5. clarifies task for others       | 5            | _____ |
|                                    | <b>Total</b> | _____ |

V. Adherence to Rules and Standards

- |  |   |       |
|--|---|-------|
| 1. encourages others to follow rules or procedures   | 1 | _____ |
| 2. resists change in the current way of doing things | 2 | _____ |
| 3. refers to written instructions or rules           | 3 | _____ |
| 4. states the realities or constraints of situation  | 4 | _____ |

**Total** \_\_\_\_\_

VI. Directive

- 1. concludes task
- 2. assigns tasks to others
- 3. tells others how to do the task
- 4. stresses importance of achieving the goal

1 \_\_\_\_\_  
 2 \_\_\_\_\_  
 3 \_\_\_\_\_  
 4 \_\_\_\_\_

**Total** \_\_\_\_\_

Total for Dimensions I, II, and III

**I-III** \_\_\_\_\_

Total for Dimensions IV, V, and VI

**IV-VI** \_\_\_\_\_

Appendix G

Transformational Leadership Impression

The following questions concern your feelings towards and evaluations of **GROUP MEMBER**

\_\_\_\_\_. Please circle the answer that reflects your feelings.

1. How much did this member contribute to the discussion in a meaningful way?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

2. How much did this member help the group come to agreement on this task?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

3. To what degree did this member come up with creative ideas or encourage creative ideas from others?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

4. How much leadership did this member exhibit?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	None
-------------------	-----------------------	--------------------	----------------	------

5. To what degree did this member approach the task in an enthusiastic way?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

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

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

7. How much did this member encourage the contributions of other group members?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

8. How clearly did this member express her ideas about the task?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

9. How successful was this member in convincing you her ideas were good?

Extreme Amount	Substantial Amount	Moderate Amount	Very Little	Not at all
-------------------	-----------------------	--------------------	----------------	------------

Appendix H

Leadership Ranking

If you were asked to meet a second time with this same group to work on the same type of 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.**

Rank #1 (top preference) \_\_\_\_\_

Rank #2 (second preference) \_\_\_\_\_

Rank #3 (third preference) \_\_\_\_\_

Rank #4 (fourth preference) \_\_\_\_\_

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## EDUCATION

### **Ph.D., INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY**, May 2003

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, Virginia  
Faculty advisor: Roseanne J. Foti, Ph.D.  
Dissertation: Individual Differences and Leader Emergence in a Transformational Context: An Examination of Person and Process  
GPA: 3.8 / 4.0

### **M.S., INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY**, May 1999, Virginia Tech

Thesis: Leadership Emergence and Gender Roles: A Contextual Examination

### **B.S., PSYCHOLOGY in Honors, Magna Cum Laude, Phi Beta Kappa**, May 1996, Virginia Tech

Honors Thesis: Commitment Versus Reward Strategies to Increase the Use of Actively Caring Thank-You Cards

## PUBLICATIONS

### Journal Publication

**Gershenoff, A.B.** & Foti, R.F. (In press). Leadership emergence and gender roles in all-female groups: A contextual examination. *Small Group Research*.

## PRESENTATIONS

### Conference Presentations

**Gershenoff, A.B.** & Foti, R.F. (April, 2000). Leadership emergence and gender roles: A contextual examination. Paper presented at the 15<sup>th</sup> Annual Society for Industrial and Organizational Psychology, Inc., New Orleans, Louisiana.

Foti, R.F. & **Gershenoff, A.B.** (April, 1999). Female leader emergence: A pattern approach. Paper presented at the 14<sup>th</sup> Annual Society for Industrial and Organizational Psychology, Inc., Atlanta, Georgia.

Basik, K., **Gershenoff, A.B.**, & Foti, R.F. (April, 1999). Leader assignment in small groups: Effects of task interdependence. Paper presented at the 14<sup>th</sup> Annual Society for Industrial and Organizational Psychology, Inc., Atlanta, Georgia.

- Clarke, S.W., Geller, E.S., & **Gershonoff, A.B.** (April, 1998). Using self-monitoring to improve the driving safety of professional drivers. Paper presented at the 13<sup>th</sup> Annual Society for Industrial and Organizational Psychology, Inc., Dallas, Texas.
- Gershonoff, A.B.**, DePasquale, J.P., Ford, D.K., Montgomery, J., & Rowe, M.P. (May, 1997) How's my driving? Impact of a critical behavior checklist. Paper presented at the 23<sup>rd</sup> Annual Convention for the Association for Behavior Analysis, Chicago, Illinois.
- Gershonoff, A.B.**, DePasquale, J.P., Glindemann, K.E., & Fortney, J.N. (April, 1997). How does industry regard behavior-based safety?: A national survey. Paper presented at the 43<sup>rd</sup> Annual Convention for the Southeastern Psychological Association, Atlanta, Georgia.
- Boyce, T.E., Michael, P.G., **Gershonoff, A.B.**, Francisco, D., & Rider, R. (April, 1997). Applications of activators versus consequences to increase safe driving: Differential impact on salary and wage employees. Paper presented at the 12<sup>th</sup> Annual Convention for the Society for Industrial and Organizational Psychology, St. Louis, Missouri.
- Gershonoff, A.B.**, Geller, E.S., & Fortney, J.N. (September, 1996). Commitment versus reward strategies to increase participation and actively caring thank-you card use. Paper presented at the 16th Annual Convention of the Florida Association for Behavior Analysis, Daytona Beach, Florida.
- Glindemann, K.E., Fortney, J.N., **Gershonoff, A.B.**, & Geller, E.S. (September, 1996). The relationship between self-esteem and blood alcohol concentration at a university fraternity party. Paper presented at the 16th Annual Convention of the Florida Association for Behavior Analysis, Daytona Beach, Florida.
- Gershonoff, A.B.** & Boyce, T.E. (April, 1996). Commitment versus reward strategies to increase the use of "Actively Caring Thank-You Cards". Paper presented at the 21st annual meeting of the Carolina Psychology Conference, Raleigh, North Carolina.
- Chevallier, C. R., Glindemann, K. E., Fortney, J. N., Pettinger, C. B., & **Gershonoff, A. B.** (March, 1996). Providing BAC feedback to university students: A longitudinal study. Paper presented at the 42nd Annual Meeting of the Southeastern Psychological Association, Norfolk, Virginia.
- Gershonoff, A.B.**, Spiller, M., Barger, D., Walker, J., & LaMonica, J. (May, 1995). The modeling of irresponsible sexual behavior on prime-time television. Paper presented at the 21st annual convention of the Association for Behavior Analysis, Washington, D.C.
- Depasquale, J.P., Maddox, K.L., Gee, A., Heath, J.M., & **Gershonoff, A.B.** (May, 1995). Sex, violence, and safety belts: An analysis of modeling on prime time television. Paper presented at the 21st annual convention of the Association for Behavior Analysis, Washington, D.C.
- Buermeyer, C.M., Rasmussen, D.D., Roberts, D.S., Martin, C., & **Gershonoff, A.** (May, 1994). Red Cross blood donors vs. a sample of students: An assessment of differences between group on "Actively Caring" person factors. Paper presented at the 72nd annual meeting of the Virginia Academy of Science, Harrisonburg, Virginia.

Pettinger Jr., C.B., Jones III, J.P., **Gershonoff, A.B.**, Shurts, T., & Gallagher, K. (May, 1994). The compensatory tracking task battery (CTTB): Using computer tasks to predict alcohol-induced decrements in psychomotor performance. Paper presented at the 20th annual convention of the Association for Behavior Analysis, Atlanta, Georgia.

Maddox, K.L., **Gershonoff, A.B.**, Gee A., Wetzel, B.R., & Nuttycombe, K.K. (May, 1994). Displaying of safe sex information at a university sanctioned fraternity party to examine the effects on alcohol consumption. Paper presented at the 72nd annual meeting of the Virginia Academy of Science, Harrisonburg, Virginia.

Patarroyo, O., Nuttycombe, K.K., Roberts, D.S., Martin, C., & **Gershonoff, A.B.** (May, 1994). How environmental differences in university dining halls affect employees' "Actively Caring" behaviors. Paper presented at the 72nd annual meeting of the Virginia Academy of Science, Harrisonburg, Virginia.

Haskell, I.O., Heath, J., **Gershonoff, A.B.**, & Petrillo, A. (April, 1994). An examination of personality variables and their relationship to intoxication at university parties. Paper presented at the Annual meeting of the Virginia Psychological Association, Charlottesville, Virginia.

Pettinger, Jr., C.B., Jones, J.P., Heath J., & **Gershonoff, A.B.** (October, 1993). The use of computer tasks to predict alcohol-induced decrements in psychomotor performance. Paper presented at the 10th Annual Meeting of the Southeastern Association for Behavior Analysis, Chapel Hill, North Carolina.

## GRANTS

### **Dissertation Research Grant, 2002**

College Alcohol Abuse Prevention Center, Virginia Tech

Award: \$1700

### **Research Presentation Travel Grant, 2000**

Graduate Student Assembly, Virginia Tech

Award: \$300

### **Thesis Research Grant, 1999**

Graduate Student Assembly, Virginia Tech

Award: \$300

## ACADEMIC EXPERIENCE

### Teaching Experience

#### **UNDERGRADUATE RESEARCH INSTRUCTOR, 1998 – present** **Department of Psychology, Virginia Tech, Blacksburg, Virginia**

- Supervised independent and group research of 13 undergraduates, including one honors thesis.
- Taught weekly seminars on research methods and scientific writing, discussing

relevant literature in industrial/organizational psychology, research methodology, and psychological measurement.

- Evaluated research projects and conference presentation submissions.

**UNDERGRADUATE RESEARCH COORDINATOR, 2002-present**

**McNair Scholars Program, Center for Academic Enrichment and Excellence, Virginia Tech, Blacksburg, Virginia**

- Mentored minority students on academic subjects, research, and graduate school applications. Identified conference presentation opportunities and research related resources.
- Taught seminars on research methods, oral and poster presentation styles, and graduate school preparation.
- Produced First Annual McNair Research Journal publication showcasing student research projects.

**GRADUATE TEACHING ASSISTANT, 1997-1998**

**Department of Psychology, Virginia Tech, Blacksburg, Virginia**

- Instructed five introductory psychology recitations. Instructor rating 3.7/4.0.

**Other Academic Experience**

**CONSORTIUM ON GENERAL AND INTEGRATIVE EDUCATION MEMBER, Summer, 2002**

**Provost's Office and Center for Excellence and Undergraduate Teaching, Virginia Tech, Blacksburg, VA**

- Participated in a working group with 25 distinguished faculty and administrators to review the core curriculum and strengthen the quality of undergraduate instruction in the context of restructured academic units and a recently modified strategic plan for the university.
- Evaluated the stated ideals for general and liberal education at Virginia Tech and identified issues that warranted university-wide discussion.
- Examined how research on learning, pedagogy, and curriculum design could inform future directions of liberal education.
- Identified structural and bureaucratic issues impinging on successful implementation of liberal studies programs and identified issues that could be quickly addressed with existing structures and resources.

**ACADEMIC ADVISING OFFICE COORDINATOR, 1998 - 2002**

**Department of Psychology, Virginia Tech, Blacksburg, Virginia**

- Advised undergraduates on course work, degree requirements, graduate school applications and post-graduation career opportunities. Developed advising handbooks for majors, careers, and graduate school in psychology.
- Coordinated the annual department graduation ceremony.
- Served as a liaison between faculty, students, the Dean of the College of Arts and Sciences and the University Registrar regarding advising matters. Assisted with major and career fairs.
- Trained and supervised four employees.

**CENTER FOR APPLIED BEHAVIOR SYSTEMS COORDINATOR, 1996 - 1997**

**Dr. E. Scott Geller, Psychology Department, Virginia Tech, Blacksburg, Virginia**

- Served as project manager on a Department of Motor Vehicles grant to develop, coordinate, and evaluate safety campaigns.
- Coordinated and managed activities and personnel for two grants from the National Institute for Occupational Safety and Health / Centers for Disease Control.
- Supervised approximately 25 undergraduate research assistants on field study.

**PROFESSIONAL AFFILIATIONS**

Society for Industrial and Organizational Psychology (Student Member), 1997 - present  
American Psychological Association (Student Affiliate), 1997 – present

**HONORS AND AWARDS**

Graduate Student Assembly Research Symposium Award, 2002  
Student Scholarship, Mid-Atlantic Personnel Assessment Consortium (MAPAC) Conference, 2002  
SIOP Doctoral Consortium Participant, 2000  
Outstanding Senior in Psychology Award, 1996  
Undergraduate Research Excellence Award, 1996  
College of Arts and Sciences Senior Challenge Book Scholarship, 1996

Who's Who Among Students in American Universities and Colleges, 1995-1996  
Phi Kappa Phi National Honor Society, inducted 1996  
Golden Key National Honor Society, inducted 1994  
Psi Chi - National Honor Society in Psychology, inducted 1993  
Phi Sigma Pi National Honor Society, inducted 1993

**PROFESSIONAL EXPERIENCE**

**HR STRATEGIC MANAGEMENT ANALYST, Summer 2000**

**Q.E.D. Consulting, LLC., Arlington, Virginia**

- Consulted with a strategic planning group for the consolidation of two FAA divisions.
- Identified HR issues associated with organizational change, including implementation of new technology, facility relocation, changes in core policies and organizational structure.
- Designed and led statistical training for ten employees including an introduction to SAS.
- Evaluated an employee tuition program for the U.S. Customs Agency.
- Developed action plan for the FAA on an initiative to meet Baldrige criteria for High Performance Organizations. Restructured goals and strategies to have an employee focus.

### **RESEARCH SCIENTIST INTERN, Summer 1999**

#### **Human Resources Research Organization (HumRRO), Alexandria, Virginia**

- Synthesized literature on integrity and response distortion in personnel testing to validate moral standard waivers across the U.S. Military branches.
- Created structured interview questions for the U.S. Marshalls' promotion decisions. Conducted workshops with subject matter experts to collect and evaluate critical incidents.
- Integrated literature for creation of user manual for team-based 360° Feedback instrument.
- Analyzed data and prepared feedback reports for company-wide 360° Feedback for managers. Analyzed feedback system and presented suggestions for improving process.

### **HR TESTING AND ASSESSMENT ANALYST, Summer 1998**

#### **Circuit City Stores, Inc., Richmond, Virginia**

- Constructed and validated a biodata selection tool. Conducted job analysis interviews and analyzed work behaviors. Participated in rater training: created training protocols and video.
- Facilitated 360° Feedback and assisted with individual development plans for 15 managers.
- Participated in Behavioral Interview Training. Led half-day workshops, served as a role player, and provided feedback to interviewers.

### **VIRGINIA GOVERNOR'S FELLOW, Summer 1996**

#### **Lieutenant Governor Donald S. Beyer, Jr., Richmond, Virginia**

- Reestablished Jobs for Virginia Graduates, Inc. (JVG), a state-wide, bipartisan program to help at-risk high school students graduate and secure and maintain jobs.
- Selected a Chief Executive Officer for JVG; Developed a first-year budget.
- Wrote a Request for Proposals to be distributed to all school superintendents in Virginia.

### **Professional Presentations**

"Interview types for selection: Research and practice". (March 31, 2002). Presentation given at Career Services at Virginia Tech; Blacksburg, VA.

"Goal 6: Creating better business results through the organization and its people." (July 25, 2000). Presentation given at the Federal Aviation Administration; Washington, DC.

"The 1999 program manager assessment: Recommendations and issues to consider." (August 5, 1999). Presentation given at Human Resources Research Organization; Alexandria, VA.

"Possible pitfalls in making performance ratings." (June 5, 1998). Presentation given at Circuit City Stores, Inc.; Richmond, VA.

### **UNIVERSITY SERVICE AND LEADERSHIP**

Panel Member, Virginia Tech Graduate Honor System, 1997-present

Associate Justice, Virginia Tech Honor System, 1994-1996  
Alumni Relations Chair of Mortar Board, 1995-1996  
Women's Leadership Coalition, 1994-1996  
Coordinating Council for Womens' Concerns, 1994-1996  
Vice President, Garnet & Gold National Honorary, inducted 1994  
University Honors Associates, 1993-1996  
Resident Advisor, 1993-1994

## **COMMUNITY SERVICE**

Volunteer, Warm Hearth Village Nursing Home, 2002-present

## **GRADUATE COURSES**

Research Methods  
Statistics for the Social Sciences I and II  
Psychological Measurement  
Quantitative Topics (Factor Analysis)  
Regression Analysis  
Structural Equation Modeling  
Advanced Psychometric Theory (Item Response Theory)  
Human Resources Management  
Advanced Seminar in Leadership  
Contemporary Topics in Applied Psychology  
Industrial Psychology I (Job Analysis, Selection, & Training)  
Industrial Psychology II (Assessment and Performance Appraisal)  
Organizational Psychology I (Work Motivation)  
Organizational Psychology II (Leadership)  
Social Psychology  
Psychology of Personality  
Developmental Psychology