Cognitive Complexity and Empathy as Predictors of Leadership Style in an Urban College Student Population

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COGNITIVE COMPLEXITY AND EMPATHY AS PREDICTORS OF

LEADERSHIP STYLE IN AN URBAN COLLEGE STUDENT POPULATION

by

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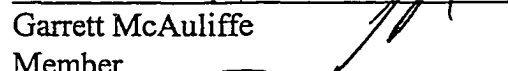Requirements for the Degree of

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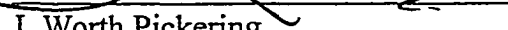URBAN SERVICES

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ABSTRACT

COGNITIVE COMPLEXITY AND EMPATHY AS PREDICTORS OF LEADERSHIP STYLE IN AN URBAN COLLEGE STUDENT POPULATION.

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The amount of variation in leadership style predicted by cognitive complexity and empathy was investigated. Differences in cognitive complexity and empathic ability according to students' educational levels and leadership styles was also tested. Leadership style was determined by Fiedler's (1967) Least Preferred Coworker (LPC) measure; cognitive complexity was defined by the Cognitive Complexity Index (CCI), a subscale of the Learning Environment Preferences (LEP; Moore, 1987) instrument which measures Perry's (1998) scheme of intellectual and ethical development; and empathy was measured by Hogan's Scale of Empathy (1969) as scored on the Hogan/Em subscale of the California Psychological Inventory (CPI; Gough, 1987). Participants comprised a sample of 160 urban college undergraduate and graduate students. Multiple regression was used to test the CCI and Hogan/Em as predictors of the LPC criterion variable. Multivariate and univariate analyses of variance were used to test for education level and leadership style main effects on the Hogan/Em and CCI. The results indicated that cognitive complexity alone, and cognitive complexity and empathy combined, were statistically significant predictors of leadership style. Graduate students scored higher than undergraduate students on the cognitive complexity measure, and an inverse relationship was found between leadership style and cognitive complexity. Discussion

focused on theoretical explanations of the inverse relationship found between leadership style and cognitive complexity. Implications of the results were discussed as they relate to the psychometric properties of the measures, theoretical constructs, higher education policy and practice, and future research.

This dissertation is dedicated to my parents,
James C. and Helen F. Harrison

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CHAPTER I

INTRODUCTION

Institutions of higher education engage in, among other things, the intellectual development of individuals, many of whom will be the next generation of urban leaders. The urban leaders who arise from higher education will be given the responsibility of successfully guiding our communities through the 21st century. These leaders will be required to deal with a complex blend of technological, social, cultural, and political ingredients that comprise the urban center. A fundamental issue for researchers interested in appraising the education of college students and the development of leadership, in reference to the ability to comprehend complex environments, would therefore be determination of attributes that predict leadership style. If leadership style attributes which correspond to a student's ability to understand and deal more effectively with complex environments can be empirically identified, there would be good reason to focus on developing these attributes through the higher education experience. Successful efforts at developing these attributes might result in college graduates who can more effectively lead within our complex metropolitan centers.

This study sought to demonstrate that a focus on cognitive development should be an integral part of the leadership education of urban college students. Most leadership theories, as detailed later in this discourse, do not explain the psychological change in ability as a leader develops. These theories promote a form of "leadership training" that focuses on leader behaviors and does not account for psychological "readiness" and change. Psychological change, or cognitive development, might be important to the

development of leaders who must deal with complex environments such as those found in urban centers. An alternative approach to "leadership training" is "leadership development education," which would incorporate cognitive developmental principles in the developing leader's educational experience. The current research, then, examined leadership style in light of cognitive developmental theory. By way of introduction, two concepts of leadership style are presented, followed by a brief review of this study's central theories (comprehensive theoretical reviews can be found in Chapter 2).

There is a vast body of literature on leadership style. Leadership style is typically defined as a preferred method of managing or operating in a leadership role, characterized by some variation or combination of behavioral and skill classifications. This leadership style research has focused on an extremely broad array of behavioral styles. An example of this type of research is Driver, Brousseau, and Hunsaker's (1990) study that identified five basic decision-making styles of leaders (decisive, flexible, hierarchic, integrative, and systemic), which are characterized by variations in the way information is used. These decision-making styles are not described from a cognitive process perspective but, instead, are defined by the actions taken by the leaders (in this case managers) as a result of the quantity of information gathered and how quickly this information is used in the decision-making process.

The Driver et al. (1990) study is only one example in a long line of research that has identified action or behavior-oriented leadership styles. Taxonomies have been developed in an attempt to summarize leadership style behaviors, which range from actions such as supporting, consulting, and delegating, to clarifying, informing, and

organizing. Bass (1990) reviewed the various leadership style taxonomies and noted:

> Despite the plethora of taxonomies of leadership some common themes appear.
> The leader may help set and clarify the missions and goals of the individual
> member, the group, or organization. The leader may energize and direct others to
> pursue the missions and goals. The leader may help provide the structure,
> methods, tactics, and instruments for achieving the goals. The leader may help
> resolve conflicting views about the means and ends. The leader may evaluate the
> individual's, group's, or organization's, as well as his or her own, contributions to
> the effort. (p. 33)

In each of these examples, leadership style is indicative of a preferred mode of action, whether it be behavior directed toward others, or information gathering behavior for the purpose of decision making. The definition of leadership style utilized in this traditional research, however, is different from the concept of leadership style as interpreted from a cognitive developmental perspective.

Lewis and Jacobs (1992) outlined several key differences between the classic definition of leadership style as it relates to behavior, and style as viewed from a cognitive developmental perspective, what they call "conceptual capacity." First, they make clear that conceptual capacity is not a behavioral preference, but instead is antecedent to action and is described as "the level of sophistication of an individual's organizing processes" (Lewis & Jacobs, 1992, p. 124).

A second difference is one of dimensionality. Leadership style has traditionally been viewed in terms of bipolar dimensions, for example, autocratic versus democratic or

adaption versus innovation. In contrast, leadership style attributes from a cognitive developmental perspective (e.g., cognitive complexity and empathy) are not bipolar. As Lewis and Jacobs (1992) suggest, "they range from little or none of the capacity to a great deal of it" and "are thought to be hierarchical in the sense that each succeeding level encompasses the lower levels" (p. 124).

Finally, a third distinction between the traditional leadership styles concept and what Lewis and Jacobs (1992) call conceptual capacity is "the former are cast in terms of individual differences while the latter are cast in terms of developmental level" (p. 124). In other words, it is theoretically possible to teach or train someone to use various leadership styles from a behavioral or skills perspective. However, a cognitive developmental view of leadership assumes that individuals develop their "style" in sequential, hierarchical stages or levels. Therefore, "it is not believed that people can be moved from lower to higher levels without their passing through each intervening level" (Lewis & Jacobs, 1992, p. 125).

The developmental level distinction instills relevance in the way in which the phrase "leadership development" is defined. Historically, leadership development has meant behavior/skills training (Bass, 1990). For example, leadership training might focus on conflict resolution, decision-making, interpersonal communication, and other such leader skills. Leadership style, in this instance, is viewed as a preferred method of operating or behaving in a leadership role (i.e., behavioral preference). Although most individuals have one preferred leadership "style," supposedly it can be altered as per situational demands with proper skills training (i.e., leadership development). This

historical or classic definition of "leadership development," however, does not take into consideration the individual's "readiness," or conceptual capacity for acquiring and effectively utilizing leadership skills.

In contrast to the classic "leadership style as behavioral preference" approach, a cognitive developmental perspective considers the individual's "readiness" and views leadership development as education (versus training) of the evolving individual. The development of the individual occurs in terms of his or her conceptual capacity and ability to differentiate between situational or environmental elements (Foa, Mitchell, & Fiedler, 1971; Lewis & Jacobs, 1992). Leadership "style" from the cognitive developmental perspective, then, signifies an individual's "readiness" or cognitive ability to acquire and utilize skills training. The leader's cognitions (meaning making) are considered antecedent to and, therefore, inform the leader's behavior. For example, it might be impossible for a leader to resolve conflicting views between followers when the leader finds it difficult or impossible to take multiple perspectives/views. It might also, for example, be impossible for a leader to alter his or her behavior to provide more task structure for a follower who is a member of a group when the leader cannot differentiate between the needs of the individuals in the group, or differentiate between the needs of the group and his or her own needs. Therefore, fundamentally, "leadership style" from a cognitive developmental approach is defined as a preferred means of understanding or making meaning within a leadership role. To date, not many researchers have taken a cognitive developmental perspective of leadership style.

The first theorist to break from the classic "leadership style as behavioral

preference" paradigm was Fred Fiedler (1967) who, although incorporating behavioral components into his contingency model of leadership, has studied and measured leadership style as the capacity of individuals to differentiate between elements in the environment. Fiedler's contingency theory of leadership is unique among leadership theories due to its subscription to a cognitively based interpretation of leadership style. The contingency model of leadership is the only leadership model that considers a leader's *behavior* to be a result of the interaction between a relatively fixed or stable leadership *style* and variable situational factors (Fiedler & Chemers, 1984).

According to Fiedler and his colleagues (Foa et al., 1971), leadership style can be developed into a more complex and congruent means of understanding and dealing with environmental variables, but development occurs over time and experientially, in contrast to the immediacy of a short-term training (i.e., instructional or directional) approach. The leader, therefore, cannot consciously alter his or her leadership style as per the situation. This viewpoint, exemplifying a cognitive leadership style paradigm, was expressed in Foa et al.'s (1971) assertion that leadership style should be defined as the leader's general tendency to differentiate between situational variables.

Situational variables have been defined in terms of their favorableness (or lack thereof) to the leader. Fiedler (1967) described the favorableness of the leader "situation" or environment as consisting of a combination of three primary elements. "A situation is favorable to the leader if the leader is esteemed by the group to be led; if the task to be done is structured, clear, simple, and easy to solve; and if the leader has legitimacy and power owing to his or her position" (Bass, 1990, p. 47). The favorableness of the

situation, then, ranges on a continuum that varies according to the quantity/quality of three situational variables: leader-member relations, task structure, and position power. Fiedler (1967) identified eight points along this continuum that act as benchmarks and correspond to the various combinations of the three situational variables.

Given the continuum of situational favorableness, the leader's ability to differentiate between the various situational elements, in light of the amount of differentiation required by the situation, is critical to the leader's effectiveness (Foa et al., 1971). In a situation of "moderate favorableness," for example, the leader is faced with both favorable and unfavorable aspects of either leader-member relations, task structure, or position power. To be maximally effective, this situation requires the leader to make a differentiation between situational elements, identify the area needing attention, and focus more effort on leader behavior that will address the situational deficiency. Thus, leaders who are better able to differentiate between task and interpersonal behavior, as well as between their own behavior and group behavior, are expected to be more effective in this type of situation. In a situation that is extremely favorable or extremely unfavorable, however, requiring the leader to give attention to the total situation, differentiation between situational elements is not required. Therefore, "a leader making a differentiation not required by the situation will tend to focus attention on a given aspect rather than on the total situation, so that he will be less effective" (Foa et al., 1971, p. 135).

Leadership development, and more effective leadership, occurs as leaders enhance the match between their ability to differentiate between situational variables and the

complexity of variables presented in the environment (the differentiation required by situational demands). This concept is what Foa et al. (1971) called "differentiation matching." In their words, "A conceptual link has been provided between cognitive organization of the leader and the cognitive requirements of the task--in short, between the leader's differentiation abilities and the differentiation embedded in the situation" (Foa et al., 1971, p. 136).

With the concept of differentiation matching, Foa et al. (1971) have drawn a connection between leadership style and cognitive complexity by equating leadership style (and its associated effectiveness) with the ability to differentiate between elements of the situation. More specifically, one might say that a leader's ability to differentiate between situational elements, or "cognitive complexity," is that person's leadership style (i.e., characteristic way of understanding the environment). In other words, the leader's "style" or cognitive complexity influences the leader's behavior when confronted with specific situations.

To apply this cognitive paradigm of leadership style (and its development) in the college and university setting, it would be helpful if practitioners of higher education, who are engaged in the development of students, had one or more principle theories to guide them in the developmental process. A cognitive development theory which -- because it emphasizes cognitive complexity -- is closely related to the concept of differentiation matching, and therefore closely associated in concept to Fiedler's contingency theory of leadership, is William Perry's (1970, 1998) theory of intellectual and ethical development.

Perry's scheme describes cognitive development "as occurring in a sequence of hierarchical positions in which each position represents a qualitatively different structure for construing knowledge" (Sheese & Radovanovic, 1984, p. 5). Although there are nine hierarchical positions, they can be grouped into four broader categories labeled dualism, multiplicity, contextual relativism, and commitment within relativism (Moore, 1987). In general, the progression is from a polarized, absolutist view of the world (i.e., right/wrong, good/bad) to a cognitively complex, differentiated way of knowing which is grounded in an evolving expression of personal values and lifestyle (Perry, 1981). It might be said that movement (development) through the Perry stages represents an individual's ever increasing ability to differentiate between elements within the learning environment. As an individual moves from dualism to multiplicity, for example, that person is developing the ability to differentiate more precisely, moving from a view of knowledge as right or wrong to an epistemic structure that includes knowledge that is right or wrong and knowledge that is not yet known. Lovell (1991), when he described the transition from Perry position 2 to 3, illustrated this developing ability to differentiate when he stated, "the knowledge enterprise changes from receiving Truth from Authority to connecting to the opinions of multiple others. The [Perry] Positions...in their progression, represent increasingly adequate and comprehensive ways of making meaning" (p. 1).

Lovell (1990) also studied the relationship between Perry's concept of intellectual development and empathy. In a correlational study using a large sample of counseling students, he found that empathy, as measured by Hogan's Scale of Empathy (Gough,

1987; Hogan, 1969), developed in a stage-wise fashion and in direct relation to the students' cognitive development. Preference for the lower positions on the Perry scale was negatively correlated to empathy while preference for higher positions, representing cognitively complex students, was positively correlated to empathy. It appears, then, that as students become more cognitively complex, they become more readily able to evaluate their own emotions and thoughts in relation to those of others (employ empathy).

Benack (1984, 1988) is another researcher who has used the Perry scheme to explain empathy's development and its relationship to cognitive complexity. Benack (1984) expounded on Greenson's (1960) concept of a dual process model of empathy, which describes empathy as consisting of two complementary components, "affective-identifying" and "cognitive-differentiating." The affective-identifying function of empathy allows individuals to "release" their own perspective and take the role of another, imaginatively perceiving the beliefs and feelings of the other. The cognitive-differentiating function of empathy, a function of interest in the current study, allows the individual to differentiate his or her own experience and perspective of "reality" from that of another.

In relation to the Perry scheme, Benack (1984) argued that someone who is less cognitively complex, such as a dualist, "typically does not differentiate 'my experience,' 'others' experience,' and 'reality,' but assimilates all of these to a general category of 'the way we know things to be'" (p. 345). A more cognitively complex individual, however, such as someone in Perry's relativism stage, "is able to differentiate not only 'my experience' from 'your experience,' but 'my perspective' from 'your perspective'" (Benack,

1984, p. 345), thereby enhancing his or her empathic ability to understand another individual's experience.

Benack's (1984) discourse on the cognitive-differentiating function of empathy is closely tied in concept to Fiedler's view of leadership style in that "style" is viewed as the leader's tendency to differentiate between situational variables. It might be suggested that greater empathic ability would be associated with an individual who, according to a cognitive developmental (versus behavioral) view of leadership style, possesses a style of leadership characterized by the ability and tendency to differentiate between a wide variety of elements in the environment or leadership situation. The individual would be able to "step back" from his or her own perspective, and take the role of others, if this individual were employing *relativistic thought*, a *situation-differentiating* style of leadership, and a *cognitive-differentiating* function of empathy.

The notion of empathy being related to Fiedler's concept of leadership style (ability to differentiate between environmental variables, resulting in a characteristic way of understanding the environment) has been directly tested by Woodall and Kogler Hill (1982). In a sample of 127 undergraduate students, multiple regression analysis was employed and it was found that predictive empathy (the degree to which one can predict the attitudinal viewpoint of another) was a significant ($p < .05$) predictor of style of leadership, as defined by Fiedler's (1967) Least Preferred Coworker scale. Additionally, a nominal but significant correlation $r = .19$, $p < .05$) was found between predictive empathy and leadership style. Woodall and Kogler Hill (1982) state that "given the modest relationship obtained here between predictive empathy and style of leadership,

research should identify other factors which, singularly and in combination with empathy, are components of leadership style" (p. 802).

As cited above, the works of Perry, Lovell, Benack, and Woodall and Kogler Hill suggest that cognitive complexity and empathic ability are attributes that hold promise for the prediction of leadership style, as defined by the characteristic way in which one understands and makes meaning of his or her environment. A person who has a style of leadership that is characterized by a differentiated understanding of the environment might be expected to have moved in Perry's scheme to a rather cognitively complex, or relativistic form of epistemological thought, and accordingly, possess a greater capacity to employ empathy than someone less cognitively complex.

If, then, cognitive developmental level (complexity) and empathic ability could be empirically demonstrated to be predictors of leadership style, this would lend support to the theory and assertions made by Fiedler and his colleagues (Fiedler, 1978; Fiedler & Chemers, 1984; Fiedler & Garcia, 1987; Foa et al., 1971; Strube & Garcia, 1981) who view leadership style not as particular behavioral responses to the environment, but as inherent in the more pervasive cognitive structures that invoke such responses. This type of empirical evidence would support Fiedler's (1967) suppositions that leadership style is relatively fixed or stable over time. Development of leadership style might then be informed by a large body of literature expounding the ways in which cognitive complexity and empathy can be developed through long-term experiential learning (e.g., Knefelkamp, 1974, 1981; Knefelkamp & Cornfeld, 1977, 1978; Lovell, 1990; Neukrug & McAuliffe, 1993; Widick, 1975a, 1975b; Widick, Knefelkamp, & Parker, 1975).

Overall, in an urban setting, higher education personnel might benefit from the practical implications such empirical evidence could bring to the development of leadership style. The principle implication of such evidence would be students' need to develop more comprehensive and congruous perceptions of the multifarious metropolitan environment in which they live and learn, and may one day work.

<center>Statement of the Problem</center>

The purpose of the study was to examine leadership style, as measured by Fiedler's (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) Least Preferred Coworker (LPC) scale, in light of cognitive developmental theory, by investigating the capacity of cognitive complexity and empathic ability, separately and jointly, to predict leadership style. Cognitive complexity was measured by the Cognitive Complexity Index (CCI) on Moore's (1987) Learning Environment Preferences (LEP), an instrument based on Perry's (1998) theory of intellectual and ethical development. Empathy was measured by Hogan's (1969) Scale of Empathy as scored on the Hogan/Em subscale of the California Psychological Inventory (CPI; Gough, 1987).

<center>Definition of Principle Terms</center>

<u>Leadership Style</u>

From a cognitive developmental perspective, leadership style can be defined as a characteristic way of understanding or making meaning of the environment. Leadership style in this study was operationally defined by Fiedler's (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) LPC scale, a measure that has been interpreted as an individual's capacity to differentiate cognitively between elements in the environment (Foa et al.,

1971). Fiedler's concept of leadership style, although representing a continuum, has been summarized dichotomously, in terms of whether one scores in the upper (high LPC) or lower (low LPC) third of the mean score distribution. Individuals scoring above the mean item score of 4.06 are classified as "high LPC," and those scoring below the mean item score of 3.56 are considered "low LPC" individuals (Fiedler & Chemers, 1984). Posthuma (1970) reported the LPC normative mean item score as 3.71 ($\underline{N}$ = 2014, $\underline{SD}$ = 1.05). Those individuals classified as low LPC use a leadership style that employs little environmental differentiation (i.e., they have a tendency to generalize across situations and stereotype), whereas the high LPC style is characterized by a greater capacity and tendency to differentiate between situational variables (Foa et al., 1971).

Cognitive Complexity

Grounded in the cognitive developmental theory of the Perry scheme (Perry, 1998), this study took a developmental perspective in understanding the concept of cognitive complexity, instead of defining cognitive complexity from a problem solving point of view. The study, therefore, utilized an epistemological (meaning making or way of knowing) interpretation of cognitive complexity. The LEP (Moore, 1987) was used to measure Perry's (1998) scheme of intellectual and ethical development. The CCI, a subscale of the LEP, was used as the operational definition of cognitive complexity.

Empathy

Lovell (1990) explained empathy as "a complex of human characteristics-- disposition, perception, cognition, affect, and communication--which equip a person (in greater or lesser degree) to understand another person, particularly the other person's

perspective..." (p. 8). Similarly, Foltz (1984) stated that the definition of empathy used by Hogan, which is the definition used in the present study, "is summarized as the degree to which a person is able to 'put himself/herself in another person's place,' to be sensitive to the feelings of others, and to be able to exchange roles" (p. 65). Foltz (1984) also explained that "the dimension of empathy measured by Hogan (1967, 1969) included the cognitive aspects of role-taking..., but also included affective elements as well..." (p. 43). Empathy was operationally defined by Hogan's (1969) Scale of Empathy as scored on the Hogan/Em subscale of the CPI (Gough, 1987).

<div align="center">Relevance to Urban Education</div>

The investigative focal point of the present research was the attempt to identify cognitive complexity and empathy as predictors of leadership style. If valid predictors of leadership style could be identified, the supposition was that educators might concentrate their efforts on developing these leadership style components in such a manner so as to enhance college students' leadership capacity. From this most basic view of the present study, the results would be of interest to most college educators, rural and urban alike. The study, therefore, could have broad appeal and value to higher education in a general sense.

A closer examination of the study's theoretical constructs, however, reveals good reason to distinguish between urban and rural settings when analyzing leadership style. Leadership style, as defined by Fiedler's (1967) LPC scale, can be interpreted in terms of an individual's ability to differentiate cognitively between situational or environmental elements. Without complexity embedded in the environment, there is little need for (or

reason to develop) a perceptually complex leadership style. According to Fiedler (1993), an important and intricate situational element embedded in the environment is the many levels of interpersonal relationships that result from human (coworker) diversity. The urban versus rural distinction, therefore, becomes important if it can be determined that these environments offer the developing leader (college student) different levels of situational complexities/challenges in terms of coworker diversity.

Morse (1995) wrote on the need for leadership educators to account for the complexities of human diversity. Referring to leadership training needs for the 21st Century, Morse (1995) stated that demographic diversity is increasing, which "indicates the necessity of understanding cultural differences in authority, communication, roles, and a whole host of related areas. Examples of leadership must be more diverse in order for students and others to grasp the breadth of potential" (p. 1). Morse (1995) provides an example of the increasing diversity in one of America's largest urban centers and comments on the challenge and opportunity this provides to leadership educators:

> In Los Angeles alone, over one-hundred languages are spoken in school children's homes. With this deepening of the American 'melting pot' comes both the challenge and the opportunity to integrate the mores, experiences, and cultures of a multitude of peoples. Leadership educators should and must be at the forefront of this exploration. (p. 3)

Human or coworker diversity, which represents one of Fiedler's (1993) most important elements of situational complexity, is most pronounced in the urban (as opposed to rural) environment (U.S. Department of Commerce, 1992a, 1992b, 1993a,

1993b). The Bureau of the Census, a component of the United States (U.S.) Department of Commerce, has examined the diversity of the human population in the U.S. in terms of race, nativity, and English speaking households, among other variables. These self-reported demographic variables are also broken into rural versus urban comparisons. These demographic variables are clearly defined by the Census Bureau.

In the most recent (1990) U.S. census, "the data for race represent self-classification by people according to the race with which they most closely identify" and do "not denote any clear-cut scientific definition of biological stock" (U.S. Department of Commerce, 1993a, p. B-28). In terms of nativity, the classification "native" includes "persons born in the United States, Puerto Rico, or any outlying area of the United States" and "persons who were born in a foreign country but have at least one American parent" (U.S. Department of Commerce, 1993a, p. B-26). The "foreign born" classification includes all persons not defined as "native." "The Census Bureau defines 'urban' for the 1990 census as comprising all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas" (U.S. Department of Commerce, 1993a, p. A-11). An urbanized area (UA) "comprises one or more places ('central place') and the adjacent densely settled surrounding territory ('urban fringe') that together have a minimum of 50,000 persons (U.S. Department of Commerce, 1993a, p. A-12). All population, territory, and housing units not classified as urban constitute "rural."

Based on these Census Bureau definitions and the associated census statistics, rural versus urban comparisons can be made which clearly illustrate the greater human

(coworker) diversity found in the urban population in the U.S. and in Virginia, the state in which the present study was conducted (U.S. Department of Commerce, 1992a, 1992b). In terms of race, white (80.3%) and black (12.1%) persons comprise approximately 92% of the total U.S. population, while the remaining 8% consists of numerous other races. Similarly, white (76.9%) and black (14%) persons comprise approximately 91% of the U.S. urban population. In contrast, white and black persons comprise approximately 97% of the rural population, with 90.6% of the persons living in rural locations being white. Comparable racial statistics are found for Virginia, with approximately 95% of the urban population consisting of white (74.5%) and black (20.4%) persons. The rural population of Virginia, however, consists of 99.2% white (84.1%) and black (15.1%) persons. These statistics clearly indicate a greater degree of homogeneity of race in rural areas of the U.S. (i.e., greater racial diversity in urban environments).

In terms of nativity, the Census Bureau (U.S. Department of Commerce, 1993a, 1993b) reports approximately 8% of the total U.S. population is foreign born. However, 11% of the urban population and only 2% of the rural population are foreign born. Approximately 94% of all U.S. foreign born people live in an urban area. In Virginia 5% of the total population is foreign born. In contrast, 7.25% of the urban population and only 1.15% of the rural population are foreign born. Like the statistics on race, nativity statistics point to a greater degree of human diversity in urban environments.

Another indicator of human/coworker diversity is the percentage of individuals who speak more than one language (English). The Census Bureau (U.S. Department of Commerce, 1993a, 1993b) reports that approximately 94% of the persons over age 5

living in U.S. rural areas speak only English. In contrast, only 84% of the persons over age 5 living in U.S. urban areas speak only English. In Virginia, approximately 97% of the persons over age 5 living in rural areas speak only English, whereas the same figure is 91% for those living in urban areas.

In general, then, it can be stated that the leader in an urban area is more likely to confront a more diverse and therefore complex coworker environment than the leader situated in a rural area. This is true if the environmental complexity with which a leader must deal is defined as the diversity/heterogeneity of the population (work force or coworkers) encountered, based upon the Census Bureau's statistics and defining diversity by race, nativity, and language(s) spoken. The urban versus rural distinction is, therefore, quite significant when considering Fiedler's (1967) concept of leadership style as defined by the LPC scale, which can be interpreted in terms of an individual's ability and tendency to differentiate cognitively between situational or environmental elements. With the likelihood of encountering greater complexity embedded in the urban environment, there might be a need for (or reason to develop) perceptually complex leadership styles in those individuals who will find themselves working and learning in urban settings.

Additionally, the distinction of rural versus urban participants gains relevance in that Fiedler's (1967) perceptual-based measurement of leadership style would seem better suited, or more robust, for participants who possess diverse work and living experiences. The greater the diversity of work and living experiences of the participants, for example, the greater the potential for variation of responses on the self-reported measure of

leadership style, which asks participants to respond to questions concerning a least preferred coworker. One might conclude that participants who have not been exposed to a diverse work force would have limited experiences from which to draw upon for responses.

Further, given the concentration of people and leadership opportunities in urban centers, it might be more practical to study leadership development within the context of the urban environment, utilizing participants exposed to urban-affiliated educational, cultural, and social influences. The present study was designed to examine the cognitive predictors of the style of potential/developing leaders who live and work within a complex environment; it utilizes urban college undergraduate and graduate students as participants. These participants possess the diverse demographic characteristics common to an urban population, and consequently are not representative of the more homogeneous suburban and rural populations. The external validity (generalizability) and relevance of this study's results should, therefore, be limited to urban environments and urban college students.

<div align="center">Rationale for the Hypotheses</div>

The present research focuses on leadership style (Fiedler, 1967) in light of cognitive developmental theory by investigating the capacity of cognitive complexity (Perry, 1998) and empathic ability (Hogan, 1969), separately and jointly, to predict leadership style. Although in separate studies leadership style has been shown to be correlated with cognitive complexity (Mitchell, 1970) and empathy (Woodall & Kogler Hill, 1982), the degree to which variation in leadership style can be accounted for and

predicted by both cognitive complexity and empathy has yet to be investigated. Additionally, research reported in the leadership literature involving the relationship between cognitive complexity and leadership style has mainly measured cognitive complexity with problem solving tasks (Bass, 1990), and has not taken a developmental approach to understanding the concept. Research with college students associating leadership style with a cognitive developmental theory base and utilizing an epistemological (meaning making or way of knowing) interpretation of cognitive complexity are scant, although there is a sizable body of literature on adult development (Argyris, 1976; Torbert, 1994) which has great promise for organizations and their leaders/managers.

Although cognitive complexity and empathy are theoretically associated, there is no empirical research to indicate that both cognitive complexity (from a student development perspective) and empathy account for variation in leadership style, and if so, to what extent. The pertinent research questions to be answered, therefore, are:

1. Does variation in cognitive complexity, as measured by the CCI on the LEP (Moore, 1987), account for variation in leadership style, as measured by the LPC (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) scale?

2. Does variation in empathy, as measured by the Hogan/Em scale (Gough, 1987; Hogan, 1969), account for variation in leadership style, as measured by the LPC scale?

3. To what extent do variations in cognitive complexity (CCI), and empathy (Hogan/Em), together account for variation in leadership style (LPC)?

Hypotheses

Based upon the research questions outlined above, the following three hypotheses are advanced:

1. It is hypothesized that, in a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the CCI, accounts for a statistically significant amount of variation in leadership style, as measured by the LPC scale.

2. It is hypothesized that, in a sample of urban college undergraduate and graduate students, empathy, as measured by the Hogan/Em, accounts for a statistically significant amount of variation in leadership style, as measured by the LPC scale.

3. It is hypothesized that, in a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the CCI, and empathy, as measured by the Hogan/EM, jointly account for a statistically significant amount of variation in leadership style, as measured by the LPC scale.

Fiedler's leadership style indicator, the LPC score, can be interpreted as the capacity an individual has to differentiate between situational elements (Foa et al., 1971). It might, therefore, be expected that the LPC score would mirror cognitive complexity, such that the greater an individual's capacity to differentiate between situational variables, the greater his or her cognitive complexity, regardless of education. Likewise, Perry's (1998) theory of intellectual development argues that as individuals develop cognitively,

they progress from a polarized, absolutist view of the world to a more complex, comprehensive, and differentiated way of knowing. Much of this intellectual development occurs as a result of educational and life experiences (Pascarella & Terenzini, 1991). It might, therefore, also be expected that graduate students would possess greater cognitive complexity as well as empathic ability, regardless of leadership style. Accordingly, in view of these two theoretical assumptions, two additional hypotheses are advanced:

4. It is hypothesized that, in a sample of urban college undergraduate and graduate students, participants scoring high on Fiedler's measure of leadership style (LPC) will obtain a statistically significantly higher score on the dependent measures of cognitive complexity (CCI) and empathy (Hogan/Em) than participants scoring low on Fiedler's measure, regardless of education level.

5. It is hypothesized that, in a sample of urban college undergraduate and graduate students, graduate students will obtain a statistically significantly higher score than undergraduate students on the dependent measures of empathy (Hogan/Em) and cognitive complexity (CCI), regardless of LPC leadership style score.

<div align="center">Contributions of the Study</div>

<u>Theoretical Significance</u>

The present study focuses on the relationship between Fiedler's (1967) and Perry's (1998) theories by elucidating the extent to which cognitive complexity (epistemic

structure) determines and indeed predicts leadership style. If it is confirmed that a significant amount of variation in a person's style of leadership (LPC) can be attributed to the cognitive complexity (CCI) of that individual, then there will be one more piece of empirical evidence supporting the cognitive paradigm of leadership style. Future research may then be warranted in the area of ascertaining antecedents to leader behavior as the true determinants of "style" and leadership effectiveness.

In addition, the extent of the relationship between Fiedler's and Perry's theories will either help to solidify or to raise serious questions about the theoretical construct known as "differentiation matching" (the match between the ability to differentiate between situational variables and the differentiation required by the situation) which is thought to be the nexus between cognitive developmental and leadership theories (Foa et al., 1971). Cognitive developmental theory speaks to the comprehensiveness of understanding and the method of making meaning of environments/experiences. In other words, cognitive developmental theory would inform leadership style in terms of the leader's ability comprehensively to discriminate between situational elements within the leader's environment, thus allowing for accurate differentiation matching. If a measure of the Perry scheme (cognitive complexity) is found to predict leadership style, then support would be added to Foa et al.'s (1971) assertions and research findings that show a relationship between a leader's efficiency and the match between his or her capacity to differentiate between situational elements (leadership style) and the differentiation required by the complexity of situational demands embedded in the environment.

The extent of the relationship between Fiedler's and Perry's theories will also

either support or refute the fundamental determinants of the cognitive developmental process as being experiential in nature. The theories of Perry and Fiedler both conform to the notion that the central theoretical construct, whether it is cognitive complexity (CCI) or leadership style (LPC), is relatively stable over time and development or change only occurs as a result of interacting with conflicting or disequilibrating (perturbing) environmental stimuli (Foa et al., 1971; Kurfiss, 1977). Empirical evidence that demonstrates a relationship between these theoretical constructs will serve to add validity to each theory's claim that development of leadership style (Fiedler) and cognitive complexity (Perry) occurs experientially and over time.

Further, the extent to which empathy (considered to have a cognitive-differentiating function) accounts for variation in leadership style will corroborate the cognitive paradigm of leadership development. Benack (1984) and Lovell (1990) have shown that there is a relationship between empathic ability and cognitive developmental level, as interpreted by Perry. If empathy can be empirically demonstrated to predict leadership style, separate from and in concert with cognitive complexity (as per the Perry scheme), the cognitive paradigm of leadership style will have been substantiated by a second, related variable. Such substantiation would also support the marginal, yet significant correlational relationship found between predictive empathy and leadership style in Woodall and Kogler Hill's (1982) research.

Finally, any significant predictive correlation between the variables in question will add to the cross-validation (concurrent validity) of the measurement instruments of these variables. The Least Preferred Coworker (Fiedler & Chemers, 1984; Fiedler &

Garcia, 1987), Learning Environment Preferences (Moore, 1987), and the Hogan/Em

(Gough, 1987; Hogan, 1969) would all gain an additional modicum of validity as

measures of the ability to discriminate between elements in the environment and/or

between one's own perceptions and those of others.

Practical Significance

The results of the proposed study will speak to the efficacy of the current and

popular practice of teaching "leadership skills" with no concern for the cognitive

paradigm's interpretation of leadership style or level of cognitive development (Freeman,

Knott & Schwartz, 1994). In a comprehensive reference book detailing leadership

education programs from 1994 to 1995 in institutions of higher education across the

United States, Freeman et al. (1994) cite 27 higher education programs designed to

"develop" leadership in college students. These are well-defined, established programs of

which most are one year in duration, although four are four year programs and one is a

graduate program culminating in a M.A. degree in organizational leadership. Fifteen of

the 27 programs were strictly non-credit. Of the 27 programs detailed, only 1 was based

on student development theory and only 3 used any form of measurement instrument to

assess the students' cognitive styles (the Myers-Briggs Type Indicator was used in all 3

programs). Eight of the leadership programs were focused solely on teaching leader

"behaviors" or "skills," whereas the remaining 19 incorporated some form of experiential

development of the leader (e.g., community service, experience in student organizations,

internships, and mentoring). In summary, then, of the 27 college leadership education

programs reviewed by Freeman et al. (1994), 96% did not incorporate any principles of

student development theory, and a full 30% consisted of a series of workshops that taught nothing but leader skills acquisition (no experiential component).

If the hypotheses of this study are confirmed, there would be empirical evidence weighing against the implementation of leadership development educational efforts that do not incorporate long-term, experiential components. Research on student cognitive development and empathy have shown that exposure to learning experiences/practices over an extended period of time that challenge current perceptions and abilities, coupled with a supportive learning environment, are essential to the development process (Knefelkamp, 1974, 1981; Knefelkamp & Cornfeld, 1977, 1978; Lovell, 1990; Neukrug & McAuliffe, 1993; Widick, 1975a, 1975b; Widick, Knefelkamp, & Parker, 1975). The cognitive complexity and empathic abilities of the leader may in fact limit and predict an attainable range of leadership skills for any individual (elaborated on in Chapter 2 of this study).

The results of this study may also provide guidance for the formation of an approach delineating effective methods of promoting leadership development in urban (diverse) student populations. The alternative approach to "leadership training" might be called "leadership development education," which would incorporate cognitive developmental principles in the developing leader's educational experience. The proposed alternative would incorporate educational and leadership levels, Fiedler's concept of leadership style, levels of cognitive development and empathic ability, and general leadership theory paradigms to prescribe developmental approaches that may be most effective for college and university educators.

Summary

Investigated in the present research was the ability of cognitive complexity and empathy to predict leadership style in an urban college student population. Leadership style has long been studied as a mode of behavior, taught to students as a compilation of preferred skills. A few researchers, however, have departed from this line of investigation and view leadership style as a characteristic way of understanding the environment, defined by the leader's ability to differentiate between complex environmental stimuli, and antecedent to behavior. Fred Fiedler's (1967) contingency theory of leadership exemplifies this "cognitive" (verses behavioral) paradigm of leadership development.

Fiedler's (1967) leadership theory posits that the leader has a relatively fixed leadership style, which when interacting with various demands of the environment results in leader behaviors and subsequent leader effectiveness. Leadership style is seen as the cognitive ability of the leader to differentiate between situational elements, the most complex of which is leader-member relations (perceiving oneself in relation to others). Effective leaders are those who have a good match between their ability to differentiate and the differentiation required by the situation. This concept is called "differentiation matching" (Foa et al., 1971).

Cognitive development theory and research on the development of empathic ability (primarily in counselor training) seems to inform Fiedler's concept of leadership style. Perry's (1998) theory of intellectual and ethical development describes the cognitive development of college students as a progression through stages that, as one

develops, represent more complex, comprehensive, and differentiated views of knowledge and meaning making. Benack (1984) and Lovell (1990) have found a direct and positive relationship between Perry's notion of cognitive complexity and empathic ability of college students. It might be predicted, therefore, that students with a leadership style characterized by a differentiated understanding of the environment would also have progressed to a similarly complex stage of cognition in Perry's scheme, and accordingly, possess empathic ability in relation to their cognitive development.

Although they are theoretically associated, there is no empirical evidence to indicate that both cognitive complexity (from a student development perspective) and empathy account for variation in leadership style, and if so, to what extent. The present research explores these relationships, and may provide the missing empirical evidence. If affirmed, the evidence of a relationship between leadership style and cognitive complexity and empathy will represent an additional validation of the "cognitive paradigm" of leadership style. Future research may then be warranted in the area of ascertaining antecedents to leader behavior as the true determinants of "style" and leadership effectiveness.

Further, if the hypotheses of this study are supported by the results, leadership development practices might be influenced to incorporate cognitive developmental principles and assessment, which are foreign to many of the leadership programs in the United States (Freeman, et al., 1994). The practice of leadership development by university educators may also be enhanced by a "leadership development education" approach that might incorporate elements of an individual's current educational and

leadership experiences, his or her level of cognitive development and empathic ability, and general leadership development paradigms. Such an approach would assist college and university educators in developing students with the cognitive complexity and empathic ability to become leaders who employ a cognitive-leadership style best suited to deal effectively with the rich diversity and complexities inherent in today's and future urban environments.

CHAPTER II

LITERATURE REVIEW

The present study was founded in the theory and early research on leadership style

and development, student cognitive development, and empathy. This chapter provides a

review of the literature and latest theoretical formulations in each of these fields of

investigation. The chapter also provides a review of literature that has examined the

relationships between the aforementioned fields, especially the connections between

leadership style and cognitive complexity, and empathy and cognitive complexity.

Finally, the chapter provides for the exploration of questions raised by the research

reviewed and focuses the direction for the current study.

Leadership Style and Development

History

Leadership can be found in the words of humankind dating back to some of the

first recordings of history. According to Bass (1990), "The Egyptian hieroglyphics for

leadership (*seshemet*), leader (*seshemu*) and the follower (*shemsu*) were being written

5,000 years ago" (p. 3). Although the Oxford English Dictionary (1933) cites the first

appearance of the word "leader" in the English language in the year 1300, "the word

'leadership' did not appear until the first half of the nineteenth century in writings about

the political influence and control of British Parliament" (Bass, 1990, p. 11). The

empirical study of leadership, however, did not begin until the early part of the 20th

century (Chemers, 1994).

The earliest researchers in the field saw leadership as a function of group

processes (Bass, 1990). Cooley (1902), for example, suggested that the leader is the center or nucleus of a group tendency, and if examined closely, all social movements will be found to consist of tendencies with such leaders/nuclei. Over the years, however, there have been many characteristics ascribed to leadership. Bass (1990) enumerated a list of attributes that have received attention from investigators. The list includes leadership as: personality and its effects, the art of inducing compliance, exercise of influence, an act or behavior, a form of persuasion, a power relation, an instrument of goal achievement, an emerging effect of interaction, a differentiated role, the initiation of structure, and a combination of many of these elements. Although there have been numerous approaches, research on leadership style, its development, and associated effectiveness, had its beginnings in trait research.

The earliest approach to the advent of leadership and its effectiveness was rooted in the perception that "leadership was something that people (mostly men) 'had'" (Chemers, 1994, p. 47). The research methodology, therefore, resulted in a search for the trait or constellation of traits that differentiated nonleaders from leaders and ineffective from effective leaders. Stogdill (1948) reviewed 124 leadership trait studies spanning the years 1904-1947 and concluded that although about half of the studies showed significant differences in intelligence between leaders and followers, no trait was universally associated with leadership. According to Chemers (1994), Stogdill's review, published in 1948, was misinterpreted by most researchers as concluding that trait research held no promise, thus inappropriately stifled personality research related to leadership. Stogdill "did not say that personality traits or other stable aspects of the individual played no role

in leadership, but rather that the effects of traits needed to be considered in interaction with situational aspects, such as group composition, tasks, and authority relations" (Chemers, 1994, p. 47).

Whether or not Stogdill's influential publication was appropriately interpreted, it convinced many researchers that trait analysis had reached a dead-end, and it provided the impetus to take leadership research in the direction of the already burgeoning field of social psychology that was focusing on observable behavior shortly after World War II. Research on leader behavior was spearheaded by scientists at Ohio State University, the University of Michigan, and Harvard University. Investigators at each institution, working independently, identified remarkably similar clusters of leader behaviors that together yield variations of what has become known as leadership style.

The first research to focus on leader behavior came out of the Ohio State Leadership Studies program instigated by Shartle (1950) in 1945 (Bass, 1990). Hemphill, a researcher in this program, developed the Leader Behavior Description Questionnaire (LBDQ; Hemphill, 1950; Hemphill & Coons, 1957) which is widely used today to measure the incidence of and relationships among various leader behaviors. Research with the LBDQ revealed two distinct categories or factors in which a large percentage of leadership behaviors fell--"consideration" and "initiation of structure" behaviors. Consideration behaviors "reflected the leader's attempts to maintain a congenial relationship with subordinates and a positive social atmosphere in the work group" (Chemers, 1994, p. 47). Initiation of structure "included leader behaviors intended to move the work group toward task completion by direction and exhortation" (Chemers,

1994, p. 47).

Likert (1947, 1967), at the University of Michigan, also lead a research program to identify leader behaviors shortly after World War II. From studies involving first line supervisors and their subordinates, two general types of leader/supervisor behavior groupings were identified--"employee centered" and "job centered." Employee centered supervisors were described as leaders who were sociable, supported team building, and helped the employees improve work performance through educational instruction. Likert (1967) utilized Bowers and Seashore's (1966) behavioral dimensions research, and later called this type of leader "democratic." "Job centered" supervisors were described as emphasizing high productivity through task directed behaviors and goal emphasis. These types of supervisors were later called "autocratic."

The third leader behavior research program, paralleling those at Ohio State and the University of Michigan, was lead by Bales (1950, 1958) and his colleagues at Harvard University. Their research resulted in the "Interaction Process Analysis," the most widely used checklist of behavioral categories in use today (Bass, 1990). After observing and coding the behaviors of college students in problem-solving groups, Bales identified two types of individuals who played active and influential roles in the groups (leaders). The "socio-emotional specialists" made comments designed to promote a continued positive group climate and participation, whereas the "task-specialists" spent more time focusing on accomplishing the group's task.

The independent yet parallel conclusions of the three leader behavior research efforts described above are striking. The similarities between LBDQ factors, the

supervisory styles of the Michigan studies, and group leadership types identified at Harvard University gave researchers hope of building theory on this common ground. However, "investigators were still failing to attend to Stogdill's admonition to include situational factors in explanations of leadership effects" (Chemers, 1994, p. 48).

Although by the 1950s there had been very little effort in building theory on the relationship between leader traits and situational variables, the effect of the leader situation had indeed been investigated. While the trait theories of the 1920's and 1930's (Bernard, 1926; Bingham, 1927; Kilbourne, 1935; Kohs & Irle, 1920; Page, 1935; Tead, 1929) were being advanced, so too were the situational theories, which suggested that leadership could be explained by situational demands (Bass, 1990). Bass (1990) noted that theorists such as Hocking (1924), Person (1928), and Schneider (1937) were situationalists who "advanced the view that the emergence of a great leader is a result of time, place, and circumstance" (p. 38). Some of the more popular situational factors that have been investigated include external environmental influences such as market stability, regulatory policy, and constituency relationships, and internal or organizational influences such as group policies, size, structure, and culture (Bass, 1990).

By the 1960s, it was commonly agreed that neither the trait (called "great-man") theorists nor the situationalists were solely correct in their arguments. Bass (1960) argued that the trait versus the environment debate was a pseudo-problem. He suggested that for any specific case, the variance in leadership effectiveness or leadership emergence is due in part to the situation, the individual, and the combined effects of the individual and situation. The theories that incorporated both trait and situational factors became known

as "personal-situational theories."

An important influence on the personal-situational research were the findings that leader personality attributes such as emotional balance, tolerance for stress, and extroversion; task competencies such as intelligence, cognitive abilities, and articulativeness; and interpersonal competencies such as attributional accuracy, social insight, and empathy do have a significant impact on the emergence and effectiveness of leaders (Bass, 1990). As a follow up to his 1948 survey of the leader trait research (1904-1947), Stogdill (1970) published another review, this time covering the research findings of 163 leader trait investigations between 1948 and 1970. Bass (1990) noted the findings of Stogdill's review indicated that the clusters of characteristics found across the trait studies "differentiate leaders from followers, effective from ineffective leaders, and higher-echelon from lower-echelon leaders. In other words, different strata of leaders and followers can be described in terms of the extent to which they exhibit some of these characteristics" (p. 87). Bass (1990), however, was quick to point out that these findings did not mean a return to the great-man theories, and stated:

> The conclusion that personality is a factor in differentiating leadership does not
>
> represent a return to the pure trait approach. It does represent a sensible
>
> modification of the extreme situationalist point of view. The trait approach
>
> tended to treat personality variables in an atomistic fashion, suggesting that each
>
> trait acts singly to determine the effects of leadership. The situationalist approach,
>
> on the other hand, denied the influences of individual differences, attributing all
>
> variance among persons to the fortuitous demands of the environment.

Again, it should be emphasized that some of the variance in who emerges as a leader and who is successful and effective is due to traits of consequence in the situation, some is due to situational effects, and some is due to the interaction of traits and situation. (p. 87)

From the middle 1960s to the present, notwithstanding several shifts in emphasis, the dominant approach to the study of leadership evolved from research on situational and trait factors to a much more dynamic approach. With the arrival of Fred Fiedler's (1967) Contingency Model, a dramatic shift in leadership research ensued (Bass, 1990; Chemers, 1994).

The contingency models of leadership are based on the premise that effective leadership is contingent on one or more moderator variables acting together or independently. There are three primary theories based on the contingency model: Fiedler's (1967) Contingency Model of Leadership Effectiveness, Evans (1970, 1974) and House's (1971) Path-Goal Theory, and Vroom and Yetton's (1973) Leadership and Decision-making Model.

The first theory to emerge based on the contingency model was Fiedler's (1967) Contingency Model of Leadership Effectiveness. Fiedler (1984) stated that "a leader's success is contingent on two factors: (a) the leader's typical way of interacting with members of the group (i.e., the leadership style); and (b) the degree to which the leader has control over the situation (i.e., the group, the task, and the outcome). We call this 'situational control'" (p. 5). A detailed discussion of Fiedler's theory will be advanced later in this chapter.

Path-goal theory (House, 1971; House & Mitchell, 1974) "is a contingency model based on the leader's effectiveness in increasing followers' motivation along a path leading to a goal" (Hollander & Offermann, 1990, p. 86). Evans (1970) suggested that successful leaders show followers the rewards that can be obtained. The leader also shows the follower the behaviors (paths) that will result in rewards (House, 1971). "Central to the theory is the leader's behavior as a source of satisfaction to the followers, for example...followers will respond better to the leader's direction when the task is unstructured, and less when structured" (Hollander & Offermann, 1990, p. 86). The situation, therefore, determines which type of leader behavior will accomplish the path-goal purposes. House and Dessler (1974) proposed that the effects of a leader's behavior are contingent on three kinds of moderator variables: (a) individual differences, such as personality, expectations, and preferences; (b) task variables, such as role clarity, externally imposed controls, and routine; and (c) environmental variables.

Situational contingencies are also important in Vroom and Yetton's (1973) Normative Decision Theory. This theory focuses on the amount of follower participation in decision making allowed by the leader. The leader determines the amount of follower participation in decision making based on situational contingencies, weighing the costs and benefits of involving the followers in the decision-making process. The "direction-participation continuum" (Vroom & Yetton, 1973) identifies three general classes of decision strategies:

> autocratic, in which the leader makes the decision alone either without seeking
>
> any information from subordinates (autocratic I) or with information (autocratic

II); *consultative*, in which the leader makes the decision after sharing the problem and obtaining advice from subordinates, either individually (consultative I) or in a group setting (consultative II); and *group*, in which the leader and the group make the decision through participation and consensus (group II). (Chemers, 1994, p. 49)

The situational contingencies that determine which decision strategy will be used are the leader's understanding and knowledge of the problem, the reliability and supportiveness of the subordinates, and the relationship between the subordinates (Bass, 1990). Thus, on one end of the direction-participation continuum the leader is assured of a good decision due to adequate knowledge and structure and united follower support, and therefore the leader will employ an autocratic decision style because it is the most efficient. On the other end of the continuum, when the leader lacks knowledge and structure, and there is conflict among the followers, the leader should solicit follower participation and group discussion in an effort to increase subordinate commitment and consensus (Vroom & Yetton, 1973).

As the theories that embrace the contingency model were being published, the transactional and transformational approaches to leadership were also beginning to surface. Like contingency theories, transactional theories focus on the contingencies that influence the relationship between the followers and the leader (Chemers, 1994). However, unlike contingency theories, transactional theories of leadership employ as their centerpiece the persuasive influence (versus coerced compliance) that the leader gains over the followers as a result of the exchange of something valued or needed (e.g.,

information, loyalty, fairness). Katz and Kahn (1978), for example, defined transactional leadership in organizations as an increment of influence above compliance.

The transactional approach to leadership gives special attention to the importance of the followers' perceptions of the leader. Transactional leadership theorists, for example, believe that "the leader gives benefits to followers, such as a definition of the situation and direction, which is reciprocated by followers in heightened esteem for and responsiveness to the leader" (Hollander & Offermann, 1990, p. 86). The leader, as a result of this transaction or exchange, is able to establish more persuasive influence over the followers as the followers' perceptions of the leader become more favorable.

Perhaps one of the best known transactional theories is Hollander's (1978) Idiosyncrasy Credit Theory. Hollander's work explored the followers' judgements of the leader's legitimacy and competency. If the followers perceived the leader to be competent, loyal, and fair, (i.e., having leader legitimacy) the leader's influence over the followers was enhanced. In essence, there is an exchange of the leader's fairness, loyalty, and competence for "credits" in the perceptions of the followers. "These credits provide latitude for deviations that would be unacceptable for those without such credits" (Hollander & Offermann, 1990, p. 87).

While Hollander was well-known for his transactional leadership approach, House (1977, 1988)--also known for his path-goal theory described above--became well-known for his research on the unique traits and characteristics of a form of transformational leadership called charismatic. Just within the past decade, House has been one of the first researchers to rekindle empirical studies on leader personal characteristics (House,

Woycke, & Folor, 1988). As previously noted, research on leader traits was stifled by the

misinterpretation of Stogdill's (1948) influential work. According to Sashkin and Burke

(1990),

> Stogdill (1948) came to two major conclusions. First, he pointed out that no
>
> specific traits or personal characteristics stood out as strong, certain markers of
>
> leadership. But, second, he also identified five specific sets of personal
>
> characteristics that were consistently associated with leadership across many
>
> research studies. Unfortunately, it was the first and not the second of these points
>
> that other scholars and researchers seized on, all but ignoring the second. Thus,
>
> almost all research on personal characteristics stopped for over 25 years, until
>
> House (1977) first suggested that charisma might be based on specific personal
>
> traits and characteristics that could be measured. (p. 298)

Before House et al. (1988) published their quantitatively derived distinctions, the

historian and political scientist James McGregor Burns (1978), in a biographical and

philosophical analysis of several great leaders, was the first to outline the qualitative

differences between the transactional and transformational leader. According to Burns

(1978), transactional political leaders "approach followers with an eye to exchanging one

thing for another: jobs for votes, or subsidies for campaign contributions" (p. 3). The

transformational leader, although recognizing the need for the transactional relationship,

goes further by having the followers transcend their self-interests for the good of the

group, organization, or society. Transformational leadership results in "mutual

stimulation and elevation that converts followers into leaders and may convert leaders

into moral agents" (Bass, 1990, p. 23).

Bass (1985) developed a measurement instrument to distinguish between the transactional and transformational leader which illustrates differences in behavioral and personal characteristics of both types of leaders. Derived from factor analytic methods, the Multifactor Leadership Questionnaire (MLQ) identifies seven leadership behavior factors, or clusters, that range from passive to active levels of involvement. Three of the seven factors are associated with transactional leaders: "laissez-faire" (do nothing) management; "management by exception," in which leaders only act to correct errors; and "contingent reward," where subordinates receive tangible rewards for their effort and accomplishment. Four of the MLQ factors reflect characteristics of transformational leadership: "individualized consideration," in which the leader gives purposeful encouragement and support dependent on subordinate needs; "intellectual stimulation," in which the followers are encouraged to think about old problems in new ways; "inspirational vision," in which the leader articulates emotionally appealing goals and high performance expectations; and "idealized influence," or charisma, in which followers are induced to identify with the leader and share complete faith in him or her (Bass, 1988; Avolio & Gibbons, 1988).

Bass' (1985) pattern of factors that describe the transformational leader match closely with those independently drawn by Zaleznik (1977) several years before. Zaleznik conducted clinical interviews with leaders and according to Bass (1990) found that the leaders:

attracted strong feelings of identity and intense feelings about the leader

(charisma), sent clear messages of purpose and mission (inspirational leadership), generated excitement at work and heightened expectations through images and meanings (inspirational leadership), cultivated intensive one-on-one relationships and empathy for individuals (individualized consideration), and were more interested in ideas than in processes (intellectual stimulation). (p. 218)

Two of the leader characteristics described by Zaleznik (1977) and later empirically identified by Bass (1985) have been discussed as separate types of transformational leadership--inspirational and charismatic.

Inspirational differs from charismatic leadership in the way in which the followers identify with the leader. If the followers identify with the articulated goals and purposes of the leader, but not with the leader, as such, then the leader is inspirational only (Bass, 1990). "Charismatic leaders tend to be highly inspirational, although inspirational leaders may not be charismatic" (Bass, 1990, p. 206). Followers who feel more powerful because the leader has articulated desirable goals and how to achieve them are followers of an inspirational leader. However, if the leader has followers because he or she is the followers' model and/or if the followers are unable to criticize the leader because they have imputed God-given powers to the leader, then the leader is considered charismatic (McClelland, 1975). Charismatic leaders, then, take the transformational relationship with the followers to greater extremes than inspirational leaders. As Bass (1990) puts it, "charismatic leaders have extraordinary influence over their followers, who become imbued with moral inspiration and purpose" (p. 184).

The extreme nature of the charismatic leader-follower relationship is why Katz

and Kahn (1978) argued that this type of leader is more likely to appear in political and religious movements than in business and industry settings. Katz and Kahn (1978) have also suggested that the charismatic leader-follower relationship is strengthened to the extent that the leaders distance themselves from their followers, or become aloof. This idea is supported by Hollander's (1978) assertion that complex organizations are less likely to produce charismatic leaders because of the close contact of the supervisors and subordinates, thus preventing the maintenance of the magical attributes of charisma.

According to Hollander and Offermann (1990), "charismatic leaders, and therefore the charismatic component of transformational leaders, are defined by the effects they have on their followers" (p. 90). The leader-follower relationship and all of its dynamic components is the focus of much of the latest research in the field (Hollander & Offermann, 1990). Hollander and Offermann (1990) noted that "recent models and applications have increasingly sought to integrate followers more fully into an understanding of leadership, building on the foundation provided by contingency and transactional models" (p. 89).

Whether or not a leadership theory is categorized or labeled as contingency, transactional, or transformational, there are two common patterns or paradigms into which most of these leadership theories seem to fall. These can be called the behavioral and cognitive paradigms. Both paradigms share the fundamental elements of (a) leadership style, (b) leader behavior, and (c) situational or environmental variables (including the leader-follower relationship). How these three elements are defined, and the relationship between them, distinguish the cognitive from the behavioral paradigm.

Behavioral Paradigm

The leadership theories that conform to a behavioral paradigm posit that a leader's behavior is a manifestation of leadership style and this behavior/style can be consciously altered at the will of the leader. In fact, in a summary of the theories of leadership, Rice (1978a) stated, "most researchers use leader behavior and leadership style synonymously" (p. 1231). Because there is little distinction between leadership style and leader behavior, leadership "development" in the behavioral paradigm focuses on both the modification and acquisition of leader behaviors.

The acquisition of leader behaviors is commonplace in most leadership development programs in the U.S. today, and is in many cases the sole component (Freeman et al., 1994). Leader behaviors (also called leadership skills) that are commonly taught in these types of leadership development programs include management of business meetings, personal time management, conflict resolution and communication techniques, decision making and goal setting strategies, and record keeping methods--to name a few. In essence, then, since in the behavioral paradigm leader behavior and style are analogous, teaching leader behaviors is tantamount to inculcating leadership style.

Specific examples of university leadership development programs that teach nothing but leadership behaviors/skills can be found in the 1994-1995 leadership program source book compiled by Freeman et al. (1994). At North Carolina State University the leadership development program consisted of content areas focusing on leader behaviors/skills such as planning/organizing, communication, group dynamics,

influence/decision making, and interviewing/professional image (Freeman et al., 1994). The University of Miami's Emerging Leaders Program includes "a variety of topic areas such as communication, motivation, interpersonal styles, creativity, and conflict management" (Freeman et al., 1994, p. 173). Similarly, the University of New Hampshire also has a leadership development effort called The Emerging Leader Program with conference topics that cover leader behaviors/skills such as budgeting, time management, creativity, building consensus, and stress management (Freeman et al., 1994).

There are, however, some leadership development programs that subscribe to the behavioral paradigm that go beyond teaching leader behaviors/style. These programs incorporate the third element mentioned above, situational factors, and focus on honing the acquired behaviors/skills for maximal leader effectiveness. In the behavioral paradigm, optimizing leadership effectiveness once an array of leadership behaviors or skills has been acquired supposedly occurs as a result of teaching leaders to alter their leadership style (the array of acquired leadership behaviors) to deal most effectively with whatever situational factors are present. In other words, the leaders learn to match their behavior(s) to the situational demands (see Bass, 1990, for a review of these theories).

Freeman et al. (1994) also provided several examples of recent leadership programs that incorporate experiential components designed to allow the developing leader to apply the skills purportedly learned in the classroom. At the University of Northern Iowa, the Leadership Studies Program contains a leadership internship designed to link theory and practice. The outcome expectations of the internship are for the student

"to learn about leadership/followership in practice, to apply (and revise) theories and concepts, to find out on a first-hand basis what works and what does not work, and to develop insight into one's own responses as well" (Freeman et al., 1994, p. 181). At Blackburn College in Illinois the leadership development program also employs an experiential component in which "student leaders regularly exercise responsibility in an environment that constantly calls on leadership skills like assertiveness, negotiation and conflict resolution, persuasion, interpersonal communication, and sensitivity to impacts on others" (Freeman et al., 1994, p. 136).

Unfortunately, very few of the 27 university and college leadership programs detailed in Freeman et al.'s (1994) source book operationally measure "development" of the leader before and after the program intervention, and of those that used pre/post measures, none examined the students' ability to alter their leadership style/behavior in accordance with situational demands--the fundamental premise of effective leadership for theories that conform to the behavioral paradigm suppositions (e.g., Blake & Mouton, 1964; Likert, 1977; Vroom and Yetton, 1974). Situational or environmental factors most certainly vary, and sometimes over short periods of time. However, whether or not individuals in leadership positions can alter their leadership style/behavior, in conjunction with situational need fluctuations, is a point of contention and one of the important differences between the behavioral and cognitive paradigms.

Although leadership style and situational factors are both assumed to be variable in the behavioral paradigm, these elements are defined differently in the sundry theories that subscribe to the paradigm. For example, Likert (1977) would move the leader

toward a more democratic style, whereas Vroom and Yetton (1974) would suggest that the effective leader's style (decision process) should depend on the problem situation. Blake and Mouton (1964), however, would suggest that the leader work toward developing a leadership style that is composed of behaviors that are both highly focused on concern for people (relationship oriented) and concern for production (task oriented). Blake and Mouton's (1964) Managerial Grid Theory, advocating this one "best" leadership style, has received a great deal of criticism from other theorists who embrace the behavioral paradigm because it does not take into account situational moderators such as organizational structure (Miner, 1982a, 1982b), follower motivation and need for achievement (Deluga, 1988), and the task itself (Burke, 1965; Weed, Mitchell, & Moffitt, 1976; Wofford, 1971). Perhaps Blake and Mouton's greatest critics are Hersey and Blanchard (1969a, 1969b, 1982) who suggested that the leader's effectiveness depends on a situational factor they call the followers' maturity.

Unlike Blake and Mouton's (1964) theory, Hersey and Blanchard (1969b) accounted for the subordinate's level of maturity as a situational moderator variable. The follower's overall maturity depends on a combination of job maturity (capacity, ability, education, and experience) and psychological maturity (motivation, self-esteem, confidence, and willingness to do a good job). The prescribed leadership style is a mixture of task-oriented and relationship-oriented behavior, the optimal mixture of which is contingent on the subordinate's level of maturity. According to Hersey and Blanchard's (1969b) theory, the only time that Blake and Mouton's (1964) one best leadership style (high relations-oriented and high task-oriented behavior) should be employed is when the

followers are unable but willing to perform the task.

As just illustrated, Likert (1977), Vroom & Yetton (1974), Blake and Mouton (1964), and Hersey and Blanchard (1969b) provide a sampling of many leadership theories that could be categorized into a behavioral paradigm. All of these theories view leadership style as an array of learned leader behaviors or skills, an array which is variable or can be altered by the leader. The leader's effectiveness, then, is contingent on the situational or environmental factors that impact the leader and the ability of the leader to alter his or her style/behavior to deal better with the situation. The better the match between the leader style/behavior and the needs of the situation, the more effective the leader. This "formula" for leadership effectiveness, matching the leadership style to situational needs, holds true for the cognitive as well as the behavioral paradigm, with a very important difference. In the cognitive paradigm, leadership style is antecedent to leader behavior, not synonymous.

Cognitive Paradigm

Unlike the behavioral paradigm, a leadership theory that conforms to a cognitive paradigm would posit that leadership style and behavior are very different and temporally separate entities. Leader behavior is thought to be a result of the interaction between a relatively fixed or stable leadership style and variable situational factors. Fiedler's (1967) leadership theory, reviewed in detail later in this chapter, "is different from all other theories of leadership" (Bass, 1990, p. 510) because it is the only leadership theory that conforms to what might be termed a cognitive paradigm of leadership style.

According to Fiedler (1978) and his colleagues (Foa, et al., 1971), the leader's

style is not very changeable and therefore once a leader's style is known, it is easier to either pick leaders with styles that fit specific situations, or to alter the situational favorableness to fit the leader's style. Foa, et al.'s (1971) description of a leader's style corresponds to a characteristic way of understanding the environment, a way which in the cognitive development literature is sometimes variously called "epistemic structure," "cognitive structure," "method of construing reality," or simply "meaning making." How the leaders interpret the variety of situational factors is dependent on their cognitive structure. The leader's actions or behaviors, then, are responsive to this cognitive structure. In other words, meaning making, based on a relatively stable cognitive structure (in this case called leadership style), is antecedent to behavior.

Based on Foa et al.'s (1971) description of leadership style, there seems to be a correspondence between Fiedler's conception of leadership style and the leader's epistemic structure. Leadership development, viewed from this cognitive paradigm, might then be informed by the body of literature on cognitive development. In fact, Fiedler's cognitively-based interpretation of leadership style employs a definition of "style" that is more in line with the definition of "stage" used in cognitive development theories. To understand the "stage" concept employed in cognitive development theories, a brief historical review of the foundation of these theories is warranted.

The cognitive development theories have their roots in the dialectic metaphor (Kohlberg & Mayer, 1972). The dialectic metaphor suggests that the evolution of knowledge and thought is the reorganization of ideas that flow from discourse and confrontation of opposing ideas.

The dialectical metaphor was first elaborated by Plato, given new meaning by Hegel, and finally stripped of its metaphysical claims by John Dewey and Jean Piaget, to form a psychological method. In the dialectical metaphor, a core of universal ideas are redefined and reorganized as their implications are played out in experience and as they are confronted by their opposites in argument and discourse. These reorganizations define qualitative levels of thought, levels of increased epistemic adequacy. (Kohlberg & Mayer, 1972, p. 456)

The qualitative levels of thought that Kohlberg and Mayer (1972) mentioned are more commonly termed stages of cognitive development.

In cognitive developmental theory, the sequence of stages progress in an invariant and hierarchical order. Piaget (1960), referring to a child's cognitive development, described stages as having four general characteristics:

1. Stages imply distinct or qualitative differences in children's modes of thinking or of solving the same problem.

2. These different modes of thought form an invariant sequence, order, or succession in individual development. While cultural factors may speed up, slow down, or stop development, they do not change its sequence.

3. Each of these different and sequential modes of thought forms a "structural whole." A given stage-response on a task does not just represent a specific response determined by knowledge and familiarity with that task or tasks similar to it; rather, it represents an underlying thought-organization.

4. Cognitive stages are hierarchical integrations. Stages form an order of

increasingly differentiated and integrated *structures* to fulfill a common function.

(pp. 13-15)

Although the stages of cognitive development are delimited and fixed in sequence, they

are theoretically independent of age (Kohlberg, 1969; Loevinger, Wessler, & Redmore,

1970a). Cognitive development is, however, tied to age to the extent that development is

contingent on sequencing through the hierarchy of stages, which involves interaction with

the environment over time.

Researchers have explained the progression through the hierarchy of cognitive

stages, or cognitive development, as occurring from interaction with the environment

(King, 1990; Knefelkamp, 1981; Kurfiss, 1983; Rodgers & Widick, 1980). The nature

and extent of environmental interaction determines if and how fast the individual

progresses through the stages. Facilitating movement to the next stage of cognitive

development "involves exposure to the next higher level of thought and conflict requiring

the active application of the current level of thought to problematic situations" (Kohlberg

& Mayer, 1972, p. 459). Such problematic situations promote what has been called a

sense of "disequilibration" (Kurfiss, 1983). The premise is that disequilibration from the

experience of a moderate degree of discrepancy between the current stage of cognitive

functioning and environmental expectancies that require the next higher stage of

development produces an impetus to accommodate or acquire the qualitatively more

complex and adequate stage of meaning making.

The explanation of cognitive development occurring over time and in concert with

environmental interaction might as easily be applied to the explanation of leadership

development if leadership style is viewed from a cognitive paradigm. The process of leadership style development, borrowing from Kohlberg and Mayer's (1972) explanation of cognitive development, might take place through a comparable process of conflict and accommodation. Leadership style, viewed from the cognitive paradigm perspective, might be "developed" into a more complex and adequate means of understanding situational factors and contingencies in the leader's environment.

Fiedler and his colleagues (Foa et al., 1971) have in fact argued that leadership style can be developed into a more complex and congruous means of understanding and dealing with environmental variables. Their concept of "differentiation matching" holds the key to this process. The concept of differentiation matching incorporates the leader's tendency to distinguish between environmental elements and the amount of variability in the leadership environment itself. The cognitive paradigm's definition of leadership style, a characteristic way of understanding or making meaning of the environment, is qualified by defining "characteristic" in terms of the leader's tendency to differentiate. Foa et al. (1971) stated that differentiation is conceptually related to cognitive complexity and is defined as "the degree to which an individual tends to distinguish among different elements in his environment" (p. 130). Differentiation matching, then, is defined as "the degree to which the individual's tendency to differentiate appropriately matches the diversity of elements in the environment" (Foa et al., 1971, p. 130). Foa et al.'s (1971) hypothesis was that when the individual's leadership style, or tendency to differentiate, matched the diversity of elements in the environment, the individual would be more effective in his or her "adjustive as well as task-related functions" (p. 130). Put more

precisely, "effective performance should be obtained when the degree to which the leader differentiates among personal attributes of other group members is matched by the degree of differentiation required by the task situation" (Foa et al., 1971, p. 132). The leader's success or effectiveness, therefore, should be directly related to differentiation matching. This hypothesis was supported in a meta-analysis consisting of "the results from numerous studies in a wide variety of organizations over a period of 12 years" (Foa et al., 1971, p. 136).

Foa et al. (1971) go on to suggest that, given the support of their differentiation matching concept, the composition of environmental contingencies provide a template or model for developing cognitive structure. As noted earlier, this supposition was expounded by Kohlberg and Mayer (1972) in their detailed discourse on the cognitive-developmental understanding of the process of education. Again, the premise of cognitive-development theory as outlined by Kohlberg and Mayer (1972) is that experience of a moderate degree of conflict or discrepancy between the current stage of cognitive functioning and environmental expectancies that require the next higher stage of development produces an impetus to accommodate or acquire the qualitatively more complex and adequate stage of meaning making. Originating from an entirely different field of research, Fiedler and his colleagues (Foa et al., 1971) employ different terminology but concur in concept with Kohlberg and Mayer when they indicate that an individual's ability and tendency to differentiate (leadership style) can be developed into a more complex and adequate means of understanding situational factors and contingencies through experiencing the poor performance consequences of differentiating mismatching.

Foa et al. (1971) state, "One environment might mete out punishment whenever the individual fails to make very fine differentiations in a particular domain, while another environment may be very tolerant of poor differentiation among elements of the same domain" (p. 131). Foa et al. (1971) explained that in experiences where an individual fails to make appropriate differentiations and is "punished," he or she develops over time a more complex and adequate ability and tendency to differentiate, thereby making more accurate the differentiation match. Put in cognitive-developmental terms, the individual develops more complex and adequate meaning making through the disequilibration experienced from differentiation mismatches. The cognitive paradigm of leadership style, or more specifically Fiedler's (1967) theory, is therefore in concept very much in concordance with a cognitive-development perspective.

Fiedler's Contingency Theory

> According to Fiedler and Chemers (1978),
>
> The contingency model, which is based on studies going back to 1951, was first published in 1964. Since that time more than 400 journal articles and book chapters have been written about it, and the contingency model has become one of the most researched and best validated leadership theories. A detailed analysis of all studies testing the contingency model shows overwhelming support for the theory (e.g., Strube and Garcia, 1981). (p. 6)

Fiedler's (1967) contingency theory of leadership, then, is the most widely researched model of leadership (Bass, 1990). It has been called a contingency theory because, according to Fiedler, the effectiveness of the leader is contingent on the demands of the

situation, or how much/little control and influence the leader possess. "A situation is favorable to the leader if the leader is esteemed by the group to be led; if the task to be done is structured, clear, simple, and easy to solve; and if the leader has legitimacy and power owing to his or her position" (Bass, 1990, p. 47). The favorableness of the situation, then, ranges on a continuum that varies according to the quantity/quality of three situational variables: leader-member relations, task structure, and position power. Fiedler (1967) identified eight points along this continuum that act as benchmarks and correspond to the various combinations of the three situational variables. The continuum ranges from the most favorable situation in Octant 1 to the least favorable in Octant 8. Octant 2, for example, has good leader-member relations, structured tasks, and weak leader position, whereas Octant 7 has poor leader-member relations, unstructured tasks, and strong leader position (see Figure 1).

In addition to identifying the degree of control and influence the situation presents to the leader, Fiedler (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) developed the Least Preferred Co-worker (LPC) measure that classifies leaders into two fundamental leadership styles, relationship-motivated and task-motivated. The LPC measure asks individuals to think of all the people with whom they have ever worked and then describe, using 18 bipolar adjective scales, "the *one person in your life* with whom you could work least well...it must be the one person with whom you had the most difficulty getting the job done" (Fiedler & Chemers, 1984, p. 17). The adjective checklist contains

Low LPC

High LPC

Effective Performance

High
Control

Moderate
Control

Low
Control

Situational Control
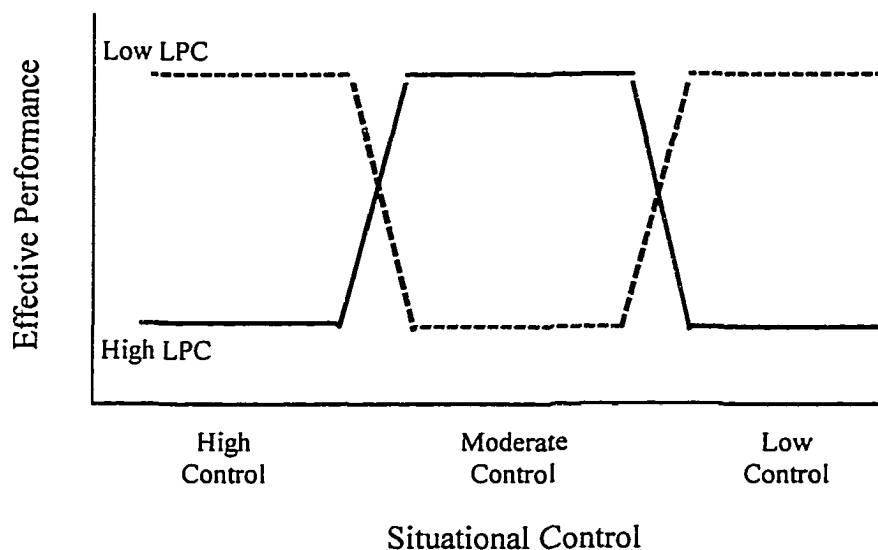
Figure 1. Schematic representation of the Contingency Model. Leadership performance is shown on the vertical axis, situational control on the horizontal axis. The solid and broken lines indicate the expected performance of high and low-LPC leaders, respectively, under the three situational control conditions (Fiedler & Chemers, 1984, p. 166).

both task-oriented attributes (e.g., supportive/hostile, trustworthy/untrustworthy) and interpersonal or relationship-oriented attributes (e.g., friendly/unfriendly, pleasant/unpleasant). The more positive an individual rates the least preferred co-worker, the higher the LPC score. The majority of the LPC items are of the relationship-oriented type and, therefore, the LPC score is primarily determined by these. The high scoring (high-LPC) leaders, therefore, "tend to be more concerned with establishing good interpersonal relations," whereas the low scoring (low-LPC) leaders "tend to be more concerned with the task...and more punitive toward poor co-workers" (Fiedler, 1967, p.

45).

Fiedler (1967) suggested that the LPC score of a leader is relatively stable, and hence the effectiveness of a leader should be maximized by either placing high and low-LPC leaders into situations for which they are best suited, or by attempting to change the favorableness of the situation to suit the leader's style. This approach makes Fiedler's theory unlike any other theory of leadership (Bass, 1990). Other theories of leadership suggest that the leaders should be trained to change their style to match the situation in which they find themselves. For example, Blake and Mouton (1964) would suggest the leader move toward the one best style (i.e., "9,9"); Hersey and Blanchard (1969) would say the leader's effectiveness depends on the group's characteristics and the followers' maturity; Likert (1977) would move the leader toward a more democratic style; and Vroom and Yetton (1974) would suggest that the effective leader's style (decision process) should depend on the problem situation (Bass, 1990). In contrast, Fiedler believes that leadership style is a part of the leader's personality. Although the leader's style can be changed over time (developed), it is easier to change the situation in order to increase leadership effectiveness (Bass, 1990).

The relatively stable leadership style, and Fiedler's theory in general, has been explained through the interpretation of the LPC score. Although a number of LPC interpretations have been advanced over the years, the two complementary and originally validated principle methods of interpreting the LPC score were used in the present study hypotheses formulations. Fiedler explained the LPC score in need-gratification terms (task or relationship motivated), and then offered a supplementary explanation in

cognitive terms. Critical to the understanding of both of these interpretations is the clear distinction that must be made between leadership style and leadership behavior (Fiedler, 1967). Leadership behavior is defined by the particular acts in which the leader engages while coordinating and directing followers. Leadership style, as measured by the LPC, is an aspect of the leader's personality that motivates behavior in accordance with the various leadership situations. A leader's behaviors, whether task or relationship/interpersonal in nature, vary from situation to situation. The leader's style (i.e., task-motivated or interpersonal-motivated), whether interpreted in Fiedler's need-gratification or cognitive terms, remains constant across situations. To predict a leader's behavior and subsequent effectiveness, one must consider both the favorableness of the situation and how these environmental variables interact with a particular leader's style to produce behavior (Fishbein, Landy & Hatch, 1969; Graham, 1968, 1973). It is, therefore, important to make a clear distinction between the leader's style and behavior and not assume there is an easily predictable relationship between them.

Nealey and Blood (1968) warned against assuming a direct relationship between the style and behavior of leaders. They found no significant correlation between participant LPC scores (leadership style) and Leadership Behavior Description Questionnaire (LBDQ; Stogdill & Coons, 1957) scores (leader behaviors). In other words, a high LPC score does not always predict interpersonal relations behavior. Likewise, a low LPC score does not always predict that the leader will encourage production, more structuring, or completion of the task (Bass, 1990; Fiedler, 1978). As Fiedler (1967) stated, "Both types of leaders may thus be concerned with the task and

both will use interpersonal relationships, although the high-LPC leader will concern himself with the task in order to have successful interpersonal relations, while the low-LPC leader will concern himself with the interpersonal relations in order to achieve task success" (p. 46). The leadership style, then, is antecedent to leader behavior, not synonymous. This relationship between style and behavior in Fiedler's theory holds true in both his need-gratification and cognitive interpretations of the LPC score or leadership style.

Fiedler's (1967) need-gratification interpretation of the LPC score is "based on over fifty studies of 21 different types of groups where the author developed correlations between the leader's LPC score and group effectiveness" (Hill, 1969, p. 35). In this interpretation, the high-LPC leader is described as someone who "seeks his major need gratification from a position of prominence and good interpersonal relations with others" and the low-LPC leader is described as a person who "seeks need gratification from performance and achievement on the task itself" (Foa et al., 1971, p. 132). Whether or not the leader is effective is contingent on the interaction between the leader's style and the favorableness of the situation.

As previously mentioned, Fiedler (1967) defined the favorableness of the situation as ranging on a continuum between totally favorable (Octant 1) and totally unfavorable (Octant 8). When the situation is favorable (Octants 1, 2, and 3), the low-LPC leader is more effective than the high-LPC leader. The need-gratification rationale for this is that the low-LPC leader, having been satisfied with the likelihood of task attainment (i.e., the need for task performance is gratified), feels able to attend to interpersonal relationship

factors. The leader maintains a normal level of task structuring (directive behavior) while using interpersonal behavior to reinforce effective group performance. This combination of behaviors in a favorable situation results in effective leadership. High-LPC leaders in the same situation also have their needs gratified because in a favorable situation leader-member relations are good. Having their interpersonal needs satisfied, leaders engage in initiating, structuring, or directive behavior while maintaining a normal level of interpersonal, relationship-type behaviors. This combination of behaviors in a favorable situation results in poor performance because "the structuring behaviors are not rewarding for subordinates, and the appropriate focus for the leader is on relationship-oriented behavior, since the task is, by the nature of the situation, likely to be progressing smoothly" (Sashkin, Taylor, & Tripathi, 1974, p. 732).

In contrast to the leader situations Fiedler called favorable, when the situation is moderately favorable (Octants 4 and 5) or moderately unfavorable (Octants 6 and 7), the high-LPC leader is more effective than the low-LPC leader. According to Fiedler (1971a), although unstructured tasks play a role, the primary factor (a factor that is weighted more heavily or carries greater effect on performance) that makes a situation moderate in favorableness is lack of good interpersonal relations. In a moderate situation both types of leaders become aware that their needs may not be satisfied and, therefore, attempting to satisfy their dominate leadership needs, the low-LPC leader engages in task-structuring/directive behavior and the high-LPC leader responds by concentrating behaviors on interpersonal relations. Because the relationship-type behaviors are more important to effective performance in moderate situations, the high-LPC leader is more

effective. This is not the case, however, when the leader situation turns unfavorable.

In terribly unfavorable situations (Octant 8), highly directive or even authoritarian behavior is the only way to accomplish anything and, therefore, the low-LPC leader, engaging in this type of need-gratification behavior is more effective than the high-LPC, relationship-oriented leader. The performance effects in this situation, however, may only be temporary (Sashkin et al., 1974). This needs-gratification explanation of the LPC score and leadership effectiveness was not the only interpretation to be advanced.

In an interpretation that is more relevant in the current study, Fiedler and his colleagues (Foa et al., 1971) have also explained the meaning of the LPC score (i.e., leadership style) in cognitive terms. As previously detailed, this interpretation supplements the need-gratification scenario by considering the leader's ability to differentiate between elements in the environment/situation. More specifically, Foa et al. (1971) concluded that high-LPC leaders differentiated between their least preferred co-worker's task performance and interpersonal attributes more than low-LPC leaders. The difference in ability and tendency to differentiate was determined by showing that "the correlation between task and interpersonal items of the LPC instrument [was] lower for high LPC respondents than for low LPC ones" (p. 133). This finding is in concert with Fiedler's (1967) initial supposition: "The implicit personality theory of the high-LPC person thus separates work performance and personality, while the implicit personality theory of the low-LPC person links an individual's poor performance on a joint task with undesirable personality characteristics" (p. 44).

Given the leader's tendency to differentiate, leadership performance is in turn

impacted by the favorableness of the situation. Using the cognitive interpretation to predict leadership effectiveness, Foa et al. (1971) presented correlational evidence to support their position that leaders perform most effectively in situations that require a level of differentiation that matches the leader's ability and tendency to differentiate. In a situation of moderate favorableness, for example, the leader is faced with both favorable and unfavorable aspects of either leader-member relations, task structure, or position power. To be maximally effective, this situation requires the leader to make a differentiation between situational elements, identify the area needing attention, and focus more effort on leader behavior that will address the situational deficiency. High-LPC leaders are better able to differentiate between task and interpersonal behavior, as well as between their own behavior and group behavior, than low-LPC leaders and therefore will be more effective in this type of situation. In contrast, a situation that is extremely favorable or extremely unfavorable requires the leader to give attention to the total (undifferentiated) situation, differentiation between situational elements is not required. "A leader making a differentiation not required by the situation will tend to focus attention on a given aspect rather than on the total situation, so that he will be less effective" (Foa et al., 1971, p. 135). In support of this reasoning Foa et al. (1971) did indeed find a tendency for low-LPC leaders to be more effective than high-LPC leaders in extremely favorable or unfavorable situations. Based on these findings, Foa et al. (1971) assert that "a conceptual link has been provided between cognitive organization of the leader and the cognitive requirements of the task--in short, between the leader's differentiation abilities and the differentiation embedded in the situation" (p. 136). This

conceptional link provides an explanation, in cognitive terms, that supports Fiedler's initial predictions concerning leadership style effectiveness and situational favorableness. The interpretation of Fiedler's theory from a cognitive-differentiation perspective also provides a conceptual link to the voluminous research on student cognitive development. This is particularly relevant to the present study, given its focus on cognitive predictors of leadership style in a college student population.

Cognitive Complexity and Development

Cognitive Development

In addressing the fundamental question of how we come to know, the study of human knowledge and knowing has developed into a specialized discipline called *epistemology*, or the study of knowledge. Of particular relevance to cognitive science is *evolutionary epistemology*, or the study of knowing systems and their development over time (Mahoney & Lyddon, 1988). Early researchers of cognitive, intellectual, and moral development were primarily concerned with the evolution of thought in childhood. Probably best known of these researchers is Piaget (1932, 1960, 1964, 1972), who first outlined the major assumptions of the cognitive developmental process. Later, these assumptions were reiterated and extended by Kohlberg (1969). King (1990) has outlined the three major assumptions of the cognitive-developmental perspective.

According to King (1990), one of the three major assumptions of the cognitive-developmental approach is that the meaning of experiences is cognitively constructed.

At the foundation of the cognitive-developmental approach is the assumption that individuals actively attempt to make sense of what they experience by creating

their own interpretations or explanations of their experiences...the interrelated sets of assumptions that underlie this logic are referred to as a "cognitive structure" (King, 1990, p. 82).

The second major assumption is that cognitive structures evolve over time in a stage-wise fashion. The earlier cognitive structures or stages provide a foundation for the later stages and each stage in the progression offers a more complex and adequate means of interpreting life experiences. According to King (1990), "adult cognition is assumed to reflect qualitative changes in reasoning that are built on earlier structures, but revised when these structures become inadequate" (p. 82). A stage in cognitive-developmental theory refers to "a set of interrelated assumptions (about knowledge, morality, self, etc.) that give individuals a foundation from which to interpret their experiences" (King, 1990, p. 83).

The third assumption is that interaction with the environment is the means by which cognitive development occurs. Kohlberg and Mayer (1972) explained that experience of a moderate degree of conflict or discrepancy between the current stage of cognitive functioning and environmental expectancies that require the next higher stage of development produces an impetus to accommodate or acquire the qualitatively more complex and adequate stage of meaning making. The rate at which an individual progresses through stages is primarily determined by the characteristics of the environment, including the perceived balance of challenge and support (Sanford, 1966).

Although these three major assumptions of the cognitive-developmental perspective were initially employed to explain the foundations of evolution of thought in

childhood, they have since become the cornerstone of cognitive development theories that attempt to explain the formation of cognitive structures well into adulthood. As Lovell (1990) explained,

> The situation changed during the post World War II era when a few theorists, building on the work of Dewey, Mead, and Piaget, started to study the evolution of thought in college students. Soon, they applied their theoretical and measurement tools to the broader adult population, discovering that thought is not static in adulthood; indeed, adult thought processes evolve in ways fully as dynamic as those in children. (p. 33)

The focus of the present research is on an early adult, college student population. Collectively, student development theory is the body of research focusing on the overall (cognitive and psychosocial) development of this population.

Student Cognitive Development Theories

Four of the most comprehensive and potentially best known student development theories that focus on the cognitive development process were authored by Kegan (1979, 1980, 1982, 1994), Kohlberg (1969, 1972, 1975, 1981a, 1981b, 1984), Loevinger (1966, 1976), and Perry (1981, 1998). These theories are routinely cited in discussions of student cognitive development (Chickering & Reisser, 1993; King, 1990; Moore & Upcraft, 1990; Pascarella & Terenzini, 1991; Rodgers, 1990). Kohlberg and Perry have been praised as researchers "who have probably had more influence than any others on the study of college's impact on students and on institutional policies and programs specifically designed to shape student development" (Pascarella & Terenzini, 1991, p.

18). The four theorists mentioned above explore the principle structures and process of

cognitive development in late adolescence and adulthood. The theoretical constructs

presented by Kegan, Kohlberg, Loevinger, and Perry are, therefore, germane to the

present investigation and will provide the framework for a discussion of student cognitive

development theories.

<u>Kegan</u>

Robert Kegan's (1979, 1980, 1982, 1994) theory of ego development proposes

that individuals develop through a series of five hierarchical cognitive stages that

determine how they make meaning of their world and define themselves in terms of what

is self/subject and what is other/object. Kegan called the cognitive stages "temporary

truces," which are defined as an equilibrium or balance reached between "the yearning to

be included, to be a part of, close to, joined with, to be held, admitted, accompanied" and

"the yearning to be independent or autonomous, to experience one's distinctness, the self-

chosenness of one's directions, [and] one's individual integrity" (Kegan, 1982, p. 107).

Chickering (1993), describing Kegan's theory, explained:

> Development involves becoming temporarily embedded in one pattern until its
>
> inherent imbalance impels us to break away from it and move toward the other
>
> polarity. Each shift involves a change in how we construct meaning. To develop
>
> a new way to interpret our experience, we must first be able to observe the old one
>
> with greater detachment and to see a new boundary between what is "me"
>
> (subject) and what is "not me" (object). (p. 25)

Although Kegan described stages that take the individual from birth to death, it is stage 3,

mutuality/interpersonalism, that many college students are experiencing (Rodgers, 1990). Interpersonalism (stage 3), or what Kegan (1994) calls "3rd order consciousness," is characterized by construction of meaning through perceptions of "the other" (object) in cause-and-effect, concrete terms and views the "self" (subject) in terms of abstractions, inferences, and generalizations. Persons in the interpersonal stage can construct reciprocal relationships built on trust and mutuality, but cannot experience themselves as separate from the interpersonal context (i.e., they are perceptually "embedded" in mutuality and the interpersonal relationship). Kegan (1994) provides detailed examples of how individuals might make meaning of their world in leadership positions.

A leader in Kegan's stage 3, for example, "may have [a] top-down, in-control, chain-of-command, or by-the-book leadership style, but [have] authority and direction derived externally (from one's supervisors, e.g., or the company's code or tradition)" (Kegan, 1994, p. 227). The leader "may provide a warm 'shoulder to cry on,' but then feels identified with, [and] responsible for, the other's pain" (Kegan, 1994, p. 27). Persons in Kegan's stage 3 are embedded in, or cannot perceive themselves separate and independent from, the "psychological surround." In contrast, a person who moves into stage 4, "institutionalism" or "4th order consciousness," can maintain the coherence of self across a shared psychological space (i.e., in a professional or personal relationship).

The stage 4 individual moves from a construction of reality that is "I *am* my relationships" (stage 3), to "I *have* my relationships." Following Kegan's (1994) leadership examples, the person in stage 4 "may lead hierarchically and unilaterally but out of a vision that is internally generated, continuously sustained, independent of and

prior to the expectation or directives of the environment" (p. 227). The leader "may provide a warm 'shoulder to cry on' but is able to be empathic with, and in relation to, the other's pain (versus identified with it and responsible for it)" (Kegan, 1994, p. 227). In other words, instead of being embedded in the psychological surround (stage 3), the individual in stage 4 is "self-authorizing."

The "self-authorizing," stage 4 individual is no longer embedded in interpersonalism, but instead is now embedded in ideology, autonomy, and competence (Rodgers, 1990). Describing Kegan's theory, Rodgers (1990) explained that movement through the stages of the evolving self (self/other or subject/object transitions) results from "yearning toward inclusion and connectedness...and the yearning toward autonomy and independence" (p. 40). Stages 1 (impulsive self), 3 (interpersonal self), and 5 (inter-institutional self) stress inclusion and connectedness and stages 2 (imperial self) and 4 (institutional self) emphasize autonomy and separateness.

This evolution to and from connectedness and separateness is characteristic of subject/object theory, one form of cognitive development theory that attempts to describe the increasing degrees of complexity with which individuals make meaning of their experience with questions of what is self and object. Cognitive development, however, has also been characterized in terms of evolution through moral stages. In this instance theorists attempt to explain the increasing degrees of complexity with which individuals make meaning of their experience with moral questions. Perhaps the most renown theorist in this area is Kohlberg.

Kohlberg

Lawrence Kohlberg (1969, 1972, 1975, 1981a, 1981b, 1984) published his theory on moral and ethical development after analyzing how respondents justified their opinions about hypothetical moral predicaments, such as the famous "Heinz dilemma" (should penniless Heinz steal the experimental drug for his dying wife?). Kohlberg's premise is that "the nature and sequence of progressive changes in individuals' cognitive structures and rules for processing information [can be delineated] on the basis of which moral judgments are made" (Pascarella & Terenzini, 1991, p. 30). To delineate the stages of moral development Kohlberg focused on the cognitive processes (assumed universal) by which moral choices are made. The content of the moral choices, which might be culturally or socially influenced, was not considered in the initial development of six stages of moral development.

Kohlberg (1981a) had initially delineated three general levels of moral reasoning, each containing two stages, for a total of six stages. In later writings (Kohlberg, Levine, & Hewer, 1983), however, the sixth stage was dropped from the formal model due to the lack of empirical evidence to support its existence as a discrete stage. Level I (stages 1 and 2) of the Kohlberg's moral continuum is called "preconventional," Level II (stages 3 and 4) is "conventional," and Level III (stage 5) is called "postconventional" or "principled" reasoning. Pascarella and Terenzini (1991) summarized the general qualitative changes in cognitive structure as an individual moves from the earlier to the later stages of development:

Passage through the presumably invariant sequence of stages involves an

increasingly refined, differentiated set of principles and sense of justice. At the

earlier stages, this sense is based on considerations of self-interest and material

advantage. At the opposite end of the moral development continuum, an

internalized, conscience-based set of moral principles guides an individual's

actions. (p. 31)

Movement through these stages has been studied in numerous investigations.

Additionally, unlike Kegan's theory which was developed more for psychotherapeutic and

counseling applications, Kohlberg's theory has been extensively applied in the academic

setting as a measure of cognitive development throughout the college experience

(Pascarella & Terenzini, 1991).

Although there is not necessarily a direct correspondence between developmental

stage and age, "the body of existing evidence would place most traditional college-age

freshmen (those seventeen to nineteen years old) at the conventional level of moral

reasoning" (Pascarella & Terenzini, 1991, pp. 336-337). The conventional level (stages 3

and 4) of moral reasoning is characterized by a concern for maintaining social order.

Meeting the expectations of others, particularly authority figures, and obedience to rules

are what guide moral judgment in conventional or Level II reasoning of Kohlberg's

(1981a) model. Cognitive evolution to Level III, postconventional or principled

reasoning, is marked by "a view of morality as a set of universal principles for making

choices among alternative courses of action that would be held by any rational moral

individual" (Pascarella & Terenzini, 1991, p. 336). Kohlberg calls these universal

principles "first principles" because they are independent of and came prior to societal

norms and expectations. Development from Level II to Level III reasoning during the college experience has been empirically demonstrated using the two instruments that are employed most frequently in the measurement of moral development (Pascarella & Terenzini, 1991).

The two instruments that are most commonly employed to measure Kohlberg's concept of moral development are Colby et al.'s (1982) Moral Judgment Interview (MJI) and Rest's (1975, 1979b) Defining Issues Test (DIT). Pascarella and Terenzini (1991) conducted a comprehensive review of the research on moral development of college students and concluded:

> Clearly, the overwhelming weight of evidence that comes from the Defining Issues Test and the Moral Judgment Interview (and its paper and pencil adaptations) suggests that extent of principled moral reasoning is positively associated with level of formal postsecondary education and that students generally make statistically significant gains in principled moral reasoning during college. (p. 343)

This conclusion, based on the development of moral reasoning, offers substantial support to the conjecture that the college experience promotes cognitive development in general. As Pascarella and Terenzini (1991) pointed out, "because the focus of Kohlberg's theory is on moral judgment, it has a substantial cognitive element" (p. 336). Like Kohlberg, Loevinger's (1976) theory also involves moral growth and has a cognitive element, but it also (like Kegan's theory) subsumes interpersonal relations.

<u>Loevinger</u>

Jane Loevinger's (1966, 1976) theory resulted from her initial research on sentence completion tests with girls and women (Loevinger, 1979; Loevinger et al., 1970a, 1970b). Her theory incorporates moral, interpersonal, and cognitive development into the general term "ego development." Loevinger (1976) believes a detailed definition of ego development may never be possible, but stated that it connotes "the course of character development within individuals" (p. 3) and represents "the striving to master, to integrate, [and] to make sense of experience" (p. 59). She went on to say that the ego "is close to what the person thinks of as his self" (Loevinger, 1976). Loevinger's (1976) theory outlines ego development as occurring in nine stages.

Although Loevinger's theory proposes nine stages, the first three ("symbiotic," "impulsive," and "self-protective") are generally found in persons of precollege age, and the last three ("individualistic," "autonomous," and "integrated") have never been found in research on college student populations (Pascarella & Terenzini, 1991). The middle three stages ("conformist," "self-aware," and "conscientious") are, therefore, relevant to the present study. These stages "are the most frequently observed ones among traditional-age college students" (Pascarella & Terenzini, 1991, p. 35). Unfortunately, according to Pascarella and Terenzini (1991), most research involving Loevinger's theory has been conducted solely on traditional-age (18-24 years old) college student populations.

Most traditional-age freshmen are at Loevinger's "conformist" or fourth stage, "wherein individual behavior is largely determined by group behaviors, values, and attitudes" (Pascarella & Terenzini, 1991, p. 35). The fifth level, "self-aware," is a

transition stage between "conformist" and "conscientious" and is characterized by "an increase in self-awareness and the appreciation of multiple possibilities in situations" (Loevinger, 1976, p. 19). "Conscientious" is the sixth stage, wherein "rules and values have been internalized, and the individual has attained the capacity for detachment and empathy. Reasoning is more complex, and responsibility for one's actions is recognized" (Pascarella & Terenzini, 1991, p. 35). Pascarella and Terenzini's (1991) comprehensive review "identified no research that found college students at any of the final three stages of Loevinger's model" (p. 35). The three middle stages, then, seem to encompass the developmental range of most traditional-age college students.

Although only the three middle stages are of consequence to most college student populations, Loevinger (1976) stressed that there are four salient facets of the ego (perhaps best conceptualized as "self") that are distinctly manifested in each of the theory's nine stages. These four facets are impulse control and character development, interpersonal style, conscious preoccupations, and cognitive style. Loevinger (1976) viewed these components of ego development as "four facets of a single coherent process" (p. 26). A focus on cognitive style, however, is not the sole aspect or centerpiece of the developmental process described in Loevinger's theory. In contrast, Perry's (1998) theory of intellectual and ethical development is grounded exclusively in college student research centering on cognitive development and, therefore, bears very direct significance to the present study.

Perry

Relevance to Current Study

William Perry's (1970, 1981, 1998) theory, commonly known as the "Perry scheme," was used as the principle cognitive developmental theory in the current study. The grounds for employing Perry's theory in this study are discussed below. However, before reviewing the reasons why Perry's theory is relevant to the current research, it is important to understand why the other three major cognitive development theories (Kegan, Kohlberg, and Loevinger) reviewed in this chapter do not hold direct relevance to this study's research questions (as defined in Chapter 1).

With exception to Perry's theory, the major cognitive developmental theories that have been reviewed in this discourse have at least one critical weakness related to their applicability in the present study. Kegan's theory, for example, was not developed primarily for academic research. Although his theory does focus on cognitive constructs and development of how one makes meaning, "Kegan's model was developed more with counseling and psychotherapeutic applications than with research applications in mind" (Pascarella & Terenzini, 1991, p. 36). Additionally, McAuliffe and Strand (1994), when referencing the measurement of Kegan's developmental stages, state that "the only formal procedure currently available is the extensive Subject-Object Interview (Lahey, Souvaine, Kegan, Goodman, & Felix, 1985)" (p. 28). The Subject-Object Interview, a type of "production-task" instrument, is not necessarily conducive to large sample sizes. According to King (1990), these types of measurement instruments

tend to be highly labor-intensive, requiring trained assistants to collect and rate the

data, and often are not conducive to group testing. Furthermore, they require subjective classification of subject responses, which is subject to bias, and my be influenced by such extraneous factors as rater fatigue, poor training, or lapses in concentration. (p. 89)

Moreover, the measurement of Kegan's developmental stages does not include a composite indicator of cognitive complexity. Like Kegan's theory, Kohlberg's and Loevinger's theories, although providing a piece of the essential framework for the understanding of cognitive development, have shortcomings in utility and relevance to the current research.

Kohlberg's theory is focused very specifically on moral development. "Because the focus of Kohlberg's theory is on moral judgment, it has a substantial cognitive element" (Pascarella & Terenzini, 1991, p. 336), however, it is not wholly focused on general cognitive development. In other words, Kohlberg's theory deals specifically with one aspect of cognitive development, and moral development is not a specific concern in the present study. Similarly, Loevinger's theory of ego development, although presenting another piece of the framework of cognitive developmental theory, has little relevance to the present research. It does not focus solely on cognitive development. Loevinger's (1976) concept of ego development also includes movement through various phases of impulse control and character development, interpersonal style, and conscious preoccupations. These other facets of Loevinger's theory make it much less focused than Perry's theory on the development of cognitive complexity. Lovell (1990) stated, "both Loevinger and Kohlberg have shown, in contrast to their schemes, how Perry's scheme

captures more purely cognitive phenomena as it traces intellectual and ethical development in the college years (Kohlberg, 1984, p. 365; Loevinger, 1976, p. 134)" (p. 41). Furthermore, Loevinger's theory "did not grow out of a practitioner's work with and observations of college students" (Knefelkamp, Parker, & Widick, 1978, p. 69), as did Perry's theory.

Perry's (1981, 1998) theory, in contrast, presents many grounds for its relevance to the current research. Points of relevance include: the theory's establishment in academic research focusing on college students; constructs which focus solely on and attempt to explain the development of cognitive structures employed in construing meaning of one's experiences; direct application to the college student experience and curriculum design; and a measurement instrument that is based on the college student learning experience, which is conducive for administration to large sample sizes (i.e., paper and pencil test), and contains an index score for cognitive complexity. Additionally, Perry's concept of cognitive complexity has been studied to determine its relationship to the empathic ability of students (Lovell, 1990), as has Fiedler's (1967) concept of leadership style (Woodall & Kogler Hill, 1982), also employed in this study. Collectively, these features of the Perry scheme make it more relevant to the present research than any of the other major cognitive developmental theories previously reviewed. A review of the Perry scheme's development and theoretical constructs provide a more detailed illustration of its significance to the principle research questions of the present study.

Theory Development and Constructs

Perry's (1998) theory attempts to map conceptually the cognitive "structures which the students explicitly or implicitly impute to the world, especially those structures in which they construe the nature and origins of knowledge, of value, and of responsibility" (p. 1). Derived from nine years of unstructured interviews of Harvard undergraduates, the Perry scheme describes the evolution of these cognitive structures "as occurring in a sequence of hierarchical positions in which each position represents a qualitatively different structure for construing knowledge" (Sheese & Radovanovic, 1984, p. 5). In general, the progression is from a polarized, absolutist view of the world (right/wrong, good/bad) to a cognitively complex, differentiated way of knowing which is grounded in an evolving expression of personal values and lifestyle (Perry, 1981). The evolution of the cognitive structures in the Perry scheme identifies it as a stage model, but Perry (1998) prefers the term "positions" because it does not presuppose duration and is "happily appropriate to the image of 'point of outlook' or 'position from which a person views his world'" (p. 48).

Although Perry (1998) posited nine hierarchical positions, "at the broadest conceptual level, he has suggested that development can be conceived as comprising two major parts, with the pivotal stage (his Position 5) being the perception of all knowledge and values (including authority's) as relative" (Pascarella & Terenzini, 1991, p. 29). A dualistic-type perception persists before the attainment of Position 5. Individuals derive knowledge of what is good or bad and right or wrong from "Authority." Included in the dichotomous categories are knowledge, values, and people. At Position 5 individuals

begin to discern the uncertainties of "Truth" and "Authority," and are able to discern

multiple points of view. The relative nature of knowledge and values is realized. After

this realization, "the individual follows a progression through the last four positions,

moving toward higher developmental levels according to the extent to which the

individual can cope with a relativistic world and begin to develop personal commitments"

(Pascarella & Terenzini, 1991, p. 29). King (1978), Knefelkamp (1974), and Moore

(1987) suggested four general groupings of the nine Perry positions, and Rodgers and

Widick (1980) have summarized three clusters of positions. Perry (1981) himself later

grouped his original nine developmental positions into three clusters (see Figure 2).
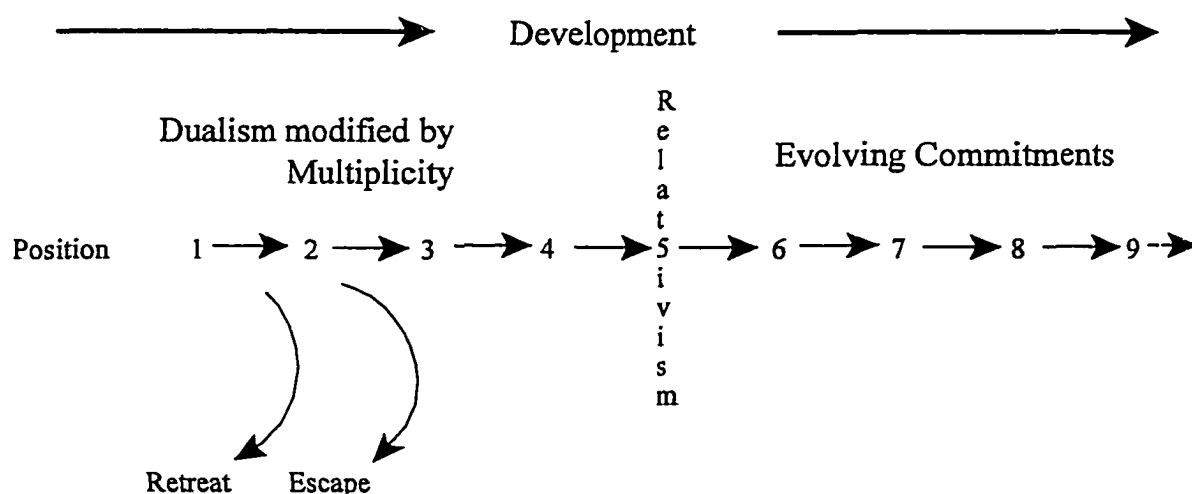
Figure 2. Schematic representation of the Perry Scheme. Adapted from Perry's (1981) "A Map of Development" (p. 80).

"Dualism Modified" (Positions 1-3) was the first cluster suggested by Perry

(1981). In Positions 1 and 2 students order their reality in absolute, dichotomous, discrete

classifications. Knowledge is absolute and known to authorities, and "alternative views

or different perspectives on the same phenomenon create discomfort and confusion" (Pascarella & Terenzini, 1991, p. 29). Position 3 brings "multiplicity," where multiple perspectives are realized and all opinions are considered valid, thus not subject to judgement. However, "students are unable to adequately evaluate points of view, and question the legitimacy of doing so" (King, 1978, p. 38).

"Relativism Discovered" (Positions 4-6), the second cluster of Perry positions, brings to students the ability "to analyze and evaluate their own ideas as well as those of others" (Moore & Upcraft, 1990, p. 9). Knowledge is viewed as relative and contextual. This stage can be problematic for individuals because it is marked by indecisiveness. King (1978) stated that, "the merits of the alternative perspectives are so clear that it becomes nearly impossible to choose among them, fearing that to do so would sacrifice the appreciation for the other views" (p. 39). According to Pascarella and Terenzini (1991), due to the decision-making resistance "subsequent development may be delayed at this stage" (p. 29).

"Commitments in Relativism Developed" (Positions 7-9), the third cluster of positions, is characterized by an overcoming of the indecisiveness in the previous stage. Individuals who make it to this stage "have made an active affirmation of themselves and their responsibilities in a pluralistic world, establishing their identities in the process" (King, 1978, p. 39). At this stage "personal commitments in such areas as marriage, career, or religion are formulated from a relativistic frame of reference" and "identities and life-styles are established in a manner consistent with students' personal themes" (Moore & Upcraft, 1990, p. 9). Commitments that are made are not necessarily enduring.

Commitments are made and change in a series of constructions and reconstructions, or

what Perry (1998) called "differentiations and reorganizations" (p. 3). Pascarella and

Terenzini (1991) noted that "commitments may be made, but they are not immutable;

they are alterable in the face of new evidence about the world" (p. 30). This process of

"evolving" commitments may be a lifelong process, and was aptly illustrated by Perry

(1981) when he described Position 9 with the following statement:

> This is how life will be. I must be wholehearted while tentative, fight for
>
> my values yet respect others, believe my deepest values right yet be ready
>
> to learn. I see that I shall be retracing this whole journey over and over--
>
> but, I hope, more wisely. (p. 79)

Although the individual positions in the Perry scheme are certainly important to

understand, the *process* of evolution from one position to the next is also a significant

aspect of the scheme that deserves elaboration.

The evolution or movement through the positions is what Perry (1981) called

"transitions." Perry (1981) stressed that "positions are by definition static, and

development is by definition movement" (p. 78). He asserted that "each Position both

includes and transcends the earlier ones, as the earlier ones cannot do with the later

[positions]. This fact defines the movement as *development* rather than mere changes or

'phases'" (Perry, 1981, p. 78). According to Perry (1981), transition through the positions

does not necessarily occur in a continuous forward motion, toward more differentiated

and integrated meaning making. As King (1978) stated,

> One of the unusual features of this theory, in contrast to other developmental

schemes, is that it provides three alternatives to forward progression throughout the positions. These are "temporizing," where the student delays in a position, explicitly hesitating to take the next step; "escape," where the student is avoiding the responsibility of commitment, seeking refuge in relativism; and "retreat," where a student returns to a dualistic orientation, perhaps to find security and the strength to cope with a too-challenging environment. (p. 39)

Thus, depending on the nature of the environmental interaction (i.e., the balance between challenges and support), a college student's cognitive development may be arrested or in fact the student may temporarily "retreat" to a less differentiated way of knowing in an attempt to cope with environmental circumstances that are overly challenging or stressful. However, when experiences that challenge the adequacy of a student's current constructions of reality and self (called disequilibrating experiences) are accompanied with an appropriate amount of support (e.g., structure and personalism), forward transition through the Perry scheme is facilitated (Perry, 1981).

According to the Perry scheme, actual evolution to a more differentiated world view is facilitated through a series of disequilibrating experiences that precipitate a restructuring of one's way of knowing (Kurfiss, 1977). Experiences with concepts and information that initially present challenges to one's current constructions of reality and self may result in assimilation, which is the incorporation of these concepts into a preexisting understanding. However, continued assimilation of concepts that are not adequately explained by a person's current cognitive constructions of the world result in disequilibration. Ultimately the individual acquires what Piaget (1960) termed

"readiness" to transition to a more adequate (complex) understanding of the world. Therefore, through a balancing of experiential challenge and support, individuals move through the Perry positions by ultimately rejecting their current method of making meaning, and accommodating a more cognitively complex way of knowing. The concept of cognitive development occurring through environmental interaction and accommodation of new, equilibrating meaning making systems has been corroborated by many researchers (see Campbell, 1974, 1975; Guidano, 1984; Jantsch, 1980, 1981; Mahoney & Lyddon, 1988; Popper, 1972; Reynolds, 1981).

Several researchers (Foa et al., 1971; Harvey, Hunt & Schroder, 1961; Kurfiss, 1977) suggested that cognitive development, although advanced by means of interaction with the environment, may be restricted to the specific environment, situation, or challenge encountered. In addition, Rest (1979a) contended that "developmental assessment is instrument specific," and an individual's development (whether cognitive or psychosocial) should be perceived as a "range within which [he/she] operates, depending upon test characteristics, response mode, content domain, or level of attainment" (p. 74). Kurfiss (1977), for example, found that Perry positions varied directly with the content area addressed by the measurement instrument. Kurfiss, therefore, hypothesized that cognitive development is most likely to occur first in those areas with which the individual is most persistently engaged (Sheese & Radovanovic, 1984). Once the individual has advanced through Perry positions in one environment (e.g., academic setting), this experience positively translates to the advancement through Perry positions in other environments or cultures (e.g., business setting).

This notion of cognitive development occurring in an environment-specific context, but positively translating to meaning making in other, different environments or content domains was originally described as "horizontal decalage" by Piaget (1960). According to Kohlberg and Mayer (1972), "Piaget distinguishes between the appearance of a stage and its 'horizontal *decalage*,' its spread or generalization across the range of basic physical and social actions, concepts, and objects to which the stage potentially applies" (p. 490). Thus, for example, there is a difference between the onset of a cognitive stage, say the capacity for relativistic thought, and the utilization of relativistic thought in all aspects of one's experiences (horizontal decalage to all domains). Kohlberg and Mayer (1972) used the aim of education as an example of horizontal decalage when they stated, "education is concerned not so much with age of onset of a child's capacity for concrete logical thought, but with the possession of a logical mind -- the degree to which he has organized his experience or his world in a logical fashion" (p. 490). Incorporation of Piaget's "horizontal decalage" concept into the understanding of transitions through the Perry scheme creates a much more complex depiction of a student's cognitive development.

The significance of this more complex concept of Perry's scheme is that "one proceeds through the nine positions not once, but in cycles across different areas or situations and that the nature of the cycling changes with experience" (Sheese & Radovanovic, 1984, p. 16). In Perry's (1977) words:

> I do not know the geometrical name for a helix with an increasing radius,
>
> as for example a tornado. Let us suppose, however, that we take the

present scheme and twist it round into such an expanding spiral in which it

will be "more advanced" to be wrestling with Position 1 the second or

third time around than with Position 9 the first time around. Then add to

this the necessary "horizontal decalage." I'm sure the metaphor will give a

better fit and that this is the kind of theory we must learn to use. (p. 51)

Perry (1981) commented on the recursive nature of cognitive development and his

"expanding helix" metaphor again when he concluded, "perhaps the best model for

growth is neither the straight line nor the circle, but a helix, perhaps with an expanding

radius to show that when we face the 'same' old issues we do so from a different and

broader perspective" (p. 97). This latest view of the Perry scheme provides a rather

complex and comprehensive view of student cognitive development. King (1978) stated

that the Perry scheme's "rich description of college student development is the strength of

the scheme and the source of its appeal as a tool for understanding college students and

promoting their development" (p. 40). However, despite the popularity of the Perry

scheme and continuing research into its constructs and implications, like all theories, it

has not gone without criticism.

The main criticism of the Perry scheme is the difficulty researchers have in

separating its underlying constructs (King, 1978). The theory incorporates both

epistemological and identity development which creates a complex mixture of

psychological constructs. The first five positions involve the development of cognitive

complexity as students deal primarily with the nature of knowledge, academic issues,

their responsibilities as learners, and responsibilities and roles of professors. The focus of

Perry positions six through nine "is on identity development and making a personally affirmatory commitment in a relativistic world" (King, 1978, p. 40). As King (1978) pointed out,

> the relationship between intellectual and identity development is one which has long intrigued educators and psychologists. While finding both issues addressed in one theory has been a great source of its appeal (and has stimulated many thoughtful questions and activities both in research and practice), it has also made research difficult. (p. 40)

The difficulty is primarily one of assessment. One of the challenges of conducting research with any theory is the measurement of the theory's constructs and the applicability of the measurement instrument across a variety of settings or environments. Development of a measurement instrument for the Perry scheme was no exception.

Measurement of Perry's Scheme

As noted by many researchers, including Foa et al. (1971), Harvey, Hunt, and Schroder (1961), and Kurfiss (1977), cognitive development is advanced through interaction with the environment and may, therefore, be tied to the specific environment, situation, or challenge encountered. This is what Perry (1981) himself illustrated with his "expanding helix" metaphor.

Since Perry's scheme of cognitive development can be viewed as environment specific, measurement instruments that assess Perry positions should also be environment specific, or at least be scored and interpreted in such a fashion so as to take this finding into account (Rest, 1979a). Fortunately, in this matter, research associated with the

measurement of the Perry scheme has focused on college students, and therefore the most

frequently used Perry measurement instruments to date are specific to the

college/university environment (see King, 1990, for a discussion of formal Perry

assessment techniques). Within the higher education environment, however, positions

accounted for by the Perry scheme appear to be established across age groups, gender

differences, academic major, different kinds of institutions, and even, to a limited extent,

cultures (Baxter-Magolda, 1987; Benack, 1982; Cameron, 1984; Knefelkamp, Fitch,

Taylor & Moore, 1984; Moore, 1990a, 1986; Van Rossum, Diekjers & Hamer, 1985).

According to Moore (1990a), Perry's scheme is becoming increasingly important

to higher education in terms of teaching/learning issues (see Boyer, 1987; Knefelkamp,

1974, 1981; Knefelkamp & Cornfeld, 1978; Mason, 1978; Touchton, Wertheimer,

Cornfeld & Harrison, 1978; Widick, 1975). The Perry scheme is also important to higher

education for its ability to facilitate the assessment of outcomes (see Hacker, 1986;

Mentkowski & Strait, 1983; National Institute of Education, 1984). Over the years, and

more recently in response to this increased attention, researchers have developed a variety

of measurement instruments that use Perry's concepts to assess the cognitive complexity

of college students.

Realizing the impractical nature of the unstructured interview used by Perry and

his colleagues, Knefelkamp (1974) and Widick (1975) developed the first alternative to

the interview, which is now called the *Measure of Intellectual Development* (MID;

Moore, 1988a), an instrument using a production-task format (Moore, 1990a). The MID

uses essays and sentence stems, scored by trained raters. Other production-task

instruments have been developed for the Perry scheme, the most notable being the

Measure of Epistemological Reflection (MER; Baxter-Magolda & Porterfield, 1988;

Baxter-Magolda & Porterfield, 1985; Porterfield, 1984; Taylor, 1983). The MER

"assesses the respondent's views in six domains of thinking related to learning and elicits

specific justification for the respondent's thinking" (Pascarella & Terenzini, 1991, p. 124).

In three cross-sectional studies that used the MER, Baxter-Magolda and Porterfield

(1985) found that "seniors were more advanced on the Perry scheme than freshmen, and

graduate students were more advanced than college seniors" (Pascarella & Terenzini,

1991, p. 124). The MID and MER have, therefore, been viable alternatives to the

interview as assessment measures of the Perry scheme.

Although the production-task format used by the MID and MER is more practical

than the unstructured or structured interview, it is still relatively expensive in comparison

to the more standardized instruments employed for other outcome domains (e.g., *Defining*

Issues Test, Rest, 1975, 1979b; *Student Developmental Task and Lifestyle Inventory*,

Miller & Winston, 1990, Winston, Miller & Prince, 1987). Additionally, in order to

obtain acceptable levels of interrater reliability, the production-task format requires

trained raters who have a considerable amount of experience (Moore, 1990a). There are

many other concerns associated with the MID and MER format, including the ability (or

inability) of essays to produce/motivate complex thinking, students exercising selective

disclosure in essays, and content biases. For a thorough discussion of the MID and MER

(as well as other student development assessment techniques), and other broad issues of

concern facing researchers in this field, see Mines (1982).

An alternative to the interview and production-task formats is the objective, recognition-task instrument. According to Moore (1990a), "These instruments have the advantage of being easily administered and scored, but the development of such instruments is hindered by the complexity and nature of the phenomenon being measured" (p. 3). Recognition-task instruments, in general, utilize multiple choice/checklist, preference-type responses. These instruments can, therefore, be standardized and objectively, inexpensively scored and interpreted. Several researchers have developed recognition-task assessment instruments for the Perry scheme (e.g., *Scale of Intellectual Development*, Erwin, 1983; *Learning Context Questionnaire*, Griffith & Chapman, 1982; *Cognitive Developmental Inventory*, Parker, 1984), but the *Learning Environment Preferences* (LEP; Moore, 1987, 1988b) measurement instrument, in particular, has received considerable attention and is widely used in research projects as well as institutional outcomes assessments (Moore, 1990a).

From the data collected using the MID, Moore (1988b) constructed the LEP, an easily administered, objectively scored measure of the Perry scheme. As the name implies, the LEP was designed to be employed within the academic/learning environment, assessing college student populations. Although the instrument is learning environment specific, in order to assess all aspects of this single setting, it addresses five domains/situations within the learning environment: course content/view of learning, role of instructor, role of student/peers, classroom atmosphere/activities, and evaluation procedures.

The LEP has also undergone statistical evaluations to determine the reliability and

validity of its five assessment scores. Internal and test-retest reliability as well as the

construct, criterion, and concurrent validity of the LEP have been found to be

scientifically acceptable (Moore, 1988b; Moore, 1989). There are five assessment scores

derived from the LEP. The instrument provides four subscores ("position preference

percentages") for Perry positions, ranging from P2 (Perry position 2, dualism) to P5

(Perry position 5, R or Relativism Index). The fifth assessment score, Cognitive

Complexity Index (CCI), is derived from the four position preference percentages. The

CCI has performed better empirically than the Relativism Index (the percentage of P5

responses), probably because it is calculated from all of the position preference

percentages (Hager, Pickering, Bowers, Schollaert, 1991; Moore, 1990b). The CCI is a

single numerical index, representing a continuum/scale of intellectual development from

Perry position 2 through 5, including transitions between positions (Moore, 1988b).

It might be said that movement ("development") along the CCI scale represents a

student's ever increasing ability to differentiate cognitively between elements within the

learning environment. As students move from dualism (P2) to multiplicity (P3), for

example, they are developing the ability to differentiate more precisely, moving from a

view of knowledge as right or wrong to an epistemic structure that includes knowledge

that is right or wrong and knowledge that is not yet known. It is this connection between

Perry's concept of cognitive complexity and one's ability to make meaning through

cognitive differentiations that links Perry's scheme (in concept) to Fiedler's (1967) view

of leadership style.

Cognitive Complexity and Leadership Style

Foa et al. (1971) drew a connection between leadership style and cognitive

complexity by equating leadership style (and its associated effectiveness) to the ability to

differentiate cognitively between elements of the situation. In essence, they inferred that

the LPC measure is not only a measure of leadership style, but also a measure of

cognitive complexity. More specifically, one might say that leaders' ability to

differentiate (cognitive complexity) between situational elements such as the followers'

task versus interpersonal behavior and the group's versus their own behavior is their

leadership style. Although there have been mixed findings (Fishbein et al., 1969; Larson

& Rowland, 1974), numerous researchers have supported this contention with statistical

results that demonstrate a relationship between the LPC measure and cognitive

complexity (Hardy, Carey, Eberwein & Eliot, 1976; Hill, 1969; Mitchell, 1970; Sashkin

et al., 1974; Schneier, 1978; Singh, 1983; Streufert, Streufert & Castore, 1968). This

contention has also been supported rather indirectly through the establishment of a

relationship between the LPC measure and empathy (Woodall & Kogler Hill, 1982) and

between the LPC measure and creativity (Jacoby, 1968), two abilities that might be

considered to have associations with cognitive complexity.

On the basis of the aforementioned research, Fiedler's concept of leadership style

might reasonably be likened to Perry's notion of cognitive complexity. In fact, although

Perry's theory is never explicitly mentioned or cited, researchers have used classic

descriptions of Perry positions while describing low and high-LPC leaders. Mitchell

(1970), for example, who published his widely cited study on leader complexity and

leadership style the same year Perry first published his book, described low-LPC leaders as classic dualists and high-LPC leaders as individuals who Perry would classify as relativistic when he stated:

> Finally, if low-LPC people tend to perceive relatively little differentiation within each individual, so that one appears as "good" or as "bad" in a relatively undifferentiated manner, it follows that low-LPC people should also perceive two different people either as very similar (both good and bad, etc.) or as very different (one good and the other bad, etc.). Thus, he will be more likely to classify individuals into well-defined stereotypes.
>
> Conversely, if cognitions about an individual are differentiated into several dimensions, with both positive and negative traits, as seems to be true of the high-LPC person, then the good individual is likely to have some negative traits and the bad individual, some positive ones. Thus, the overall difference between a good individual and a bad one will appear smaller to the high-LPC subject. He will also be less likely to think in terms of stereotypes. (p. 168)

Cognitive complexity, in Perry's terms, and leadership style, in Fiedler's terms, are thus related in their fundamental, defining characteristic of one's ability to differentiate between aspects of the environment and others. Furthermore, these two theoretical concepts also share a relationship in terms of the method of their development. Each theory conforms to the notion that its construct, whether it is cognitive complexity or leadership style, is relatively stable over time and development or change only occurs as a

result of interacting with conflicting or disequilibrating environmental stimuli.

As noted earlier, Sheese and Radovanovic (1984) found that the disequilibrating environmental stimuli that may promote cognitive development to the next higher stage are associated with development that is situation specific. More specifically, they believe that the development of cognitive complexity is situation specific and development is most likely to occur in those areas with which the individual is most persistently engaged. Foa et al. (1971) contended that this is also true for the development of one's leadership style in terms of ability to differentiate within specific situations. Foa et al. (1971), in a statement that would apply equally well to Perry's theory of student cognitive development, described how leadership style develops as per specific situations/environments:

> The structure of the environment provides a model or a template for
> building the cognitive structure. Since environments change their
> demands for differentiation, an individual may continually have to learn
> how much he needs to differentiate. Where he fails to do so, problems in
> matching may bring about ineffective task and interpersonal behavior. (p.
> 131)

The ineffective task and interpersonal behavior, then, act as the disequilibrating experience that induces individuals to alter their level of differentiation, or in more general terms and in the long run, their epistemic structure. "A given degree of differentiation may be learned by...receiving rewards and punishments contingent upon the differentiated behavior" (Foa et al., 1971, p. 141). This process of learning accurate

differentiation matching (matching one's level of cognitive differentiation to the amount of differentiation required by the situation) is in accordance with Perry's concept of cognitive development as advancing through more complex forms of understanding in a cyclical and environment-specific fashion. Leadership development can, therefore, be conceived in terms of the "expanding helix" model of the cognitive developmental process that Perry (1981) described.

Perry's and Fiedler's theories, with regard to cognitive complexity and leadership style, respectively, are then fundamentally related on the grounds of their developmental process and the theoretical construct of cognitive differentiation. Cognitive complexity and leadership style are two of three principle components of the present research. The third principle component is empathy, which shares the cognitive differentiating commonality just identified between cognitive complexity and leadership style.

Empathy

Components of Empathy

There is a large amount of empathy research, a great deal of which is associated with counselor training. The focus of much of this research has been the determination of methods of developing the empathic ability of students in counselor training programs (Benack, 1988; Brammer & Shostrom, 1968; Carkhuff, 1969a; Carkhuff & Pierce, 1975; Egan, 1975; Krumboltz & Thoresen, 1976; Yager & Hector, 1980). Inherent in the process of determining how a human attribute can be developed is the task of analyzing and defining the components of the characteristic. Empathy has been typified as possessing phenotypic, genotypic, simulated, communicated, affective, and cognitive

components, among others (Benack, 1988; Greenson, 1960; Hogan, 1975; Strohmer,

Briggs, Haase, & Purcell, 1983).

Researchers have debated about whether or not each type or aspect of empathy

can be trained or developed. Hogan (1975), commenting on trait versus state empathy,

noted:

> To the degree that trait empathy has its roots in genetic factors,
>
> intelligence and early experience, its expression in adulthood should be
>
> relatively impervious to short-term training programs. On the other hand,
>
> simulated or state empathy should be relatively easy to model and/or train.
>
> (p. 17)

Aspy (1975) concluded that "we have developed systematic empathy training programs

which are at least moderately successful with both large and small populations" (p. 14).

He goes on to assert that "it is possible to launch rigorous efforts to expand the empathic

understanding skills of the people all around the world" (Aspy, 1975, p. 14). Wilson

(1993) contended that it is in association with others (initially in families) that we can and

do develop the capacity for empathy.

If at least certain aspects of empathic ability can be enhanced, how might this

occur? Based on research comparing the empathic ability of a variety of populations,

Hogan (1975) outlined four factors that might facilitate the development of empathy.

First, he contends that parents who strive to impart to their children such values as

consideration of the rights of others facilitate the development of empathy in their

children. Second, Hogan (1975) stated, "empathic tendencies can almost surely be

modeled; thus, empathic parents will tend to raise empathic children" (p. 16). Third, the

actual experience of a wide variety of affective states is critical to the ability to

empathetically relate to another with such affections. Finally, Hogan (1975) contented

that empathic capacity can be enhanced through cognitive development. He stated, "there

is undoubtedly an intellectual component to empathy...an empathic disposition facilitates

a relativistic perspective" (Hogan, 1975, p. 16).

Of importance in the current study is the cognitive aspect of empathy. In

particular, the cognitive-differentiating aspect of empathy is of importance in so much as

it relates to Fiedler's concept of leadership style and Perry's theory of cognitive

development. As noted earlier in this discourse, Greenson (1960) was the first to view

empathy as a dual process consisting of two complementary components, "affective-

identifying" and "cognitive-differentiating." The affective-identifying function of

empathy allows individuals to "release" their own perspective and take the role of

another, imaginatively perceiving the beliefs and feelings of the other. The cognitive-

differentiating function of empathy allows the individual to differentiate one's own

experience and perspective of "reality" from that of another. Iannotti and College (1975)

astutely illustrated the dual processes of empathy when they stated,

> It is not sufficient that the observer correctly understand the other's
>
> situation. In addition, the observer must know that it is the other's and not
>
> his own view of the situation which he is understanding, i.e., the observer
>
> must "differentiate cognitively among several aspects of an event and
>
> between his own and others' points of view" (Looft, 1972, p. 74). (p. 22)

This cognitive-differentiating component of empathy is conceptually congruous with Perry's notion of cognitive complexity and Fiedler's idea of leadership style, as previously discussed. Beyond conceptual compatibility, however, research has empirically linked empathy to cognitive complexity.

<div align="center">Empathy and Cognitive Complexity</div>

Many studies have shown significant differences in levels of empathy, and various cognitive as well as affective factors seem to account for these differences (Blaas & Heck, 1978; Carkhuff, 1969b; Carkhuff & Alexik, 1967; Carkhuff & Pierce, 1967; Mahon & Altman, 1977). According to Heck and Davis (1973), cognitive complexity is an important cognitive factor in the communication of empathy. They found that counselors who demonstrated higher levels of empathy also scored higher on a measure of cognitive complexity. Research points to an individual's ability to process information as the fundamental bond between cognitive complexity and empathy (Blaas & Heck, 1973).

Blaas and Heck (1973) concluded, in particular, that cognitive complexity may be important in the communication of higher levels of empathy because of the complex decoding skills required when processing the multidimensional sources of information. This conclusion seems to be supported by the information processing literature. An individual who has a high level of cognitive complexity might be expected to make finer discriminations of social stimuli, use comprehensive rules for integrating conflicting information, possess internal standards for evaluating stimuli, and be more tolerant of ambiguity (Schroder, Driver, & Streufert, 1967). Schroder et al.'s (1967) research, for example, indicated that the ability to process and discriminate between stimulus features

of a task was qualitatively different across individuals varying in cognitive complexity.

The results of Strohmer, Biggs, Haase, and Purcell's (1983) research also supported the information processing link between cognitive complexity and empathy. In a sample of graduate counseling students, Strohmer et al. (1983) found a significant cognitive complexity main effect, which indicated that "the overall level of empathic response was higher for students with high cognitive complexity scores than for students with low cognitive complexity scores" (pp. 136-137). In their concluding statements, Strohmer et al. asserted that their study "supports previous research suggesting that cognitive complexity is significantly related to empathy" (p. 137).

The relationship between cognitive complexity and empathy, then, has been empirically demonstrated. Additionally, the nature of this relationship can be explained in terms of information-processing (Blaas & Heck, 1973; Strohmer et al., 1983) and cognitive-differentiating (Benack, 1984, 1988; Greenson, 1960) functions. Important to the present research, however, is the concept of cognitive complexity with regard to meaning making, way of knowing, or epistemic structure. This is Perry's (1998) view of cognitive complexity, as was outlined earlier. Benack (1984), Lovell (1990), and Mason (1978) are examples of three researchers who have found a direct and positive relationship between Perry's notion of cognitive complexity and the empathic ability of college students.

Lovell (1990), in a large sample of counseling students, found that empathy developed in a stage-wise fashion and in direct relation to the students' cognitive development. Preference for the lower positions on the Perry scale was negatively

correlated with empathy while preference for higher positions, representing cognitively complex students, was positively correlated with empathy. Benack (1984) also studied the relationship between Perry's concept of cognitive complexity and empathy. She argued that people who are less cognitively complex usually do not differentiate between their own experiences and experiences of others, whereas individuals who are more cognitively complex might be able to differentiate between these realities, thereby enhancing their empathic ability to understand other individuals' experiences. Finally, Mason (1978), in a sample of counseling graduate students, found a direct and significant correlation between empathy and Perry's conception of cognitive complexity.

In addition to Lovell's (1990), Benack's (1984), and Mason's (1978) research, there is other direct evidence of the connection between empathy and an epistemic understanding of cognitive complexity. During the validation of the Scale of Intellectual Development (SID), an objectively scored instrument designed to measure the Perry scheme, Erwin (1983) found empathy to be one of four sub-scales to surface in a factor analysis. Erwin (1983) noted, "the fourth factor of Empathy was not based on Perry's scheme but was interpreted from the items that clustered together to form this fourth factor" (p. 7). Individuals scoring high on the empathy sub-scale of the SID "have made major life decisions and also are aware of their impact on other people. These people have developed a sensitivity about other people and feel responsibility for improving society in general" (Erwin, 1983, p. 7). Erwin (1983) went on to state that because the validation research included freshmen students only, caution should be taken in the interpretation of the empathy sub-scale "because too few freshmen in this sample have

reached this 'highest' developmental level" (p. 8).

Taken collectively, then, Erwin's (1983) findings and those of Lovell (1990),

Benack (1984), and Mason (1978) point to the conclusion that as students move through

the Perry positions, becoming more cognitively complex, they become more readily able

to evaluate their own emotions and thoughts in relation to those of others (employ

empathy). The relationship between empathy and cognitive complexity, then, has been

well documented. This relationship is one of the central themes in the present research,

but so too is the relationship between empathy and leadership style.

Empathy and Leadership Style

As noted previously, Benack's (1984) discourse on the cognitive-differentiating

function of empathy is closely tied in concept to Fiedler's view of leadership style.

Fiedler's conception of leadership "style" can be interpreted as the leader's tendency and

ability to differentiate between situational variables. It might be suggested that greater

empathic ability would be associated with an individual who, according to a cognitive

developmental (versus behavioral) view of leadership style, possesses a style of

leadership characterized by the ability and tendency to differentiate between a wide

variety of elements in the environment or leadership "situation." If an individual were

employing a "situation-differentiating" style of leadership (from Fiedler's perspective) and

a "cognitive-differentiating" function of empathy (from Benack's perspective), he or she

should be able to "step back" from his or her own perspective, and be able to differentiate

his or her experience from the experiences of others (employ empathy). This notion of

empathy being related to Fiedler's concept of leadership style (ability to differentiate

between environmental variables, resulting in a characteristic way of understanding or making meaning of the environment) has been directly tested by Woodall and Kogler Hill (1982).

Citing Hardy, Carey, Eberwein, and Eliot (1976), Woodall and Kogler Hill (1982) noted:

> one feature of cognitive style, the ability to take the spatial viewpoint of others, is related to style of leadership and suggests that empathy, or the ability to understand others' attitudinal viewpoints, is a predictor of style. Hardy, *et al.* further suggested that spatial viewpoint-taking was based on the same cognitive structure as taking the attitudinal viewpoint of others. (p. 800)

In a sample of undergraduate students, Woodall and Kogler Hill (1982) tested Hardy, et al.'s (1976) suggestion and found that predictive empathy (the degree to which one can predict the attitudinal viewpoint of another) was a significant predictor of style of leadership, as defined by Fiedler's (1967) Least Preferred Coworker scale. Woodall and Kogler Hill (1982) went on to state that "given the modest relationship obtained here between predictive empathy and style of leadership, research should identify other factors which, singularly and in combination with empathy, are components of leadership style" (p. 802). As heretofore delineated, the author of the current study endeavors to do just that, by investigating the capacity of cognitive complexity and empathic ability, separately and jointly, to predict leadership style.

The present study employed the Hogan/Em (Gough, 1987; Hogan, 1969) scale to measure empathy. The Hogan/Em was also used by Lovell (1990), who found a direct

relationship between the empathy measure and cognitive complexity. The Hogan/Em is

"designed to measure the degree to which a person is able to 'put himself/herself in

another person's place,' to be sensitive to the feelings of others and to be able to exchange

roles" (Foltz, 1984, p. 18) and is the definition of empathy used in this study. More detail

on the Hogan/Em scale is presented in Chapter 3.

<div align="center">Summary</div>

Chapter 2 presented a review of the academic literature relevant to the three fields

of study incorporated in the present research. The first section focused on leadership style

and leadership development. It included subsections on the history of leadership

research, critiques of theories that define leadership style in terms of leader behavior

(behavioral paradigm), and a review of Fiedler's (1967) theory which is associated with a

cognitive understanding of leadership style (cognitive paradigm). The second section

examined research on cognitive complexity and its development. Subsections included a

critique of student cognitive development theories, a detailed review of the Perry scheme,

and a concluding section on the relationship between cognitive development and

leadership style. The final section drew together the three areas of interest in the current

study by reviewing the components of empathy and the associated research on empathy's

relation to cognitive complexity and leadership style.

Empirical research on leadership and later its development began in the early part

of the 20th century. The initial focus was on the formation of leadership trait taxonomies.

Stogdill's (1948) review of the leadership trait studies marked the end of research touting

personal traits as the sole determinant of leaders. According to Chemers (1994),

academicians interpreted Stogdill's conclusions as pointing to almost 50 years of personality trait research that never identified a single trait universally associated with leadership. Although Stogdill's actual recommendation was to study traits in conjunction with situational variables, his benchmark review had a major impact on stifling research dealing with individual leader attributes (Chemers, 1994).

Stogdill's review included only those studies involved in leader trait research, but there were many studies in the 1920s and 1930s that focused on situational determinants of leaders (e.g., Hocking, 1924; Person, 1928; Schneider, 1937). In contrast to the trait research, these studies, conducted by researchers who became known as "situationalists," contended that leaders were produced as a result of time, place, and circumstance. It was not until the 1960s that it was commonly agreed that neither trait theorists nor the situationalists were solely correct in their arguments.

Incorporating both the trait and situationalists perspectives, the "personal-situational" theories emerged in the 1960s and explored the interaction between the leader's personal attributes and the leadership situation. These theories were the precursors to numerous theories leading up to the present day which take into consideration multiple moderating variables in the determination of leadership style and effectiveness. The past 40 years have resulted in a myriad of leadership theory classifications and labels (e.g., contingency, transactional, transformational, charismatic), but no matter what the category, there are two common patterns or paradigms into which most of these leadership theories seem to fall. These can be called the behavioral and cognitive paradigms.

Leadership theories that fall into the behavioral paradigm consider leadership style and leader behavior to be synonymous and assert that the leader can alter style/behavior to deal more effectively with situational variables. In contrast, the cognitive paradigm considers leadership style to be antecedent to leader behavior, not synonymous. Leader behavior is thought to be a result of the interaction between a relatively fixed or stable leadership style and variable situational factors. Fiedler's (1967) theory is unique among leadership theories because it conforms to what might be termed a cognitive paradigm of leadership style.

Fiedler's (1978) conception of leadership style can be explained in terms of the leader's ability and tendency to differentiate between situational variables, resulting in a characteristic way of understanding or making meaning of the environment. The better the match between the leader's ability to differentiate between situational variables (i.e., the leader's cognitive complexity) and the number of differentiations required by the environment (i.e., situational complexity), the more effective the leader (Foa et al., 1971). Fiedler's theory, then, easily lends itself to a cognitive developmental approach to leadership development. Leadership "style" as explained in cognitive developmental terms, can be readily viewed and interpreted through Perry's (1998) theory of ethical and intellectual development.

Perry (1998) and Fiedler (1967) focused on different aspects of an individual's functioning, but both theorists were concerned with the way in which an individual conceptualizes the world and the extent to which the person differentiates between environmental elements. The Perry (1981, 1998) scheme outlined the stages through

which individuals progress as they move from a polarized, absolutist view of the word

(dualistic), to a cognitively complex, differentiated way of knowing (relativistic).

Cognitive development occurs as a result of interactions with the environment over time.

Individuals will presumably accommodate a more differentiated (complex) way of

knowing to make more adequate meaning of their experiences (Kurfiss, 1983). The

extent to which one differentiates cognitively between environmental stimuli is a

common theme between Fiedler's (1967) concept of leadership style and Perry's (1998)

notion of cognitive development. Like leadership style and cognitive complexity,

empathy has also been defined as having a cognitive-differentiating component (Benack,

1984, 1988; Greenson, 1960).

Empathy's cognitive-differentiating feature was first described by Greenson

(1960) and later empirically demonstrated by Benack (1984). In essence, to be empathic

it is important to be able to differentiate between one's own experiences and the

experiences of others. Benack (1984, 1988) and other researchers showed that there is a

significant relationship between empathy and Perry's concept of cognitive complexity

(Erwin, 1983; Lovell, 1990; Mason, 1978). In other words, there is a direct and positive

association between understanding the world (i.e., one's experiences) in a highly

differentiated and complex manner and one's ability to be empathic (i.e., differentiate

between one's own experiences and experiences of others).

Although the notion of one's ability and tendency to differentiate cognitively

between environmental stimuli seems to provide a theoretical nexus between leadership

style, cognitive complexity, and empathy, the relationship between all three of these

variables has never been empirically explored. The present study, with its focus on the development of leaders in complex (urban) environments, took the first step in understanding the relationship between these variables. The present research endeavored to examine leadership style in light of cognitive developmental theory by investigating the capacity of cognitive complexity (Moore, 1987) and empathic ability (Gough, 1987; Hogan, 1969), separately and jointly, to predict leadership style (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987).

CHAPTER III

METHODOLOGY

The purpose of the study was to examine leadership style in light of cognitive developmental theory by investigating the capacity of cognitive complexity and empathic ability, separately and jointly, to predict leadership style. The study, therefore, tested the following hypotheses:

1. In a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the Cognitive Complexity Index (CCI) on the Learning Environment Preferences (LEP; Moore, 1987) instrument, accounts for a statistically significant ($p < .05$) amount of variation in leadership style, as measured by the Least Preferred Coworker (LPC; Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) scale.

2. In a sample of urban college undergraduate and graduate students, empathy, as measured by the independent Hogan/Em subscale of the California Psychological Inventory (CPI; Gough, 1987), accounts for a statistically significant ($p < .05$) amount of variation in leadership style, as measured by the LPC scale.

3. In a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the CCI, and empathy, as measured by the Hogan/Em, jointly account for a statistically significant ($p < .05$) amount of variation in leadership style, as measured by the LPC scale.

It was expected that the LPC score would mirror cognitive complexity, such that

the greater the participants' capacity to differentiate between situational variables, the greater their cognitive complexity, regardless of education. It was also expected that graduate students would possess greater cognitive complexity and be more empathic than undergraduate students, regardless of leadership style. Accordingly, two additional hypotheses were tested:

4. In a sample of urban college undergraduate and graduate students, participants scoring high (above the mean item score of 4.06) on the LPC will obtain a statistically significantly ($p < .05$) higher mean score on the dependent measures of cognitive complexity (CCI) and empathy (Hogan/Em) than participants scoring low (below the mean item score of 3.56) on the LPC, regardless of education level.

5. In a sample of urban college undergraduate and graduate students, graduate students will obtain a statistically significantly ($p < .05$) higher mean score than undergraduate students on the dependent measures of cognitive complexity (CCI) and empathy (Hogan/Em), regardless of leadership style (LPC).

The five hypotheses tested were designed to determine: (a) to what extent cognitive development/complexity (CCI) and empathic ability (Hogan/Em), separately and jointly, account for or predict Fiedler's (1967) notion of leadership style (LPC score); (b) whether differences in Fiedler's (1967) notion of leadership style (high-LPC participants versus low-LPC participants) are associated with differences in cognitive development (CCI) and empathy (Hogan/Em); and (c) whether differences in college education level

(undergraduate versus graduate) are associated with differences in cognitive development (CCI) and empathy (Hogan/Em).

Design

Two research designs were used to test the hypotheses. Hypotheses 1, 2, and 3 were tested using a correlational design with simultaneous multiple regression (Hypothesis 3) and simple regression (Hypotheses 1 and 2) analyses. A correlational design using multiple regression analysis was employed to test Hypothesis 3 because it required a "technique for determining the correlation between a criterion variable and a combination of two or more predictor variables" (Borg & Gall, 1989, p. 601). In this instance, the criterion variable was leadership style (LPC) and the predictor variables were cognitive complexity (CCI) and empathy (Hogan/Em). Hypotheses 1 and 2 required simple regression (bivariate analysis) because a single predictor variable was used in the regression or prediction equation (Hair, Anderson, Tatham, & Grablowsky, 1979). The CCI in Hypothesis 1, and Hogan/Em in Hypothesis 2, were used in separate simple regression analyses as predictor variables with the LPC criterion variable. A detailed description of the statistical analyses used in this study can be found in the Statistical Analysis section of this chapter.

A second research design was used to test Hypotheses 4 and 5. These hypotheses, focusing on differences between groups, were tested using a causal-comparative design and between-subjects multivariate analysis of variance (MANOVA). A causal-comparative design was used because the variables in this study, leadership style, cognitive complexity, empathy, and education level, cannot be randomly assigned and

experimentally manipulated. Borg and Gall (1989) have described the causal-comparative design as being "aimed at the discovery of possible causes and effects of a behavior pattern or personal characteristic by comparing subjects in whom this pattern or characteristic is present with similar subjects in which it is absent or present to a lesser degree" (p. 537). Hypotheses 4 and 5 call for the comparison of subjects who vary on the characteristics of leadership style and education level with respect to their scores on measures of cognitive complexity and empathic ability.

<div align="center">Subjects</div>

Participants in the study were 160 undergraduate and graduate students enrolled at Old Dominion University located in the city of Norfolk, Virginia. Participants were students enrolled in undergraduate and graduate courses that were randomly selected from all potential courses taught at the university during the 1998 spring semester. Of those courses randomly selected, measurement instruments were administered to enrolled students based on the course instructor's willingness to participate in the study. The study, therefore, utilized a sample of convenience. See Chapter 4 for a description of sample demographics.

According to Borg and Gall (1989), "In correlational research it is generally desirable to have a minimum of 30 cases. In causal-comparative and experimental research, it is desirable to have a minimum of 15 cases in each group to be compared" (p. 233). The causal-comparative design of the present study, then, dictates the minimum number of participants required in that four groups were compared in a 2 X 3 between-subjects factorial design. According to Borg and Gall's (1989) formulation, 90

participants, 15 in each of 6 cells, would be the minimal sample size required for this study.

Although 90 is the minimal sample size for the current research, a statistical power analysis was conducted to determine the optimal sample size. Creswell (1994) noted that the appropriate sample size for a particular study "can be accomplished through the use of power tables, which provide the number of subjects for each group in the experiment, given the effects of power or sensitivity of the experiment, the effect size, and the significance level" (p. 128). Sample size, power, effect size, and significance level are so related that "when any three of them are fixed, the fourth is completely determined" (Cohen & Cohen, 1983, p. 59). Determination of sample size from power tables, therefore, requires known values of effect size (ES), significance level (or alpha), and the desired power of the statistical test.

"The power of a statistical test is the probability that it will yield statistically significant results" (Cohen, 1988, p. 1). It is generally accepted that "a power of about .80 represents a reasonable and realistic value for research in the behavioral sciences" (Keppel, 1991, p. 75). Although .80 is considered the power convention (Cohen, 1988; Hinkle & Oliver, 1983; Kirk, 1982), the present research used a somewhat higher power of .90 in the determination of sample size.

Another factor in the determination of sample size is effect size, which for the current research is the degree to which the LPC is explained or predicted by the LEP and Hogan/Em in the population. This population statistic is unknown, however, "conventional magnitudes of r corresponding to small, medium, and large ES that have

been suggested as appropriate at least for many areas of psychological investigation are r = .10, .30, and .50, respectively" (Cohen & Cohen, 1983, p. 61). The current research took the conservative approach and employed the small ES convention of .10, which with other factors being equal, would prescribe a larger sample size than if a larger ES had been posited. The smaller the ES, the larger the sample size necessary to detect it (Cohen, 1988). If the ES is conservative or underestimated, the larger sample size dictated by the underestimate will result in a more powerful test for significance (as sample size increases, power increases).

Another convention was used for the level of significance set for the statistical tests in the current research. The significance criterion, or the probability of an effect occurring by chance, was set at .05. According to Cohen (1988), "the .05 significance criterion, although unofficial, has come to serve as a convention for a (minimum) basis for rejecting the null hypothesis in most areas of behavioral and biological science" (p. 12).

Using the formula and table provided by Cohen and Cohen (1983) the optimal sample size for the present research was determined to be 130 (129.5 was the actual value derived from the calculation). This calculation was based on two independent or predictor variables (LEP and Hogan/Em), a conservative effect size of .10, a desired power of .90 for the F test of the significance of $\underline{R}^2$, and a significance level or criterion of .05. Thus, if in the population 10% of the variation in the LPC is explained by the LEP and Hogan/Em (a conservative ES), 130 participants are needed to detect ($\underline{p} < .05$) this effect with 90% probability. Anticipating participant attrition (unreturned or incomplete

assessment packets), the experimenter over sampled, resulting in a sample size of 160.

Using Cohen and Cohen's (1983) formula for determining power given a specified sample

size, the power for the present study was .97.

<div align="center">Instruments</div>

All participants were administered a biographical questionnaire along with the

LPC (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987), LEP (Moore, 1987), and

Hogan/Em scale of empathy (Gough, 1987) measurement instruments. The four

instruments are short, paper and pencil tests that were easily administered. Pilot

administration determined that although no more than 55 minutes were required for the

administration of all measures, the time required exceeded the average 50 minute class

session. The measurement instruments were, therefore, completed by participants outside

of the scheduled class time. See the Procedures section of this chapter for a detailed

explanation of instrument administration.

<u>Least Preferred Coworker</u>

Leadership style was operationally defined by Fiedler's (Fiedler & Chemers, 1984;

Fiedler & Garcia, 1987) LPC measure, which can be interpreted as an individual's

capacity to differentiate cognitively between elements in the environment. The LPC

instrument (Appendix A) is an 18 item bipolar adjective checklist (Fiedler & Chemers,

1984; Fiedler & Garcia, 1987). Each item ranges on an 8 point scale. The LPC score is

obtained by totaling the item scores, therefore, the maximum score is 144 and minimum

score is 18. More detail on LPC and its development can be found in Chapter 2.

Fiedler's concept of leadership style, although representing a continuum, has been

summarized dichotomously, in terms of whether one scores in the upper (high LPC) or lower (low LPC) third of the mean score distribution. Individuals scoring above the mean item score of 4.06 are classified as "high LPC," and those scoring below the mean item score of 3.56 are considered "low LPC" individuals (Fiedler & Chemers, 1984). Posthuma (1970) reported the LPC normative mean item score as 3.71 (N = 2014, SD = 1.05). Numerous studies have explored the LPC's validity and reliability, and many studies have used the LPC to measure the leadership style of a wide cross section of university undergraduate and graduate students (Fox, 1976; Offermann, 1984; Rice, 1978a, 1978b, 1981; Rice & Kastenbaum, 1983).

Rice (1978a, 1978b) reviewed 25 years of reliability and validity literature leading up to and including the latest version of the LPC and found that although there have been some inconsistent results, in general, the LPC possesses strong reliability in terms of both internal consistency and stability. Rice (1978b), using Fisher's Z transformation across seven studies, computed the average split-half (internal consistency) reliability coefficient as .88 (SD = .33, n = 7). The average test-retest (stability) reliability coefficient across five studies was found to be .72 (SD = .29, n = 5), with coefficients ranging from .85 to .46 and test-retest periods ranging from 3 weeks to 5 months.

Most studies of the LPC construct validity have focused on the instrument as a measure of leader task and relationship orientation as well as leader cognitive complexity (differentiation ability). These two LPC construct interpretations are complementary in nature. Foa et al. (1971), for example, tested the construct validity of the LPC as a measure of a leader's cognitive differentiation ability and found results that "support the

idea that the high LPC leader differentiates more than the low LPC leader between task and interpersonal behavior, as well as between his own behavior and group behavior" (p. 134). Differences in cognitive differentiation capacity between high and low LPC participants were statistically significant at the $p < .01$ level. The LPC, then, can be considered a valid instrument for assessing the construct of leadership style as defined in terms of one's ability to differentiate between situational variables (i.e., task and relationship variables).

Learning Environment Preferences

Moore's (1987) LEP (Appendix B) measures Perry's (1998) scheme of intellectual and ethical development. The CCI, a subscale of the LEP, was used to define the participants' cognitive complexity. Use of the LEP in the present study was authorized under a site agreement maintained by the university at which the study was conducted (Moore, personal communication, November 11, 1997). Participants used an opscan response form while completing the LEP. The participant LEP raw scores were then read into a data set from the opscan sheets. The raw score data set was used as input in an existing computer program (Pickering, 1998b) which replicates Moore's scoring algorithm and produces the four Perry position and position percentage scores as well as the CCI for each participant. The computer program used to score the LEP was written in the SAS programming language (SAS Institute Inc., 1990). More detail on the LEP and its development can be found in Chapter 2.

Moore's (1987) original study, in which he described the development of the LEP, stands as the primary source of information on the instrument's reliability and validity.

Reliability has been tested for both internal consistency and stability (Moore, 1987).

Across the four Perry positions measured by the LEP, Cronbach's coefficient alpha ranged

from .72 to .84, indicating an internal consistency that is "more than adequate" (Moore,

1987, p. 145). Test-retest reliability (stability) is equally impressive with a one-week test-

retest correlation coefficient of .89 for the CCI.

The criterion, concurrent, and construct validity of the LEP have also been found

to be acceptable (Moore, 1987). Statistically significant CCI mean criterion group

differences across student classification (freshmen through seniors) have been shown.

The statistically significant classification main effect, $F(3, 462) = 3.8$, $p = .01$, revealed a

"consistent upward trend one would expect from a measure of development" (Moore,

1987, p. 147). In terms of concurrent validity, the CCI is moderately (.36) correlated with

the Measure of Intellectual Development (MID), another measure of the Perry scheme.

This level of correlation is "consistent with other intercorrelations between

developmental instruments, including the MID" (Moore, 1987, p. 152). Construct

validity was tested by examining position preference percentages as well as factor

analyses. In 78.2% of the cases, the two highest position preferences were adjacent,

"indicating a strong and consistent focus on items from contiguous conceptual areas

based on the Perry scheme" (Moore, 1987, pp. 155-156). Factor analysis revealed, as

expected, four factors with statistically significant eigenvalues. As Moore (1987) pointed

out, two factors "reflect distinct Perry positions (two and three, respectively)" (p. 169)

while the other two factors "reflect two distinct areas highlighting the cognitive

progression through the 4/5 transition" (pp. 169-170). In Moore's original (1987) study,

then, the LEP was shown to be a reasonably reliable and valid measure of the Perry scheme.

Although Moore's (1987) original study still stands as the most comprehensive effort at determining the LEP's reliability and validity, many other studies have used the LEP as a primary measure of cognitive complexity (Elliott & Stern, 1996; Granello, personal communication, September 24, 1997; Lamb, personal communication, September 25, 1997; Lima, personal communication, October 11, 1997; Lovell, 1997; Papa, 1994; McGovern & Valiga, 1997; Rasmussen, personal communication, September 25, 1997; Stern & Elliott, 1997; Turner, personal communication, September 25, 1997). These studies have bolstered the measure's reliability and validity across a range of participant characteristics. For example, Lovell (1990), referencing his study which involved a national sample of graduate counseling students, stated, "it may be concluded that the LEP 'taps into' the social-cognitive sphere in meaningful ways. As a consequence, the LEP has gained in validity from the present work; future researchers may turn to the LEP with added confidence" (p. 201). Wilson (1996) used the LEP in a descriptive study focusing on diversity issues. Her population included African-American and Hispanic students. Additionally, Old Dominion University's Assessment of Academic Achievement (AAA) Committee adopted the LEP as the measure of cognitive development in its research focusing on assessment of the university's general education goals. In reference to using the LEP in Old Dominion University's assessment study, Hager et al. (1991) stated, "Moore (1988b) felt that the LEP was a reliable and valid measure of cognitive development based on the Perry scheme and the AAA

Committee on the Assessment of Affective Development concurred" (p. 13). Based on

Moore's (1987) original study, and subsequent research, the LEP can be considered a

valid and reliable instrument for assessing the construct of cognitive development, as

defined by the Perry scheme, in a college student population.

Hogan/Em Scale

Empathy was measured by Hogan's (1969) Scale of Empathy as scored on the

Hogan/Em subscale of the California Psychological Inventory (CPI; Gough, 1987).

Hogan's empathy scale is "designed to measure the degree to which a person is able to

'put himself/herself in another person's place,' to be sensitive to the feelings of others and

to be able to exchange roles" (Foltz, 1984, p. 18). Extensive reliability and validity

studies have focused on the individual Hogan/Em scale as well as the Hogan/Em as 1 of

20 subscales on the CPI with statistically acceptable results (Gough, 1987; Hogan, 1969).

The present research used the individual or free-standing version of the

Hogan/Em, authorized (purchased) through the Consulting Psychologists Press, Inc. The

Hogan/Em consists of 38 true/false statements and is included in Appendix C.

Participants respond according to whether or not they feel the statements are true about

themselves. The measure's score is the number of correct, or empathic, responses to the

true or false statements as indicated on the CPI (Gough, 1987) response profile -- a

scoring template. As a subscale of the widely used CPI, the Hogan/Em's validity and

reliability are well respected.

With regard to validity Hogan (1969) stated, "it predicts rated empathy better than

all existing measures with which comparisons have been made" (p. 312). The Hogan/Em

has an internal consistency coefficient of $r = .71$ and a $r = .84$ test-retest (3 month)

reliability coefficient (Grief & Hogan, 1973). In a meta-analysis of empathy

measurement studies, Chlopan, McCain, Carbonell, and Hagen (1985) concluded that the

Hogan/Em is one of only two measures with widespread support in the literature for

reliability and validity. In summary, "the Hogan/Em scale may be regarded as a carefully

constructed, well-validated, and reliable empathy measure, widely used during the last 20

years" (Lovell, 1990, p. 142).

Biographical Questionnaire

Although information from the Biographical Questionnaire (Appendix D) was not

used for hypotheses testing, basic self-reported demographic information was obtained

from participants to provide descriptive statistics of the sample. The author of the present

study designed the questionnaire and it was tested for face validity by two university

professors in counselor education. The descriptive variables recorded for each participant

included: (a) age; (b) gender; (c) race; (d) enrollment status (freshmen, sophomore,

junior, senior, masters, or doctoral student); (e) city of residence; (f) United States

nativity (participants were classified as U.S. natives if they were born in the U.S., Puerto

Rico, or any outlying area of the U.S. or were born in a foreign country but have at least

one American parent); (g) number of languages spoken in the household other than

English; and (h) number of languages spoken by the participant other than English.

Procedures

The author of the current study, who was also the experimenter, modified an

existing computer program (Pickering, 1998a) written in the SAS (SAS Institute Inc.,

1990) programming language to access a database containing information on courses

taught at the university at which the study was conducted during the 1998 spring

semester. The SAS program produced a randomly selected and ordered (sorted) list of

1564 undergraduate and graduate courses. The program excluded labs, which are

associated with courses, and independent study courses, which do not have regular class

meeting times. Courses with fewer than 6 students enrolled, no instructor name assigned,

and/or taught via television were also excluded from the list to maximize the potential for

student participation and eliminate the need for the experimenter to travel long distances.

Following the random sort order of the courses, the experimenter contacted the

instructors with a memorandum (Appendix E) which explained the purpose of the current

study and requested he be given the opportunity to administer the measurement

instruments used in this study to the students in the instructors' classes (course sections).

The experimenter then followed up with a phone call to the instructors who received the

memorandum. Twenty instructors were contacted before the minimum number of 130

participants had been obtained. One instructor refused to participate, but all students in

the remaining 19 course sections were administered the measurements.

The instruments (LPC, Hogan/Em, LEP, and biographical questionnaire) were

combined, with detailed instructions for each instrument, in what the experimenter called

an "assessment packet." The order in which the measurement instruments were presented

in the assessment packets was varied (counterbalanced) across course sections to

eliminate the possible confounding of order effects. After the Subject Consent Form

(Appendix F) was read and signed, the participants were given the assessment packet to

take home and complete. The experimenter reviewed the instructions for each measurement instrument immediately after the participants received the assessment packet and then returned to the next class session to collect the completed measures. After turning in the completed assessment packet, participants were debriefed on the nature of the study and given a written summary of the study's purpose and expected results (Appendix G).

The 19 course sections in which the assessment packets were distributed contained 424 students. The average class size was 22 students. The largest class size was 94 and the smallest class contained 6 students. The 19 course sections represented 15 course subjects: English, information systems, physical education, marketing, recreation and leisure studies, mechanical engineering technology, educational leadership services, management, international studies, physical therapy, nursing, counseling, art, civil engineering, and geography. All 424 students signed the subject consent form and received an assessment packet. There were 232 students who never returned the assessment packet and 23 students who did not fully complete one or more of the measurement instruments. Nine additional participants were excluded due to their "meaningless" item scores on the LEP. According to Moore (1987), "These items parallel the 'M,' or 'meaningless,' items on Rest's DIT...these items are not scored, but if more than a certain number -- in the case of the LEP, three -- are chosen among the fifteen total items designated as most significant by a given individual, that person's instrument is discarded from the analysis" (p. 88). The present study's analyses, therefore, were based on a total sample size of 160. See Chapter 4 for a description of sample demographics.

Statistical Analysis

Hypotheses 1, 2, and 3 focused on the relationship between variables. Hypotheses 1 and 2 called for analysis of the separate contribution of two predictor (independent) variables to a single criterion (dependent) variable. Simple regression was used to assess the relative contribution of cognitive complexity (CCI) and empathy (Hogan/Em), separately, in determining/predicting leadership style (LPC). "In simple regression we are interested in predicting an object's value on a criterion variable, given its value on *one* predictor variable" (Kachigan, 1986, p. 239). The simple regression equation for this test would be $Y' = bX + a$, "where X is the predictor variable [CCI for Hypothesis 1], b is the regression coefficient for predicting Y from X, a is the intercept constant, and Y' is the predicted score of the dependent variable" (Wampold & Freund, 1987, p. 372). The $\underline{R}^2$ for the CCI was tested for statistical significance to determine if the CCI contributed to the explanation of the LPC (Wampold & Freund, 1987). To test Hypothesis 2 and determine the proportion of variance of the LPC explained by the Hogan/Em, another simple regression was conducted. The $\underline{R}^2$ for the Hogan/Em was tested for statistical significance to determine if the Hogan/Em contributed to the explanation of the LPC.

Hypothesis 3 called for the analysis of the joint contribution of the predictor variables to the criterion variable. Simultaneous multiple regression was used to test the relative contribution of the CCI and Hogan/Em in jointly determining/predicting the LPC. The multiple regression equation for this test would be $Y' = b_1 X_1 + b_2 X_2 + a$, where X_1 and X_2 are the predictor variables (CCI and Hogan/Em), b_1 and b_2 are the partial regression coefficients for Y on X_1 and X_2 (respectively), a is the intercept constant, and Y' is the

predicted score of the dependent variable. The square of the multiple correlation coefficient ($\underline{R}^2$) was tested for statistical significance and used to determine the proportion of variance of the criterion/dependent variable, LPC, that was collectively "explained" by the predictor/independent variables, CCI and Hogan/Em. As noted by Wampold and Freund (1987), "In this context, *explained* does not necessarily imply a causal influence of the independent variables on the dependent variable, but rather that a proportion of the variance in [the dependent variable] Y (i.e., $\underline{R}^2$) is associated with the variability in the independent variables" (p. 374). Hypothesis 3 would be supported if $\underline{R}^2$ for the regression model is statically significant.

If $\underline{R}^2$ is statistically significant, analysis of the change in $\underline{R}^2$ ($\Delta\underline{R}^2$) for both the CCI and Hogan/Em would be warranted (Wampold & Freund, 1987). The $\Delta\underline{R}^2$ is "the proportion of variance accounted for by an independent variable over and above the proportion of variance accounted for by all the other independent variables" (Wampold & Freund, 1987, p. 375). In simultaneous multiple regression, used to test Hypotheses 3, the $\Delta\underline{R}^2$ for the predictor variable cognitive complexity, for example, would include all variance accounted for by cognitive complexity in the criterion variable leadership style, minus the combined variance contributed by cognitive complexity and empathy. In other words, if $\underline{R}^2$ is statistically significant, the $\Delta\underline{R}^2$ can be used to test whether the unique contribution ($\Delta\underline{R}^2$) of cognitive complexity to the variance of leadership style is greater or less than the unique contribution ($\Delta\underline{R}^2$) of empathy.

To address Hypotheses 4 and 5, a causal-comparative 3 (leadership style -- high, medium, and low LPC) X 2 (education level -- undergraduate and graduate) between-

subjects factorial design was used. A multivariate analysis of variance (MANOVA) was performed on the dependent measures CCI and Hogan/Em. This was a between-subjects factorial design because there were unique subjects in each cell. The definition of the independent variables prevented a single subject from being classified as "high LPC" and "low LPC," or "undergraduate" and "graduate." A multivariate analysis of variance was used because of the close conceptual relationship between the two dependent variables, cognitive complexity and empathy (Borg & Gall, 1989). According to Hair et al. (1979), in the case of two dependent measures, if a statistically significant multivariate F is found, subsequent univariate analyses of variance (ANOVAs) would be warranted on both dependent measures to test for main effects on leadership style and education level (Hypotheses 4 and 5, respectively). Because Hypothesis 4 involves a comparison of two out of three means (high, medium and low LPC), a post hoc multiple comparison of means analysis is required. "When comparing more than two means, an ANOVA F test tells you if the means are significantly different from each other, but it does not tell you which means differ from which other means" (SAS Institute Inc., 1990, p. 941). Further, the SAS Institute (1990) warned that a nonsignificant ANOVA main effect involving three means may not necessarily indicate nonsignificant differences between the means:

> A related point is that nonsignificance is nontransitive: given three sample means, the largest and smallest may be significantly different from each other, while neither is significantly different from the middle one. Nontransitive results of this type occur frequently in multiple comparisons. (p. 941)

Due to the unequal cell sizes of the present study, the General Linear Models (GLM) SAS

procedure was used in conjunction with the "TUKEY" option for post hoc pairwise means comparisons (SAS Institute Inc., 1990). "Tukey (1953) and Kramer (1956) independently proposed a modification for unequal cell sizes. The Tukey or Tukey-Kramer method is provided by the TUKEY option" (p. 944). Hypothesis 4, then, would be fully supported if a leadership style main effect were found in the ANOVAs for both dependent measures (CCI and Hogan/Em) such that the mean scores for participants scoring high on the LPC were higher than the mean scores for participants scoring low on the LPC, or if post hoc means comparisons indicated a difference between the low and high LPC means on the dependent measures. Likewise, Hypothesis 5 would be fully supported if an education-level main effect were found in the ANOVAs for both dependent measures such that the mean scores for graduate students were higher than the mean scores for undergraduate students.

All statistical procedures were performed using the SAS system and programming language, a statistical software package (SAS Institute Inc., 1990). The SAS program that performed the analyses noted above was written by the experimenter.

<center>Delimitations and Limitations</center>

It is prudent to address the delimitations and limitations of a study prior to discussion of research results (Creswell, 1994). According to Creswell (1994), the delimitations of any research endeavor involve those factors which purposefully or otherwise narrow the study's scope, commonly referred to as the study's external validity. The present research results should not be generalized beyond the scope of the population sampled. The population sampled consisted of demographically diverse undergraduate

and graduate students attending an east coast urban university.

Limitations of research are potential weaknesses arising from the instrumentation and research design/methodology, commonly referred to as internal validity (Creswell, 1994). The present research utilized questionnaires to measure leadership style (LPC), cognitive complexity (LEP), and empathy (Hogan/Em). Measurement instruments designed as questionnaires inherently possess the potential to confuse respondents with their instructions (Borg & Gall, 1989). The risk of participant confusion over instrumentation instruction/documentation was reduced by consistent and thorough instructions which conformed to the validated testing procedures specified for each instrument. Instructions for each instrument were provided to participants in writing and reviewed verbally. Additionally, the experimenter's office and home phone numbers and E-mail address were provided to participants in the event that they had questions about completing the questionnaires (no participants contacted the experimenter with questions).

Other instrumentation limitations may originate from issues that are instrument specific (Borg & Gall, 1989). The LPC, for example, asks the participant to think of all the people with whom he or she has ever worked and then identify the one person "with whom it is (or was) most difficult to work" (Fiedler & Chemers, 1984, p. 18). Although the instructions detail that this least preferred coworker could be anyone the participant has worked with anywhere (e.g., job, social clubs, church organizations, volunteer groups, athletic teams, etc.), it is conceivable that participants might be at a loss to identify such a person due to a lack of interpersonal experiences. The LEP and Hogan/Em are unlike the

LPC because they are not dependent on participants identifying a specific event or person in their life, but instead focus on the participants' understandings and perceptions of specified situations and/or statements.

Apart from instrumentation, the present research employed a causal-comparative design due to the inability to assign participants to "treatment" conditions. Leadership style, cognitive complexity, empathy, and education level cannot be randomly assigned and experimentally manipulated. The present research also employed a correlational design associated with multiple correlation analysis. Internal validity limitations associated with these designs apply to this study.

According to Borg and Gall (1989) a "disadvantage of causal-comparison research designs is that determining causal patters with any degree of certainty is difficult" (p. 540). Similarly, although the multiple correlation coefficient (R^2) "equals the proportion of variance of the dependent variable 'explained' by the independent variables...'explained' does not necessarily imply a causal influence of the independent variables on the dependent variable" (Wampold & Freund, 1987, p. 374). The correlational design associated with multiple regression analysis will determine the relative contribution of each predictor variable to the criterion variable. The correlational and causal-comparative designs used in the current study will, therefore, indicate relationships and whether or not statistically significant proportions of variance in, for example, leadership style can be associated with the variability of cognitive complexity and empathy. Cause and effect and directionality of relationships, however, cannot be determined.

Human Subject Considerations

The only risk to the human subjects involved in the present study was breach of confidentiality. Strict procedures were followed to reduce (if not eliminate) the possibility of this risk. Subjects were identified for participation by the course section for which they were registered, not by name or other personal identification. Signed subject consent forms were collected prior to distribution of assessment packets and kept completely independent from the assessment packets. Neither the assessment packets nor the individual assessment instruments were coded and no indication of participant identity was noted or collected in association with the assessment packets. All completed assessment instruments and signed subject consent forms were stored securely at the principal investigator's private residence. Data analysis was performed from raw test score data input files and reported in aggregate form, based solely on independent and dependent variable analysis. Further, the Old Dominion University Darden College of Education Faculty Governance Organization Research and Scholarship Committee reviewed and approved the procedures associated with the current study prior to data collection. In summary, no participant names, social security numbers, or other means of individual identification were collected; assessment packets were never associated with individual participants; and all data was analyzed in the aggregate. Complete subject anonymity and confidentiality was maintained for all student participants.

CHAPTER IV

RESULTS

The purpose of this study was to investigate the capacity of cognitive complexity and empathy, separately and jointly, to predict leadership style. Five hypotheses were tested with data collected from three measurement instruments. Eight demographic items provided subject descriptive data. Presented in this chapter are the demographic characteristics of the participants and the results of the statistical analyses that were conducted to test the hypotheses.

Demographic Variables

The statistical analyses were conducted on data collected from 160 undergraduate and graduate students. Subject demographic information was collected with a biographical questionnaire (Appendix D) which contained eight items. The descriptive variables recorded for each participant included: (a) age; (b) gender; (c) race; (d) enrollment status (freshmen, sophomore, junior, senior, masters, or doctoral student); (e) city of residence; (f) United States nativity (participants were classified as U.S. natives if they were born in the U.S., Puerto Rico, or any outlying area of the U.S. or were born in a foreign country but have at least one American parent); (g) number of languages spoken in the household other than English; and (h) number of languages spoken by the participant other than English.

Age

The mean age of the sample was 26 ($\underline{SD}$ = 7.19). The youngest person in the sample was 18 and the oldest was 50. Although the sample was not randomly selected,

the ages are representative of the population from which the sample was taken ($M = 28$,

$SD = 9.82$). See Table 1 for a summary comparison of ages by education level.

Table 1

Sample Mean Age by Education Level

Education Level	n	M	SD	Minimum	Maximum
Freshman	11	18.8	1.25	18	22
Sophomore	15	19.9	2.28	19	28
Junior	45	24.2	4.31	20	35
Senior	41	26.3	5.95	21	43
Masters	36	27.8	6.24	21	50
CAS or Doctoral	12	40.1	8.40	24	49

Gender

Females represented 61.3% ($N = 98$) of the sample, and males 38.8% ($N = 62$).

The population statistics show a similar gender distribution, but the majority of females

(55.1%) is less pronounced.

Race

Race in the U.S. census represents a "self-classification by people according to the

race with which they most closely identify" (U.S. Department of Commerce, 1993a, p. B-

28). Accordingly, participants were asked "What is your race (with which you most

closely identify)?" and were allowed to write in a response. Participants who responded

with "Caucasian" were classified as "White" and participants who responded with

"African American" were classified as "Black" to match U.S. census terminology. Six

participants were eliminated from race statistics because they did not respond with a

clearly distinguishable race. Five participants were eliminated with the responses "Euro-

American," "African," "Arab," "American," and "Human." One participant left the item

blank. Race statistics were then calculated with $\underline{N}$ = 154 on five classifications:

American Indian, Asian, Black, Hispanic, and White.

Table 2 represents a summary of sample race statistics by gender. Based on race,

the sample was closely representative of the population. Black and White participants

comprised 83.3% of the population (18.3% Black, 65% White) and 79.87% of the sample

(12.34% Black, 67.53% White). The sample was also closely representative of U.S. and

Virginia (the state within which the present study was conducted) urban areas. As of

1990, the U.S. urban areas comprised 14% Black and 76.9% White individuals (U.S.

Department of Commerce, 1992a). Similarly, Virginia urban areas comprised 20.4%

Black and 74.5% White persons (U.S. Department of Commerce, 1992b).

Education Level

Participants were asked to pick their education level, or enrollment status, from

six options: freshman, sophomore, junior, senior, graduate student - masters, and

graduate student - CAS or doctoral. See Table 1 for sample frequencies in each

Table 2

Sample Race Frequencies by Gender

Race	Female		Male		Total	
	n	Percent	n	Percent	n	Percent
White	66	42.86	38	24.68	104	67.53
Black	14	9.09	5	3.25	19	12.34
Asian	14	9.09	9	5.84	23	14.94
Hispanic	3	1.95	3	1.95	6	3.90
American Indian	0	0	2	1.30	2	1.30
Total	97	62.99	57	37.01	154	100.00

educational level. On this characteristic, the sample (70% undergraduate, 30% graduate) was again very representative of the population (68.5% undergraduate, 31.5% graduate).

Residence

Five local urban centers (Norfolk, Virginia Beach, Chesapeake, Portsmouth, and Hampton) accounted for 82.6% of the sample. The majority of the participants lived in Norfolk (36.3%, N = 58) and Virginia Beach (31.3%, N = 50). The participants' eight most frequently indicated residences (residences that obtained more than one response) were comparable to the population parameters for current city of residence, which indicated 33.5% of the population resided in Norfolk and 36.1% resided in Virginia

Beach. See Table 3 for a complete listing of participant residence responses.

Table 3

Sample Frequencies for City of Residence (N = 160)

City	n	Percent
No Response (Blank)	1	0.6
Perquinians, NC	1	0.6
Virginia Beach	50	31.3
Norfolk	58	36.3
Yorktown	2	1.3
Williamsburg	1	0.6
Chesapeake	13	8.1
Hampton	6	3.8
Westmoreland County	1	0.6
Arlington	1	0.6
Charlottesville	1	0.6
New Brunswick, NJ	1	0.6
Prince George	1	0.6
Fairfax	3	1.9

Table 3 (continued)

City	n	Percent

Portsmouth	5	3.1
Birmingham, AL	1	0.6
Newport News	2	1.3
Giles County	1	0.6
Greensville	1	0.6
Ruckersville	1	0.6
Gloucester	1	0.6
Stafford	1	0.6
McKenney	1	0.6
Saratoga Springs	1	0.6
Paris, France	1	0.6
Richmond	1	0.6
Prince William	1	0.6
Singapore	1	0.6
James City County	1	0.6

Nativity

Using the U.S. census definition, participants were considered natives of the U.S. if they were born in the U.S., Puerto Rico, or any outlying area of the U.S. or were born in a foreign country but have at least one American parent (U.S. Department of Commerce, 1992a). The majority of the sample participants were U.S. natives ($\underline{N}$ = 139, 86.9%).

Participants who indicated that they were not U.S. natives comprised 13.1% ($N = 21$) of the sample. This was representative of the U.S. urban population, which was 11% foreign born (U.S. Department of Commerce, 1992a). The nativity population parameter was not obtainable because it was not maintained by the university at which the sample was taken. Only 4.5% of the population was considered "alien" (not a U.S. Citizen), which might provide the closest available approximation to the nativity population parameter.

Given that the measures used in this study were normed on populations considered native to the U.S., a second set of statistical analyses, which excluded the non-native participants, were run to test the hypotheses. The second set of analyses ($N = 139$) resulted in similar outcomes. All statistically significant results remained significant with the non-native participants excluded from the analyses, and no new statistically significant results were obtained. Consequently, except where noted otherwise, the results of the statistical analyses and hypotheses tests that follow were based on the total sample ($N = 160$).

<u>Languages Spoken</u>

Participants were queried on the number of languages they speak and the number of languages spoken in their household for comparison to census data. The participants in the sample were characteristic of individuals in U.S. urban centers in that 63.8% ($N = $ 102) of the participants spoke only English and 75.6% ($N = 121$) of the participants reported that English was the only language spoken in the household. In comparison, the Census Bureau reported that 83.6% of persons over age 5 in U.S. urban areas resided in

households that spoke only English (U.S. Department of Commence, 1993a).

<center>Measurement Instruments</center>

Three instruments were administered to all participants which resulted in three scores/variables that represented participant empathy, leadership style, and cognitive complexity. The measurement instruments used to obtain these scores were the Hogan/Em, the Least Preferred Coworker (LPC), and the Cognitive Complexity Index (CCI), respectively. The CCI is a subscore/index of the Learning Environment Preferences (LEP) instrument and was used to operationalize cognitive complexity in hypotheses tests. Sample mean scores, score ranges for these variables, and a summary of these scores by education level are represented in Table 4.

The sample mean score for the Hogan/Em ($M = 21.39$, $SD = 4.50$, $N = 160$) approximated the normative scores for male ($M = 22.03$, $SD = 4.45$, $N = 3,236$) and female ($M = 22.82$, $SD = 4.24$, $N = 4,126$) college students reported in the California Personality Inventory Administrator's Guide (Gough, 1987). The sample mean item score for the LPC ($M = 3.84$, $SD = 1.46$, $N = 160$) was very close to the LPC normative mean item score of 3.71 ($N = 2,014$, $SD = 1.05$) reported by Posthuma (1970). The sample mean score for the CCI ($M = 338.64$, $SD = 49.40$, $N = 160$) was comparable to normative data supplied by Moore (1987) in his reliability and validity study ($M = 343.7$, $SD = 48.3$, $N = 470$). Moore's (1987) mean CCI score was based on college undergraduate students, and was within one standard deviation of the present study's

Table 4

Sample Mean Scores for the Hogan/Em, LPC, and CCI

Measure	n	M	SD	Minimum	Maximum
			Overall		
Hogan/Em	160	21.39	4.50	12	31
LPC	160	69.15	26.34	18	134
CCI	160	338.64	49.40	223	437
			Freshmen		
Hogan/Em	11	20.64	2.29	16	24
LPC	11	72.82	20.37	47	111
CCI	11	316.27	60.22	238	400
			Sophomore		
Hogan/Em	15	20.47	6.21	13	29
LPC	15	64.73	22.88	33	107
CCI	15	334.13	56.86	223	404

Table 4 (continued)

Measure	n	M	SD	Minimum	Maximum
Junior					
Hogan/Em	45	19.84	3.88	13	30
LPC	45	76.53	25.37	38	130
CCI	45	321.16	50.80	232	437
Senior					
Hogan/Em	41	22.56	5.09	12	31
LPC	41	69.71	27.96	18	134
CCI	41	342.39	47.30	230	423
Masters					
Hogan/Em	36	22.00	4.08	14	30
LPC	36	66.97	27.91	22	116
CCI	36	352.97	38.12	244	415
CAS or Doctoral					
Hogan/Em	12	23.17	3.21	18	29
LPC	12	48.25	18.27	21	88
CCI	12	374.58	29.43	310	423

undergraduate mean CCI score ($\underline{M}$ = 330.19, $\underline{SD}$ = 51.70, $\underline{N}$ = 112). Similarly, Lovell's (1990) mean CCI score ($\underline{M}$ = 393.0, $\underline{SD}$ = 40.3, $\underline{N}$ = 340), which was based on a large sample of graduate counseling students, was within one standard deviation of the present study's graduate mean CCI score ($\underline{M}$ = 358.38, $\underline{SD}$ = 37.07, $\underline{N}$ = 48).

Hypotheses

Hypothesis 1

Hypothesis 1 posited that the CCI would account for a statistically significant amount of variation in the LPC. Simple regression analysis revealed that the CCI accounted for 4.77% of the variance in the LPC ($\underline{R}^2$ = .0477, $\underline{F}$(1, 158) = 7.92, $\underline{p}$ = .0055). Albeit a small percentage, this was a statistically significant amount of variation, and therefore Hypothesis 1 was supported.

Although Hypothesis 1 was supported by the results, contrary to expectations, there was an inverse relationship between the CCI and the LPC. This was evidenced by a negative CCI parameter estimate (regression coefficient) of -0.1165 (see Table 5). A negative and statistically significant Pearson product-moment correlation coefficient $\underline{r}$ = -0.22, $\underline{p}$ = .0055) between the CCI and the LPC underscored the simple regression results (see the Additional Tests section of this chapter and the discussion in Chapter 5 for additional details on this unexpected result).

Table 5

Summary of Simple Regression Analysis for Cognitive Complexity Predicting

Leadership Style (N = 160)

Variable	B	SE B	β
CCI	-0.1165	0.0414	-.2184*

Note. R^2 = .0477 (p = .0055).

*p = .0055.

Hypothesis 2

Hypothesis 2 posited that the Hogan/Em would account for a statistically

significant amount of variation in the LPC. Simple regression analysis revealed that the

Hogan/Em accounted for only 1.50% of the variance in the LPC (R^2 = .0150, $F(1, 158)$ =

2.41, p = .1223), which was not statistically significant (See Table 6). Hypothesis 2 was,

therefore, not supported by the findings of this study.

Table 6

Summary of Simple Regression Analysis for Empathy Predicting Leadership Style

(N = 160)

Variable	$\underline{B}$	$\underline{SE}\ \underline{B}$	β
Hogen/Em	-0.7175	0.4619	-.1227

Note. $\underline{R}^2$ = .0150 ($\underline{p}$ = .1223).

Hypothesis 3

Hypothesis 3 posited that the CCI and the Hogan/Em, jointly, would account for a statistically significant amount of variation in the LPC. Simultaneous multiple regression analysis revealed that the CCI and the Hogan/Em collectively accounted for 5.17% of the variance in the LPC ($\underline{R}^2$ = .0517, $\underline{F}$(2, 157) = 4.28, $\underline{p}$ = .0155). This was a statistically significant amount of variation, and therefore Hypothesis 3 was supported. Parameter estimates for the CCI and the Hogan/Em were -0.1065 ($\underline{T}$(1, 157) = -2.46, $\underline{p}$ = .0149) and -0.3840 ($\underline{T}$(1, 157) = -0.81, $\underline{p}$ = .4195), respectively (see Table 7). The direction and statistical significance of the parameter estimates for each predictor variable were in accordance with the simple regression results reported earlier.

Table 7

Summary of Simultaneous Multiple Regression Analysis for Cognitive Complexity and

Empathy Predicting Leadership Style (N = 160)

Variable	$\underline{B}$	$\underline{SE}\ \underline{B}$	β
CCI	-0.1065	0.0432	-.1928*
Hogan/Em	-0.3840	0.4744	-.0645

Note. $\underline{R}^2$ = .0517 ($\underline{p}$ = .0155).

*$\underline{p}$ = .0149.

Hypotheses 4 and 5

Hypotheses 4 and 5 required an initial multivariate analysis of variance

(MANOVA) due to the close conceptual relationship between the dependent measures

CCI and the Hogan/Em (Borg & Gall, 1989). Hair et al. (1979) indicated that in the case

of two dependent measures, if a statistically significant multivariate $\underline{F}$ is found,

subsequent univariate analyses of variance (ANOVAs) would be warranted on both

dependent measures.

Wilks' Lambda statistic was used to test for MANOVA main and interaction

effects on overall education level (undergraduate and graduate) and LPC level (high,

medium, and low). There was a statistically significant main effect on overall education

level ($\underline{F}(2, 153)$ = 4.41, $\underline{p}$ = .0137). Univariate ANOVAs were, therefore, warranted on

the CCI and the Hogan/Em to test Hypothesis 5. The test for a main effect on overall

LPC level did not show a statistically significant result. However, because this test

involved the comparison of three means, and nontransitive results are common, a post

hoc multiple comparison of means analysis was conducted (SAS Institute Inc., 1990).

Tukey's studentized range test, also known as Tukey's honestly significant difference

(HSD), found a statistically significant difference ($p < .05$) between the mean CCI score

of high-LPC participants ($M = 326.79$, $SD = 48.40$, $N = 67$) and the mean CCI score of

low-LPC participants ($M = 350.42$, $SD = 48.68$, $N = 72$). A univariate ANOVA was,

therefore, warranted to confirm this result. There were no statistically significant

differences between LPC-level means on the Hogan/Em at the $p < .05$ level. There was

also no statistically significant MANOVA overall education-level by LPC-level

interaction effect. As a result of the MANOVA findings (see Table 8), univariate

ANOVAs were conducted on the CCI and the Hogan/Em to test Hypotheses 4 and 5.

Table 8

Multivariate Analysis of Variance for Cognitive Complexity and Empathy ($N = 160$)

Source	Num df	Den df	Λ	F
Education Level (EL)	2	153	.9455	4.41*
LPC Level (LPCL)	4	306	.9611	1.53
EL x LPCL	4	306	.9808	0.75

*$p = .0137$.

Hypothesis 4 posited that there would be a statistically significant LPC level

(high-LPC versus low-LPC) main effect on the CCI and the Hogan/Em. It was predicted that high-LPC participants would score higher than low-LPC participants on these dependent measures. The ANOVA on the Hogan/Em showed no statistically significant LPC-level main effect. Although the ANOVA on the CCI showed no LPC-level main effect, as noted previously, the post hoc HSD means test showed a statistically significant difference between high and low-LPC participants. The difference, however, was not in the predicted direction. High-LPC participants scored lower on the CCI ($\underline{M}$ = 326.79, $\underline{SD}$ = 48.40, $\underline{N}$ = 67) than Low-LPC participants ($\underline{M}$ = 350.42, $\underline{SD}$ = 48.68, $\underline{N}$ = 72). The mean CCI scores for high, middle, and low-LPC participants were 326.79, 336.10, and 350.42, respectively, which represented a general negative linear relationship between the LPC and the CCI. Hypothesis 4, therefore, was not supported by the results (see Table 9).

Hypothesis 5 posited that there would be a statistically significant education-level (undergraduate versus graduate) main effect on the CCI and the Hogan/Em. It was predicted that the graduate students would score higher than the undergraduate students on these dependent measures. The ANOVA on the Hogan/Em showed no statistically significant main effect for education level. Although not statistically significant, the mean difference was in the predicted direction. Graduate students ($\underline{M}$ = 22.29, $\underline{SD}$ = 3.88, $\underline{N}$ = 48) were slightly more empathic than undergraduate students ($\underline{M}$ = 21.00, $\underline{SD}$ = 4.71, $\underline{N}$ = 112). The education-level main effect on the CCI, however, was statistically significant ($\underline{F}$(1, 154) = 8.45, $\underline{p}$ = .0042) and in the predicted direction. Graduate students ($\underline{M}$ = 358.38, $\underline{SD}$ = 37.07, $\underline{N}$ = 48) scored higher on the CCI than did undergraduate students ($\underline{M}$ = 330.19, $\underline{SD}$ = 51.70, $\underline{N}$ = 112). Hypothesis 5 was, therefore, supported in

part by the findings associated with the CCI, but not supported with respect to the other

dependent measure, the Hogan/Em (see Table 9).

Table 9

Analyses of Variance for Cognitive Complexity and Empathy (N = 160)

Source	df	SS	MSE	F
		CCI		
Education Level (EL)	1	18,896.87	18,896.87	8.45*
LPC Level (LPCL)	2	8,251.83	4,125.92	1.84
EL x LPCL	2	2,303.64	1,151.82	0.51
Error	154	344,567.31	2,237.45	
		Hogan/Em		
EL	1	37.88	37.88	1.89
LPCL	2	76.69	38.35	1.91
EL x LPCL	2	26.72	13.36	0.67
Error	154	3,089.24	20.06	

*$p = .0042$.

Additional Tests

Relationship between CCI and LPC

Additional analyses were conducted to investigate the nature of the inverse relationship between the CCI and the LPC, as found in the tests of Hypotheses 1 and 4. The inverse relationship between the CCI and the LPC is counterintuitive. It was expected that participants who scored high on the CCI (cognitively complex students) would also score high on the LPC, which, according to many interpretations in the literature, would indicate a greater ability and tendency to differentiate among environmental stimuli. In other words, a high-LPC participant with a leadership style characterized by a differentiated understanding of the environment should have progressed to a similarly complex epistemological stage as measured by the CCI. Instead, this study's results showed that participants who scored high on the CCI tended to have a low-LPC leadership style -- cognitively complex, yet possessing a leadership style characterized by a relatively undifferentiated understanding of the environment. After consideration of this finding, an initial explanation was postulated, which has as its foundation the relationship between college student epistemology and the nature of the LPC instrument.

The LPC instrument employees 18 bipolar adjective pairs to assess leadership style (Fiedler & Garcia, 1987). Participants scoring at the extreme ends of the bipolar items obtain extremely high or low scores. The bipolarity of the adjective pairs used on the LPC is, at face value, somewhat intuitive. The true bipolarity of the LPC adjective pairs, however, was called into question by Cogliser and Schriesheim (1994). Using a

new method of testing semantic differential scales for bipolarity, Cogliser and Schriesheim (1994) found that many of the LPC adjective pairs they tested had "significant departures from bipolarity" as defined by "paired bipolar expressions that are assumed to be opposites representing equidistant ends of a continuum encompassing a neutral or zero midpoint (e.g., close -- distant)" (p. 594).

If, then, the LPC consists of many adjective pairs that are not truly bipolar in nature, it could be conjectured that the cognitively complex participant, making fine differentiations, would have a tendency to score in the midrange on LPC items and obtain a lower LPC score than originally hypothesized. In other words, the cognitively complex participant might be at odds trying to qualify a least preferred coworker on a scale using expressions that are not truly opposites. In contrast, the less cognitively complex participant, making less differentiated (e.g., dualistic) or more generalized distinctions between adjective pairs, might think of the LPC items as bipolar and have a tendency to score at the extremes. Couple this with the less cognitively complex participants' tendencies to harbor feelings of mutuality for peers or coworkers (C. W. Lovell, personal communication, May 13, 1998), and it might be expected that these participants would qualify their least preferred coworker in more favorable terms, thus scoring high on the LPC. This supposition was tested in part with a correlation analysis between CCI scores and the standard deviations (a measure of disbursement) of the LPC mean item scores. A negative correlation would be expected, such that the lower the standard deviations of the LPC mean item scores (i.e., scores closer to the mean or less extreme/disbursed) the higher the CCI scores.

The result of the correlation analysis between the CCI and the LPC mean item score standard deviations was not statistically significant. A Pearson product-moment correlation coefficient of r = -0.00149 (p = .9851), although negative, indicated that there was no correlation between the measures. The result of this analysis, therefore, did not support the initial supposition advanced to explain the inverse relationship between the LPC and the CCI.

Education Level and LPC

A second set of tests were conducted to provide support for the domain-specific interpretation of cognitive complexity as an explanation of the inverse relationship between the CCI and the LPC. In essence, a domain-specific interpretation of cognitive complexity holds that an individual can be cognitively complex in one environmental domain (e.g., the learning environment associated with the CCI), and at the same time be less cognitively complex in another domain (e.g., the work environment associated with the LPC) in which the individual engages (Gardner & Schoen, 1962; Scott, 1963). Measures of cognitive complexity, such as the LEP and purportedly the LPC, might therefore be tapping a person's cognitive complexity developed within the environmental domain for which the measures are associated. If the graduate students in the current study have been intensely engaged with the learning environment, at the expense of an equally intense engagement with the work environment, then graduate students might be expected to score higher than undergraduate students on a domain-specific measure of cognitive complexity associated with the learning environment (i.e., the CCI), and at the same time, be expected to score lower than undergraduate students on a domain-specific

measure of cognitive complexity associated with the workplace environment (i.e., the LPC). The ANOVA used to test Hypothesis 4 showed that graduate students scored higher than undergraduate students on the CCI, but an additional ANOVA was needed to determine if graduate students scored lower than undergraduate students on the LPC. Results of the additional analysis employed to provide support for the domain-specific interpretation of cognitive complexity follow, and a review of the literature supporting this supposition will be presented in Chapter 5.

The test to support the domain-specific interpretation of cognitive complexity involved a one-way ANOVA performed on education level with the LPC as the dependent variable (see Table 10). Since in the test of Hypothesis 4 there was demonstrated a statistically significant education level main effect for the CCI, such that graduate students were more cognitively complex than undergraduate students, it was expected that the education level main effect for the LPC (in keeping with the inverse relationship with the CCI) would show the reverse trend. It was, then, expected that the graduate students would score lower on the LPC than undergraduate students. As expected, the one-way ANOVA on education level for the LPC resulted in a statistically significant main effect ($\underline{F}(1, 158) = 4.76$, $\underline{p} = .0306$). Graduate students ($\underline{M} = 62.29$, $\underline{SD} = 26.93$, $\underline{N} = 48$) scored significantly lower on the LPC than undergraduate students ($\underline{M} = 72.09$, $\underline{SD} = 25.64$, $\underline{N} = 112$). Background literature and a full explanation of how the domain-specific interpretation of cognitive complexity, as well as these results, might explain the otherwise counterintuitive inverse relationship between the CCI and the LPC are advanced in Chapter 5.

Table 10

Analysis of Variance for Leadership Style (N = 160)

Source	df	SS	MSE	F
		CCI		
Education Level (EL)	1	3,225.38	3,225.38	4.76*
Error	158	107,093.02	677.80	

*p = .0306.

The inverse relationship between the CCI and the LPC is indeed counterintuitive when considering much of the literature that lead to the hypotheses presented in the current study. Although further empirical investigation would be outside the scope of the present research, additional theoretical deliberation on the rationale of the inverse relationship between the LPC and the CCI is offered in Chapter 5.

Demographic Variables

No hypothesis or questions were advanced in reference to the demographic variables of age, gender, race, and citizenship, but as a matter of interest, additional analyses were conducted on these variables. One-way ANOVAs were performed on gender, race, and citizenship. The LPC, CCI, and Hogan/Em were used as dependent variables in the ANOVAs. A correlation analysis between age, LPC, CCI, and the Hogan/Em was also conducted.

Although the correlation was low, age was found to be positively correlated with

the CCI r = 0.20, p = .0101). This finding is consistent with Lovell's (1990) research

results in which a slightly lower correlation was found r = 0.12, p < .05). Age was also

positively correlated with the Hogan/Em r = 0.21, p = .0075). This result might be

expected, given the close conceptual relationship between the CCI and the Hogan/Em. In

fact, Lovell (1990) found a statistically significant correlation between the CCI and the

Hogan/Em r = 0.31, p < .001) in a large sample of graduate counseling students. Further

corroborating Lovell's (1990) results, the present research also found the CCI and the

Hogan/Em r = 0.29, p = .0003) to be correlated (see Table 11).

Table 11

Intercorrelations Between CCI, Hogan/Em, LPC, and Age (N = 160)

Scale	1	2	3	4
1. CCI	—	.29*	-.22**	.20**
2. Hogan/Em		—	-.12	.21**
3. LPC			—	-.17***
4. Age				—

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

Age was found to be negatively correlated with the LPC r = -0.17, p = .0294).

The correlation was low, but the inverse relationship is consistent with the findings

associated with the tests of Hypotheses 1 and 4. As noted earlier, the CCI was found to

be inversely related to the LPC, and given that age was positively correlated with the CCI,

it might be expected that age would also be inversely related to the LPC (see Table 11).

Because of the statistically significant positive correlation found between age and the CCI, an additional test was performed to confirm the expectation that there would be a main effect on education level for age. As noted in the test of Hypothesis 4, graduate students scored higher than undergraduate students on the CCI. In light of this finding, and because age was found to be positively correlated with the CCI, it was expected that the mean age of graduate students would be higher than the mean age of undergraduate students. A one-way ANOVA on education level for age was performed to test this expectation.

The one-way ANOVA on education for age resulted in a statistically significant main effect ($\underline{F}(1, 158) = 38.90$, $\underline{p} = .0001$). As expected, the graduate students ($\underline{M} = 30.83$, $\underline{SD} = 8.64$, $\underline{N} = 48$) were, on the average, older than undergraduate students ($\underline{M} = 23.88$, $\underline{SD} = 5.27$, $\underline{N} = 112$). When education level was divided into six levels -- freshman, junior, sophomore, senior, masters, CAS or doctoral -- the main effect on age was still statistically significant ($\underline{F}(5, 154) = 25.90$, $\underline{p} = .0001$). Except for the masters level, Tukey's studentized range (HSD) multiple comparison of means test revealed statistically significant differences ($\underline{p} < .05$) between all education levels that were separated by more than one level above or below the level tested. For example, the mean age of sophomores ($\underline{M} = 19.93$, $\underline{SD} = 2.28$, $\underline{N} = 15$) was less than the mean age of seniors ($\underline{M} = 26.29$, $\underline{SD} = 5.95$, $\underline{N} = 41$), masters ($\underline{M} = 27.75$, $\underline{SD} = 6.24$, $\underline{N} = 36$), and CAS or doctoral students ($\underline{M} = 40.08$, $\underline{SD} = 8.40$, $\underline{N} = 12$), but not significantly different from the mean age of students one education level above and below, the juniors ($\underline{M} = 24.24$, $\underline{SD} =$

4.31, $\underline{N}$ = 45) and freshmen ($\underline{M}$ = 18.82, $\underline{SD}$ = 1.25, $\underline{N}$ = 11). Similarly, the mean age of

seniors was greater than the mean age of sophomores and freshmen, and less than the

mean age of CAS or doctoral students, but not significantly different from masters level

students or juniors. The only exception to this trend was masters level students. The

mean age of masters level students was greater than the mean ages of juniors,

sophomores, and freshmen, and not significantly different from the seniors, thus keeping

with the "more than one level below" trend. The masters level students, however, were

significantly younger than the CAS or doctoral students, just one level above. There was,

therefore, a greater gap in age between CAS or doctoral students and the masters level

students than between any other single education level. This exception may have been

due to the fact that CAS and doctoral level students were considered together in one

group, essentially collapsing two education levels.

Unlike the ANOVA for age, the one-way ANOVA for gender on the Hogan/Em

scale did not reach statistical significance ($\underline{F}$(1, 158) = 1.60, $\underline{p}$ = .2079). The female mean

score ($\underline{M}$ = 21.74, $\underline{SD}$ = 4.83, $\underline{N}$ = 98), however, was approximately one point higher than

the male mean score ($\underline{M}$ = 20.82, $\underline{SD}$ = 3.90, $\underline{N}$ = 62). This finding was important

because it was consistent with Hogan's (1969) original validation study in which he found

that females scored slightly higher, or were more empathic, than males. Hogan (1969)

reported that "...females score one to two points higher than males on the average; that is

women seem to be slightly more empathic than men..." (p. 313). This finding was also

consistent with Lovell's (1990) study in which there was no statistically significant

difference on gender with respect to empathy. Also consistent with Lovell's (1990) study,

and Moore's (1987) original LEP validation study, there was no statistically significant difference on gender with respect to the CCI.

The one-way ANOVAs for U.S. citizenship on the Hogan/Em, CCI, and LPC did not reach statistical significance. On the Hogan/Em, the test for a main effect on citizenship resulted in a $F(1, 158) = 0.47$, $p = .4963$. The citizenship main effect on the CCI resulted in a $F(1, 158) = 1.97$, $p = .1621$. Similarly, the citizen main effect on the LPC was nonsignificant, with a $F(1, 158) = 0.17$, $p = .6785$. U.S. citizenship, therefore, had no effect on the Hogan/Em, CCI, and LPC dependent variables. These results add to the cross-cultural validity of the dependent measures as they relate to urban university students.

A one-way ANOVA that approached significance, but was not statistically significant, was race on the LPC ($F(4, 149) = 2.07$, $p = .0879$). In this test there were five races, or means, in the comparison -- American Indian, Asian, Black, Hispanic, and White ($N = 154$). As noted earlier, nontransitive results are common when there are three or more means in the comparison, resulting in nonsignificant findings. Tukey's studentized range test is recommended as a post hoc test to discern true mean differences in these cases (SAS Institute Inc., 1990). Tukey's studentized range (HSD) test showed a statistically significant ($p < .05$) difference between Black and White students. Black students scored higher ($M = 84.79$, $SD = 32.61$, $N = 19$) than White students ($M = 66.13$, $SD = 25.71$, $N = 104$) on the LPC.

The result of a statistically significant mean difference between Black and White students on the LPC prompted a reanalysis of hypotheses, controlling for this effect. The fact that students of different races scored differently on the LPC might have impacted

results associated with hypotheses tests involving the LPC. Some of the unexpected results may have originated from the relationship between race and the LPC. To explore this possibility, Hypotheses 1, 2, 3, and 4 were, therefore, tested again controlling for race as a concomitant variable.

Race was used as a covariate in analyses of covariance (ANCOVA) to control for its impact on the test results. According to Wampold and Freund (1987), "To perform an ANCOVA in the multiple regression context, one needs only to use a hierarchical regression where the covariate or covariates are entered into the equation first" (p. 380). The regression analyses used to test Hypotheses 1, 2, and 3 were therefore rerun, but this time hierarchical regression analyses were performed with race entered first, thereby controlling for race. Univariate ANCOVAs, with race as the covariate, were performed on the CCI and the Hogan/Em to test Hypothesis 4.

Holding race statistically constant in the reanalysis of Hypotheses 1, 2, 3, and 4 did not conclude with different test results. Of particular interest was the inverse relationship between the LPC and the CCI discovered in the tests of Hypotheses 1 and 4. The reanalysis of Hypothesis 1 resulted in a slightly higher R^2. The CCI accounted for 4.98% of the variance in the LPC ($R^2 = .0498$, $F(2, 151) = 7.67$, $p = .0063$). The inverse relationship between the CCI and the LPC was still present in the reanalysis. The inverse relationship was evidenced in the hierarchical regression by a negative CCI parameter estimate (regression coefficient) of -0.1189 and a negative Pearson product-moment correlation coefficient $r = -0.22$) between the CCI and the LPC.

The directionality of the relationship between the CCI and the LPC was explicitly tested in the reanalysis of Hypothesis 4. Like the ANOVA of the first analysis, the

ANCOVA with race as the covariate resulted in no statistically significant LPC-level

main effect (F(2, 147) = 2.15, p = .1203) on the CCI (see Table 12). The Tukey HSD

Table 12

Analyses of Covariance for Cognitive Complexity and Empathy with Race as

Covariate (N = 154)

Source	df	SS	MSE	F
CCI				
Education Level (EL)	1	22,369.52	22,369.52	10.08*
LPC Level (LPCL)	2	9,534.32	4,767.16	2.15
EL x LPCL	2	4,219.49	2,109.74	0.95
Error	147	326,219.05	2,219.18	
Hogan/Em				
EL	1	35.04	35.04	1.71
LPCL	2	89.02	44.51	2.18
EL x LPCL	2	24.30	12.15	0.59
Error	147	3,006.14	20.45	

*p = .0018.

test, however, showed a statistically significant difference between high and low-LPC participants on the CCI. High-LPC participants scored lower on the CCI ($\underline{M} = 325.06$, $\underline{SD} = 48.78$, $\underline{N} = 64$) than Low-LPC participants ($\underline{M} = 350.66$, $\underline{SD} = 48.98$, $\underline{N} = 71$). Race, therefore, did not have a significant enough impact on the LPC to alter hypothesis test results.

Summary

In Chapter 4 the results of analyses associated with participant demographics, descriptive statistics for the measurement instruments, hypotheses tests, and additional analyses were reported. Not all of the results were anticipated, but most supported prior research findings and were consistent with normative data and population statistics.

Statistics based on the demographic variables associated with the sample indicated that the sample was representative of the population from which it was drawn. Descriptive statistics on the demographic variables also verified that the sample was representative of U.S. and Virginia (the state within which the present study was conducted) urban area populations, as defined by the U.S. census (U.S. Department of Commerce, 1992a, 1993a).

The relationships between demographic variables and the dependent measures were consistent with prior research findings. Age was positively correlated with the CCI and the Hogan/Em, was negatively correlated with the LPC, and increased in a linear progression from the freshman year to the CAS or doctoral level. No gender main effect for either the CCI or the Hogan/Em was found, and citizenship did not make a statistically significant difference in the results. A Tukey's means comparison test revealed a statistically significant difference between Black and White participants' scores

on the LPC. Black students scored higher than White students on the LPC. When race

was statistically controlled (held constant) in a reanalysis of the data, there was no

difference in hypotheses tests results. The hypotheses tests results, however, did not

support all hypotheses and in one instance revealed counterintuitive findings.

The first three hypotheses tests involved regression analyses, with the LPC as the

predictor variable and the CCI and the Hogan/Em as criterion variables. The analyses

indicated that the CCI accounted for 4.77% of the variance in the LPC (Hypothesis 1).

While the Hogan/Em alone did not reach statistical significance in a simple regression

analysis (Hypothesis 2), simultaneous multiple regression established that the CCI and the

Hogan/Em, combined, accounted for 5.17% of the variance in the LPC (Hypothesis 3).

Statistical analyses designed to test Hypotheses 4 and 5 resulted in both

anticipated and unanticipated findings. As anticipated (Hypothesis 5), graduate students

scored higher than undergraduate students on the CCI, and although statistically

nonsignificant, graduate students scored slightly higher than undergraduate students on

the Hogan/Em. In a counterintuitive finding (Hypothesis 4), however, high-LPC

participants scored lower on the CCI than low-LPC participants. Thus, an inverse

relationship was found between the CCI and the LPC. In other words, participants who

scored high on the CCI tended to have a low-LPC leadership style -- cognitively complex,

yet possessing a leadership style characterized by a relatively undifferentiated

understanding of their least preferred coworker.

This unanticipated finding was analyzed further with an additional test that

involved a correlation analysis between the CCI and the LPC mean item score standard

deviations. The correlational analysis, therefore, explored the relationship between CCI

scores and the extent of variation on LPC mean item scores. It was thought that the cognitively complex students might have restricted variability in LPC scores and thus scored lower than originally anticipated due to the lack of true LPC adjective pair bipolarity (Cogliser & Schriesheim, 1994). Further, the students who were less cognitively complex might have scored higher on the LPC than previously thought if they chose a peer least preferred coworker, because "cognitively simple" individuals tend to harbor feelings of mutuality for peers (C. W. Lovell, personal communication, May 13, 1998). Thus, an inverse relationship between the CCI and the LPC mean item standard deviations would be expected, but statistically nonsignificant results were found.

A second test was conducted to elucidate the inverse relationship between the CCI and the LPC. The test of Hypothesis 4 revealed that graduate students scored higher than undergraduate students on the CCI. Consistent with the inverse relationship between the CCI and the LPC, an additional test revealed that graduate students scored significantly lower than undergraduate students on the LPC.

Although further empirical exploration of the unanticipated inverse relationship between the CCI and the LPC would be outside the scope of the present study, theoretical explanations are offered in the following chapter. Utilizing the results of statistical tests in concert with theoretical formulations, several explanations of the inverse relationship between the CCI and the LPC are advanced in Chapter 5.

CHAPTER V

DISCUSSION

The results of this study have answered the research questions posed in Chapter 1, but the results have also raised new issues that deserve consideration and perhaps future investigation. Chapter 5 presents an exploration of these issues and an examination of the implications of the results as they relate to psychometry, theoretical constructs, higher education and its practitioners, and future research.

Research Questions

The present study's results have answered the principle research questions. Three initial research questions were advanced in Chapter 1. These questions were:

1. Does variation in cognitive complexity, as measured by the CCI on the LEP (Moore, 1987), account for variation in leadership style, as measured by the LPC (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) scale?

2. Does variation in empathy, as measured by the Hogan/Em scale (Gough, 1987; Hogan, 1969), account for variation in leadership style, as measured by the LPC scale?

3. To what extent do variations in cognitive complexity (CCI), and empathy (Hogan/Em), together account for variation in leadership style (LPC)?

In reference to the first research question, the CCI accounted for 4.77% of the variance found in the LPC scale. For the first time, then, Fiedler's notion of Leadership style has been demonstrated to be related to a measure of epistemological development associated with the student learning environment domain. The magnitude and direction of this relationship, however, are issues that require some discussion and further

exploration. The magnitude of the relationship was very small and the direction of the relationship was the reverse of what was expected. There was an inverse relationship between the CCI and the LPC.

In reference to the second research question, the Hogan/Em did not account for a statistically significant amount of variation in the LPC. Empathy accounted for only 1.50% of the variation in leadership style. As expected, however, empathy did mirror cognitive complexity in its directional relationship to leadership style, even though the direction of the relationship itself was unexpected. Although the relationship was not statistically significant, the trend showed that the higher the score on the empathy measure, the lower the score on the leadership style measure $r = -0.1227$, $p = 0.1223$).

In reference to the third research question, the CCI and the Hogan/Em, together, accounted for 5.17% of the variance found in the LPC scale. Collectively, cognitive complexity and empathy accounted for a greater portion of leadership style variance than did either of these variables when entered individually in the regression equation. Even when the variables were considered together, almost 95% of the variance in leadership style remained unexplained. Because empathy alone contributed so little to the prediction of leadership style, and because empathy tended to mirror cognitive complexity in its directional relationship to leadership style, it may be more fruitful to focus attention and future research on the relationship between the CCI and the LPC.

CCI and LPC Relationship

Albeit statistically significant, cognitive complexity accounted for a very small portion of the variance in leadership style. The CCI accounted for less than 5% of the LPC variance, leaving over 95% of the variance unexplained. One might conclude from

this result that the LPC, in addition to tapping the cognitive complexity of the individual, is sharing variance with one or more other variables. The inquiry into what other variables account for variation in the LPC has been conducted in a number of studies (Bass, Fiedler, & Krueger, 1964; Burke, 1965; Fishbein, Landy, & Hatch, 1965; Golb & Fiedler, 1955; Steiner, 1959). Other factors that account for the LPC's variance, however, have been illusive. Based on statements by Bass et al. (1964) and Fiedler (1967), Shiflett (1974) reports that "the LPC variable appears to be practically uncorrelated with any other personality variables" (p. 56). The LPC has been characterized as a "multifaceted measure," the complexity of which must be noted when considering variability in research findings (Stewart & Latham, 1986, p. 90). Therefore, with only a small percent of its variance explained by any one measure, and less then 5% explained by the CCI, the LPC may in fact be a multifaceted measure or it may measure something quite unique. The results of the present study, however, lend support to many previous research efforts (e.g., Evans & Dermer, 1974; Foa et al., 1971; Mitchell, 1970; Steiner & McDiarmid, 1957; Vannoy, 1965; Vecchio, 1979; Weissenberg & Gruenfeld, 1966) that have found the LPC to be related to some extent to measures of cognitive complexity.

The nature of the relationship between cognitive complexity and the LPC is itself complex and extremely difficult to define. Cognitive complexity has been described as "a concept which is intended to reflect the relative differentiation of the person's construct system" (Bieri, 1961, p. 359). Elaborating on this concept, Bieri (1961) commented:

> The cognitively complex person is assumed to have available a greater number of personal constructs to construe the behavior of others, while the cognitively simple person has available relatively few personal constructs....Further,

complexity implies that the person is capable of making finer discriminations

between aspects of the social environment. (p. 359)

Evans and Dermer (1974) summarized the connection between this concept of cognitive

complexity and the LPC measure when they stated, "Interpreting LPC scores as measures

of the ability to discriminate links them to cognitive complexity theory" (p. 202).

Vecchio (1979) noted that,

> According to Mitchell (1970), the cognitive complex position assumes that a
>
> person who obtains a high total score on the LPC scale must perceive his least
>
> preferred coworker as having some positive as well as negative qualities. The low
>
> LPC person, however, must perceive his respective coworker as possessing all
>
> negative qualities. In short, persons who score high on LPC, it is assumed, are
>
> more cognitively complex than low scorers. (pp. 523-524).

In support of the theoretical relationship between the LPC and cognitive complexity,

Mitchell (1970) found the LPC to be positively correlated to a cognitive complexity

measure associated with an individual's ability to differentiate between work group

characteristics. Additionally, Vecchio (1979) noted that Ashour (1973), in a

comprehensive review of Fiedler's contingency model, suggested the LPC scale be used

as a direct measure of cognitive complexity. Although never tested prior to the present

study, based upon theory and the research previously noted, it might be expected that the

LPC would be positively related to measures of student epistemological development,

that is, development of more complex, comprehensive, and differentiated cognitive

structures used to construe meaning. The present study, however, was not the first to

show a negative correlation between the LPC and a measure of cognitive complexity.

Although few in number, at least two studies found an inverse relationship between the LPC and cognitive complexity (Larson & Rowland, 1974; Vecchio, 1979), and there is at least one study with mixed findings (Evans & Dermer, 1974).

Larson and Rowland (1974) attempted to replicate Mitchell's (1970) study in which a positive linear relationship was found between the LPC and a measure of cognitive complexity. The measure of cognitive complexity used by Mitchell (1970), and in Larson and Rowland's (1974) replication, was an adaptation of Scott's (1963) categorization measure. In Scott's (1963) research, "subjects were asked to arrange a list of objects (nations, groups, etc.) into categories which they thought belonged together and to indicate what they thought the objects had in common" (Mitchell, 1970, p. 168). Mitchell (1970) modified Scott's (1963) measure to include categories of groups only, thus restricting the measure to the cognitive domain of interest to Mitchell (i.e., ability to differentiate between group characteristics). Restricting the measure to groups was an attempt to eliminate the problem pointed out by researchers such as Gardner and Schoen (1962), Scott (1963), and Vannoy (1965), who suggested that cognitive complexity was domain specific. Mitchell (1970) described his modified version of Scott's (1963) measure:

> The present study used a list of 20 groups, and the subjects were asked to make as many categories as possible. Pretests indicated that the distinctions were of the following types: voluntary-mandatory; competitive-noncompetitive; service-pleasure; elected leader-appointed leader, etc. The scores obtained, therefore, reflect the subject's ability to differentiate among various aspects of group situations and the types of demands that are present. (p. 169)

Although Mitchell (1970) found a positive linear relationship $r = 0.49$, $p < 0.025$, $n = 49$) between the LPC (complexity in perceiving coworkers) and the categorization measure (complexity in perceiving work settings), Larson and Rowland (1974) found a negative relationship.

Larson and Rowland (1974) used five samples ranging in education level, age, and work experience, and as in the present investigation, used high, middle, and low LPC categories in the analyses. Larson and Rowland (1974) reported that,

> when the samples were divided into high, middle, and low LPC categories, all of the correlations between the high LPC category and the Scott-Mitchell test were negative, suggesting that the higher the LPC score the lower the cognitive complexity of the individual. (p. 42)

Although the negative relationship between high LPC and the Scott-Mitchell measure manifested itself across all five samples, only the sample that contained 49 junior and senior undergraduate students reached statistical significance $r = -0.452$, $p < 0.05$).

Larson and Rowland (1974) offered little in the way of an explanation for their results, but pointed to a suggestion made by Bass et al. (1964) that "the middle LPC individual may in fact be more cognitively complex than the high or low individual, because he tends to be more critical and discriminating in his perceptions of others" (Larson & Rowland, 1974, p. 42). For example, the person who scores extremely high or low on the LPC would be viewing the least preferred coworker unidimensionally (all good or all bad) and, therefore, in a cognitively simple manner. Persons scoring in the midrange on the LPC would possess greater variance in responses (some good and some bad ratings of the least preferred coworker), thus demonstrating greater discrimination

and complexity in their response pattern in comparison to either the high-LPC or low-LPC person. This explanation, however, requires a curvilinear relationship between the LPC and the Scott-Mitchell measure, and "tests for curvilinear relationships failed to yield significant results" (Larson & Rowland, 1974, p. 44) in the Larson and Rowland study. Larson and Rowland (1974) concluded that there was no simple relationship between the LPC and measures of cognitive complexity.

Like Larson and Rowland's (1974) study, Vecchio's (1979) study casts doubt on the view that the LPC is positively associated with cognitive complexity. Vecchio (1979) used a converted LPC item standard deviation score (the item standard deviation divided by the maximum standard deviation possible for each LPC score) to represent the cognitive complexity of the participant. The premise, as proposed by Ashour (1973) and others, was that "high LPC subjects should exhibit greater variance on the items of the LPC scale while low-LPC subjects should display lesser variance on the items" (Vecchio, 1979, p. 524). There should, then, be a positive linear relationship between the total LPC score and the LPC item variance. Vecchio's (1979) results showed a significant linear trend, but there was a negative relationship between the total LPC score and LPC item variation. Vecchio (1979) concluded "that low LPC is related to greater complexity, while high LPC is associated with lesser complexity" (p. 525). Unfortunately, Vecchio (1979) offered no elaboration on possible explanations for his results.

Vecchio's (1979) study replicated one portion of Evans and Dermer's (1974) study, in which the LPC was tested for its relationship to cognitive complexity with mixed results. In addition to testing the correlation between the total LPC score and the LPC item variance, a second aspect of Evans and Dermer's (1974) study tested the

correlation between the LPC and measures of dogmatism (authoritarianism and closed-mindedness), intolerance of ambiguity, and desire for certainty. It was predicted that the high-LPC participants would be less dogmatic, more tolerant of ambiguity, and desire less certainty than the low-LPC participants, thus be more characteristic of cognitively complex individuals. A third aspect of Evans and Dermer's (1974) study replicated Foa et al.'s (1971) study that showed the high-LPC individuals differentiated (versus stereotyped) their least preferred coworker to a greater degree than the low-LPC individual.

Evans and Dermer's (1974) results were mixed. Unlike Vecchio's (1979) replication, Evans and Dermer found no relationship between the LPC score and the LPC item variance. The replication of Foa et al.'s (1971) study, however, supported Mitchell's (1970) and Foa et al.'s (1971) position that "the high-LPC individual discriminates by using different cognitive dimensions" (Evans & Dermer, 1974, p. 203) and, therefore, can differentiate between task and interpersonal dimensions of his or her least preferred coworker. The correlation of the LPC with measures of cognitive complexity resulted in the Evans and Dermer (1974) conclusion:

> It has been found that a low LPC score was consistently an indicator of cognitive simplicity in that it tended to be associated with the combination of high dogmatism and high intolerance for uncertainty. However, the high least preferred co-worker individual could be one of several types: *(a)* cognitively complex -- undogmatic and comfortable with uncertainty; and *(b)* cognitively mixed -- undogmatic but uncomfortable with uncertainty, and dogmatic but comfortable with uncertainty. (p. 205)

Evans and Dermer (1974) stated that their "results suggest that the low least preferred co-worker subject is a poor differentiator and that the high least preferred co-worker subject may be poor or good at differentiating" (p. 205). They go on to conclude that "high and low scores on the LPC may not differ in degree but may relate to different cognitive attributes -- the low end definitely being a measure of low complexity and stereotyping, the high end being somewhat undefinable" (Evans & Dermer, 1974, p. 205).

The studies published by Larson and Rowland (1974), Vecchio (1979), and Evans and Dermer (1974), then, indicate that the relationship between the LPC and cognitive complexity is extremely difficult to define. The results of the current study would seem to support, in part, the findings of Larson and Rowland (1974) and Vecchio (1979), but as previously noted, study results have varied from findings of a direct positive relationship to a direct negative relationship between the LPC and various aspects or representations of cognitive complexity. The relationship seems to vary depending on the approach taken to measure or define cognitive complexity.

How, then, can the direct negative relationship between the CCI and the LPC found in the current study be explained? There are several theoretical interpretations that can be advanced. They can be examined independently but, functionally, the theoretical interpretations may not be mutually exclusive in their potential to explain the current study's results. These interpretations consider (a) the importance of the specific cognitive domain under investigation, (b) the attitude taken by the respondent toward his or her least preferred coworker, and (c) the prospect that the respondent is rating a stereotype rather than an actual person when considering his or her least preferred coworker.

Stereotyping Interpretation

Even though the LPC instructions ask the participant to "think of *all the people* with whom you have ever worked" and reminds the participant to "think of a real person in your experience, not an imaginary character" (see Appendix A for complete instructions), there may be some individuals who think of a stereotype when rating their least preferred coworker. A stereotyped least preferred coworker would of course possess all negative traits (person and task related). The stereotyped stimulus object, then, would be undifferentiated (all bad characteristics). In other words, it would be expected that rating a stereotyped least preferred coworker would be essentially like rating an undifferentiated negative stimulus object in an undifferentiated manner, and therefore may result in an extremely low LPC score.

This type of extreme scoring based on rating a stereotyped least preferred coworker has been documented (Foa et al., 1971; Mitchell, 1970; Shiflett, 1974). Mitchell (1970) asked 119 college students to rate their least and most preferred coworkers, then asked the students whether the coworkers they just described were actual persons. Mitchell (1970) reported that "only 42% of the subjects with a low LPC score rated a real person as their least preferred co-worker, as compared with 83% for the high LPC ($p < .01$). Likewise, high-LPC persons also rated significantly fewer stereotypes (19% as against 48%; $p < .025$) as their most preferred co-workers" (p. 168). He concluded that "individuals with high LPC scores are thus less likely to classify people in terms of stereotypes than are those with low LPC scores" (Mitchell, 1970, p. 168).

Shiflett (1974) also investigated stereotyping and the LPC. He reported that 30 of 107 (or 28%) male U.S. Army trainees who took the LPC "had *not* rated a real person on

the LPC scales, but had, instead, rated the type of person they thought would be their least preferred co-worker" (Shiflett, 1974, p. 59). The mean LPC score for stereotypers was significantly lower ($p < .025$) than the mean LPC score for nonstereotypers. Shiflett (1974) concluded that "stereotypers tended to fall into the category of people referred to by Fiedler (1967, 1971b) as low LPC individuals, while nonstereotypers tend to be high LPC individuals" (p. 59).

Although stereotypers tended to be low-LPC individuals in both studies just cited, Shiflett (1974) noted a very important shift in response mode when the same individuals were asked to rate their most preferred coworker (MPC). Shiflett (1974) reported that "18 of the 30 LPC-stereotypers indicated that they had rated someone they had actually known when filling out the MPC scales" (p. 62). So there was a stronger tendency to stereotype when giving negative evaluations to individuals than when giving positive evaluations. In other words, stereotyping seems to be, at least partially, a function of the stimulus object. Shiflett (1974) remarked:

> This finding that about 20% of the respondents changed their mode of response suggests the need for a modification in Fiedler's (1971b) more general interpretation of low LPC individuals as being cognitively less complex than high LPC individuals. These data suggest that cognitive complexity and the tendency to stereotype may be at least partially a function of the stimulus object and its relevance or importance to the respondent. (p. 62)

Shiflett (1974) went on to note that although stereotypers frequently gave very negative ratings on the LPC, these ratings were not personal evaluations. Since 18 of the 30 low-LPC individuals changed their response mode to a personal evaluation (used an actual

person to rate) when asked to rate their most preferred coworker, Shiflett (1974) concluded that "stereotypers (who are intermixed primarily with people classified as low LPC) may actually be more tolerant of others than are nonstereotypers" (Shiflett, 1974, p. 63).

In light of Shiflett's (1974) study, if a number of the low-LPC individuals in the current study (those who also scored relatively high in cognitive complexity on the CCI) were rating a stereotyped least preferred coworker, it might help to explain the inverse relationship found between the LPC and the CCI. Rating an undifferentiated negative stimulus object (i.e., a stereotyped least preferred coworker) in an undifferentiated fashion results in extremely negative ratings (i.e., low LPC score). If it is true that low scores on the LPC are at least partially a function of the stimulus object (Shiflett, 1974), and therefore not necessarily associated with cognitive simplicity, then it is conceivable that participants in the current study might score low on the LPC while scoring high on the CCI. This supposition might also be supported by the Perry scheme's stage characteristics.

According to Perry (1998), those persons at the cognitively simple end of the complexity continuum (i.e., dualists) are more likely to perceive authority figures and what they say as the absolute truth than those at the cognitively complex end of the continuum (i.e., relativism). It might be speculated, then, that a dualist would be likely to follow instructions exactly as written by the authority figures who developed the measurement instrument. In contrast, the relativist might focus more on the concept of the least preferred coworker, taken in context, and not the concreteness of the written instructions. In this scenario, the individuals who score high on the CCI are the

individuals who are likely to use a stereotype as the least preferred coworker, and subsequently receive a low LPC score as a result of negatively rating their undifferentiated stimulus object; whereas, the individuals who score low on the CCI are likely to follow instructions, use a real person to rate as their least preferred coworker, and therefore be likely to give more positive (or less extremely negative) ratings to their personal, differentiated stimulus object.

Unfortunately, the participants in the current study were not asked if they rated a real person (stimulus object) when thinking of their least preferred coworker, and therefore the supposition concerning the stereotyping interpretation cannot be tested with the present data. The stereotyping interpretation, however, is not the only interpretation of the LPC-CCI relationship that can be advanced. The domain-specific interpretation also has as its focus the stimulus object, but is concerned with the environment or domain in which the stimulus object is encountered. Stated another way, the domain-specific interpretation focuses on the environment or domain in which meaning of the stimulus object is construed.

Domain-Specific Interpretation

Another potential explanation of the negative relationship found between the CCI and the LPC in the present study involves the domain-specific nature of cognitive complexity. The benchmark studies in the field of psychology that pertain to the general topic of cognitive complexity warn of the domain-specific nature of this construct (Bieri, 1955, 1961; Gardner & Schoen, 1962; Kelly, 1955; Lewin, 1951; Piaget, 1960; Scott, 1962, 1963; Vannoy, 1965). Discussing the concept of cognitive constructs, Bieri (1961) noted:

Cognitive complexity is a concept which is intended to reflect the relative

differentiation of the person's construct system.... Thus it would be expected that

the more complex or differentiated person would be more versatile in his response

repertory in his social relations. Further, complexity implies that the person is

capable of making finer discriminations between aspects of the social

environment. (p. 359)

Bieri (1961), when discussing the generality of cognitive complexity, distinguished

between two major types of stimulus situations -- the nonhuman or physical environment,

and the social environment -- and questioned whether measures of cognitive complexity

could, or should, span both stimulus realms. Researchers such as Gardner and Schoen

(1962) and Scott (1963) were even more critical of the generality of cognitive complexity

and suggested that an individual could be cognitively simple in one domain and

cognitively complex in another, depending on the individual's knowledge and experience

in that domain. Vannoy (1965) supported the assertions of Gardner and Schoen (1962)

and Scott (1963) when he demonstrated through factor analysis that several factors

associated with a number of cognitive complexity measures appeared to reflect different

types of cognitive complexity. Vannoy (1965) stressed that his results apply strictly to

the social environment, and more specifically to "the way in which the individual

construes person-objects in his environment" (p. 394), much like what is asked of the

individual who completes the LPC.

The author of the current study asked students to construe a person-object called

the least preferred coworker, and then attempted to explain the variance in students'

responses with a measure of cognitive complexity associated with the manner in which

the students made meaning of their learning environment. Did the author of the current study heed the warnings of researchers such as Bieri, Scott, and Vannoy? In part, yes, but not to the extent of equating domain elements within the social environment.

The fact that the present study compared two aspects of cognitive structuring of the interpersonal environment, but did not compare identical elements within the interpersonal environment domain, may have contributed to the unexpected inverse relationship found between the CCI and the LPC. The LPC and the LEP both require the construction of meaning within the interpersonal domain, and to that extent the current study complies with the generality constraints noted by Bieri (1961) and others. The LPC requires construction of meaning related to a person stimulus object (the least preferred coworker) set in the interpersonal domain of the work environment. The LEP, from which the CCI is obtained, requires construction of meaning related to the interpersonal domain of the learning environment. More specifically, the LEP asks respondents to rank the three most significant items in five learning environment domains: (a) the ideal learning environment, and then within the ideal learning environment, their (b) teacher, (c) themselves as students, (d) classroom atmosphere and activities, and (e) evaluation procedures.

The LEP and the LPC, therefore, are both interpersonal domain specific. Within the general interpersonal domain, however, the LPC and LEP are affiliated with what might be considered sub-domains. The LPC stimulus object is affiliated with the work environment domain and the LEP stimulus objects are affiliated with the learning environment domain. Additionally, the LPC employs a single person stimulus object (the least preferred coworker), whereas the LEP incorporates a person stimulus object (the

teacher in an ideal learning environment) as well as four other stimulus objects within the learning environment domain, as previously noted. The LEP might, therefore, represent a more broad-based measure of cognitive complexity than the LPC, and the measures may be tapping cognitive complexity in separate sub-domains within the more general interpersonal domain.

If the LEP and the LPC are tapping cognitive complexity associated with different stimulus sub-domains (work versus learning) within the interpersonal domain, it might be possible that an individual is cognitively complex in one domain and rather cognitively simple in the other. As noted in Chapter 2, this is consistent with Perry's (1981) notion of cognitive development occurring in a recursive fashion, or what he calls the "expanding helix" metaphor. The idea is that "one proceeds through the nine [Perry] positions not once, but in cycles across different areas or situations and that the nature of the cycling changes with experience" (Sheese & Radovanovic, 1984, p. 16). Once an individual has advanced through Perry positions in one environment (e.g., academic setting), this experience positively translates to the advancement through Perry positions in other environments or cultures (e.g., business setting). The notion of cognitive development occurring in an environment-specific context, but positively translating to meaning making in other, different environments or content domains was also described as "horizontal decalage" by Piaget (1960).

In reference to the current study's results, it might be suggested that students who have been more fully engaged in the learning environment domain over a longer period of time (e.g., graduate students) would be more cognitively complex within this domain than, for example, students who have been less engaged in the same domain over a

shorter period of time (e.g., undergraduates). Sheese and Radovanovic (1984) argued that the development of cognitive complexity is situation specific and development is most likely to occur in those areas with which the individual is most persistently engaged. This would explain the education level main effect on the CCI (Hypothesis 5), where graduate students were found to be more cognitively complex than undergraduate students. It might also explain the inverse relationship between the CCI and the LPC.

The present study's results indicated that students who obtained a high CCI score (i.e., cognitively complex in the learning environment domain), such as the graduate students, tended to be the students who obtained a low LPC score (i.e., construed the workplace environment, or least preferred coworker stimulus object, in a cognitively simple fashion). Researchers (Foa et al., 1971; Harvey et al., 1961; Kurfiss, 1977) have suggested that cognitive development, although advanced by means of interaction with the environment, may be restricted to the specific environment, situation, or challenge encountered. Allison, Morfitt, and Demaerschalk (1996), for example, found that domain knowledge, rather than general cognitive style or native capacity, better predicted judged quality of response to a case problem. Additionally, Vannoy (1965) suggested that "the degree of complexity-simplicity probably varies over different cognitive domains depending upon the amount and kind of knowledge the individual possesses, and upon the kinds of functional demands with which the domain is confronted in daily life" (p. 386).

If, then, the graduate students in the present study tended to possess a great deal of knowledge of the learning environment, obtained through persistent and regular confrontation with this domain, and as a consequence of time spent in the learning

environment were less engaged in the workplace environment, they might be expected to obtain rather high scores on the CCI, and comparably low scores on the LPC. In other words, they would be expected to construe the work environment stimulus object in a more simplistic fashion than the learning environment stimulus objects presented in the LEP measure because they have been engaged to a great extent in the learning environment, at the expense of engagement in the work environment. In contrast, the undergraduate students, having had less experience than graduate students in the learning environment, and perhaps being engaged in this domain to a lesser degree (i.e., intensity of engagement), would have opportunity to become engaged more, proportionally, in other domains, and perhaps in the aggregate construe a work-related stimulus object in a more complex fashion than learning environment stimulus objects. The result would be an inverse relationship between the CCI and the LPC.

The domain-specific interpretation of the current study's results clearly provides insight, in particular, to an understanding of the directionality of the relationship between the CCI and the LPC. The results of the race and age demographic variable analyses in the present study, in light of the domain-specific interpretation, are also worth noting. It was discovered that Black students tended to score higher on the LPC than White students. If it is accepted that Blacks have been, on the whole and due to historical circumstances, lower in socioeconomic status than Whites, it could be argued that the Black students in the current study tended to have to work outside of the learning environment to a greater extent than the White students. If the Black students, then, were engaged in the workplace environment to a greater degree than White students, the Blacks would theoretically score higher than Whites on the LPC. The work history of the

participants in the present study was not collected, and therefore, unfortunately, this supposition cannot be confirmed for this sample.

Like race, results associated with age might also be better understood in light of the domain-specific interpretation. The current study demonstrated a positive correlation between age and the CCI and a negative correlation between age and the LPC. The older the students, the higher their score on the CCI and the lower their score on the LPC. In other words, in light of the domain-specific interpretation, the older the students in the current sample, the more cognitively complex they were in the learning environment domain, and accordingly, the more cognitively simple they were in the workplace domain. This result is perhaps an artifact of the education level main effects on the CCI, LPC, and age, as reported in Chapter 4. Not surprisingly, it was found that graduate students were older and more cognitively complex in the learning environment (CCI) than undergraduate students. As previously noted, it can be speculated that graduate (i.e., older) students have been engaged to a great extent in the learning environment and, therefore, might be expected to construe the learning environment stimulus objects presented on the LEP measure in a more complex fashion than undergraduate (i.e., younger) students. Additional support for the domain-specific interpretation of the inverse relationship between the LPC and age can be found in the education level main effect on the LPC. Subsequent analysis revealed that graduate (i.e., older) students scored lower on the LPC than undergraduate (i.e., younger) students, exemplifying the inverse relationship between age/education and cognitive complexity associated with the work environment/domain or LPC. The relationship of age to the CCI and LPC, therefore, might be explained in terms of the education level main effect on age and the domain-

specific interpretation of cognitive complexity.

The domain-specific interpretation of cognitive complexity alone, however, cannot explain all of the variation in research results over the years. As previously noted, Vecchio (1979) found an inverse relationship between the total LPC score and the LPC item variation. This result indicated that individuals who scored low on the LPC tended to be more complex or differentiate their least preferred coworker more -- more variability on item scores -- than those who scored high on the LPC. Because this analysis was internal to the LPC itself, that is, it did not compare the LPC to another presumed measure of cognitive complexity, the domain-specific interpretation does not apply.

Other shortfalls of the domain-specific interpretation of cognitive complexity are the determination of where one domain ends and another begins, and predispositions or preferences individuals have for either complex or simple stimuli. Vannoy (1965) noted that "even if people are predisposed to respond in cognitively complex or cognitively simple ways, their predispositions are severely limited ones which have application to only very narrow categories of situations" (p. 386). Additionally, the preference for complexity or simplicity, or what has been called a motivational concomitant (Bieri, 1961), may be manifest in a variety of dispositional characteristics. Bieri (1961) commented on this issue when he stated, "the relationship between cognitive complexity and the tendency to perceive differences between oneself and others suggests such an amalgam of cognitive and motivational characteristics" (p. 371). The value-attitude interpretation of the LPC and cognitive complexity helps to explain the shortfalls of the domain-specific interpretation, and may also contribute to the understanding of the

otherwise counterintuitive relationship discovered between the CCI and the LPC in the current study.

Value-Attitude Interpretation

The value-attitude interpretation of the LPC and cognitive complexity in general might offer additional insight into the inverse relationship between the CCI and the LPC found in the present study. Rice (1978a) first proposed the value-attitude interpretation of the LPC in an effort to better explain the wide range of findings in studies of the LPC. Rice (1978a) was careful to point out that his interpretation relied heavily on Fishbein's (1967) theory of attitudes and Rokeach's (1968) analysis of values and attitudes.

In Rice's (1978a) words, "this interpretation views the LPC scale as a measure of *attitudes* that reflect basic differences in the *values* of persons scoring high or low on the scale" (p. 1215). The value-attitude interpretation of the LPC, as the name implies, has two basic propositions. The first is that the LPC score is viewed as a measure of attitude. More specifically, the LPC is seen as measuring attitude toward one's least preferred coworker. The second proposition is that "attitudes toward one's least preferred coworker (and related attitude objects) reflect differences in the values of high- and low-LPC persons" (Rice, 1978a, p. 1215). In other words, values are the criteria against which attitudinal judgements are made. High and low-LPC individuals are thought to have different values, and therefore base their attitudes on different criteria. Rice (1978a) stated,

> low-LPC persons highly value task success and tend to evaluate themselves and
> others in terms of this criterion. Thus, the attitudes of low-LPC persons toward
> themselves, others, the group, and the task should be quite favorable when they

are successful on the task and quite unfavorable when they are unsuccessful....High-LPC persons highly value interpersonal success and tend to base their attitudes on this criterion. High-LPC persons should have more favorable attitudes toward themselves, others, the group, and the task when interpersonal relations have been successful than when relations have been unsuccessful. (p. 1216)

Two studies of job satisfaction provided direct support of Rice's (1978a) value-attitude interpretation of the LPC measure. In an organizational survey (Chemers & Ayman, 1985) and in a laboratory experiment (Rice, Marwick, Chemers, & Bentley, 1982), low-LPC participants showed a significantly stronger correlation between (task) performance measures and job satisfaction than did high-LPC participants. The high-LPC participants showed a stronger correlation than the low-LPC participants between job satisfaction and measures of group atmosphere and interpersonal harmony (relations).

The value-attitude interpretation of the LPC advanced by Rice (1978a) is much like Fiedler's (1967) original need-gratification interpretation, which is outlined in detail in Chapter 2. A decade after his initial need-gratification explanation, Fiedler (1978) renamed this the motivational hierarchy hypothesis. Fiedler preferred the term hierarchy because, "as Maslow (1954) pointed out in the context of his need-hierarchy theory, satisfied needs no longer motivate" (Fiedler & Garcia, 1987, p. 78). The individual is motivated to engage in behavior that favors task performance or interpersonal relations enhancement in an effort to satisfy a primary need or goal. If the primary goal or need (task-related behavior for low-LPC individuals, and interpersonal-related behavior for high-LPC individuals) is satisfied by the environment or situation, individuals may

engage in other behaviors, higher in the need-hierarchy inherent in their personality. In reference to the motivational hierarchy hypothesis, Fiedler and Garcia (1987) stated,

> This implies that each person has these two goals but that they have different value for high- and for the low-LPC person. The low-LPC person lives by the principle of 'business before pleasure'; the high-LPC person feels that the close relationship with coworkers is the prerequisite to team success. (p. 78)

Thus, as Ayman, Chemers, and Fiedler (1997) explained in a review of the contingency model,

> the value-attitude and motivational hierarchy are not incompatible hypotheses. Rather, one focuses on the measure of the LPC and the other on the construct it represents. They both agree that LPC measures values or goals. However, the former assumed that individual's values will always be manifested in specific behaviors (Rice, 1978a) and the latter (Fiedler, 1978) assumed that values or goals may or may not be manifested in a particular behavior. In the latter case, the vehicle that moderates the behavioral manifestation is the situation. (p. 359)

The value-attitude interpretation of the LPC is also not incompatible with the cognitive paradigm of leadership style, outlined in detail in Chapter 2.

According to Rice (1978a), "the value-attitude interpretation proposes that the primary values of high- and low-LPC persons serve as 'constructs' (Kelly, 1955) through which they view and evaluate the world" (p. 1216). These cognitive constructs, which represent personal value or attitude structures, are akin to the cognitive constructs described by Perry (1998) and other student development theorists. Schroder et al. (1967) described four points (which might be called stages) along a continuum, ranging from

concrete to abstract attitude structures.

The attitude structures described by Schroder et al. (1967), and referenced in Rice's (1978a) value-attitude interpretation of the LPC, were drawn upon by Perry (1998). Parallels can be discerned between the attitude structures described by Schroder et al. (1967) and the stages of the Perry scheme. The first point in Schroder et al.'s (1967) attitude structure continuum is the attitude as absolute, similar to Perry's (1998) dualism stage. "The 'belief' about content (attitude toward politics, minority groups, and so forth) becomes the anchor for defining the 'self.' (Schroder et al., 1967, p. 134). The second point in the continuum is marked by interpersonal attitude structures that are less content bound and defined by Schroder et al. (1967) as moderately low integrative complexity. Similar to Perry's (1998) multiplicity stage, with moderately low integrative complexity,

alternate views (hierarchical organizations) can be considered, but the structural

properties for integrating these discrepant organizations (perceptions) are lacking.

At this level, alternatives are available and can be maintained if the person can

avoid close contact or interaction; for example, 'He can keep his beliefs so long as

he does not interfere with mine.'" (Schroder et al., 1967, p. 135).

The third point in the continuum, much like Perry's (1998) relativism stage, is defined by a contextual attitudinal referent and comparison of alternatives from various points of view. At this level, referred to by Schroder et al. (1967) as medium high integrative complexity, "attitudes appear to be characterized by comparison processes and empathy and are anchored in a broad range of differentiated factors" (p. 135). The final point in the Schroder et al.'s (1967) attitude structure continuum is defined as highly abstract, which might be compared to Perry's (1998) commitment in relativism stage. The highly

abstract attitude structure can be characterized by "an ability not only to compare and relate various constructions (perceptions) about the object but also to integrate these alternate perceptions in alternate ways. The capacity to generate various integrations of different points of view leads to the emergence of internally anchored information" (Schroder et al., 1967, p. 135). In a statement equally applicable to the Perry scheme, Schroder et al. (1967) summarized the changes that occur across the attitude structure continuum:

> The change from concreteness to abstractness is a change from the maintenance of
> simple structure and the processing of little, highly salient information through
> externalization and the avoidance of conflict to the evolvement of more
> differentiated and more highly and completely integrated structures and the
> emergence of conflict and internal causation (new information produced by the
> resolutions of conflicting perceptions). (p. 135)

Schroder et al. (1967) also noted that the LPC measure "may represent a gross, but simple and fast, measure of the complexity of attitude structure in interpersonal situations" (p. 135).

It would seem, then, that the LPC, taken from the value-attitude perspective, is consistent with the cognitive paradigm of leadership style as presented throughout this study. Thus, the inverse relationship between the CCI and the LPC would seem to remain counterintuitive, that is, until the domain-specific nature of cognition is factored in with the value-attitude interpretation presented thus far. The connection between the value-attitude and domain-specific interpretations lies in the proposition that individuals discriminate between task and interpersonal domains, each having a different set of

values that define or provide criteria for a constellation of attitudes (Ayman et al., 1997).

In fact, Rice (1978a) commented on domain specificity when he contrasted his value-attitude interpretation of the LPC with the cognitive complexity interpretation. He noted that, unlike the value-attitude interpretation, the cognitive complexity interpretation assumes that high-LPC individuals are, in general, more cognitively complex than low-LPC individuals. Rice (1978a) stated that the value-attitude interpretation of the LPC

> suggests that the relative complexity of cognitions held by high- and low-LPC persons is domain specific and that personal values and cognitive complexity go hand in hand. Low-LPC persons are thought to be more cognitively complex within their domain of concern (task performance). Similarly, high-LPC persons are thought to be more cognitively complex within their domain of concern (interpersonal relations). (p. 1216)

By tying the value-attitude structure to the domain-specific nature of cognitive complexity, Rice (1978a) "goes beyond the earlier needs-and-motives model...[and]...attempts to integrate cognitive and motivational components" (p. 1216) of the LPC interpretations. Schroder et al. (1967) also noted the domain-specific nature of value-attitude structure and stated that

> it is incorrect to speak of personality structure as if all content areas in a person's life space were processed at the same structural level. It is possible that a person could use an integratively complex structure for handling interpersonal stimuli but have only a simple hierarchical structure for handling religious stimuli. (pp. 128-129)

With the consideration of the domain-specific nature of the value-attitude interpretation,

the inverse relationship found between the CCI and the LPC in the current study becomes more understandable.

It seems very likely that the graduate students in the current study (and graduate students in general) might have a self-concept strongly associated with accomplishment (i.e., rate negatively someone who impedes accomplishment and, therefore, obtain relatively low LPC scores), and at the same time be characterized as cognitively complex within the learning environment domain (i.e., obtain relatively high CCI scores). In contrast, the undergraduate students in the present study might have had a self-concept that was relatively less strongly associated with accomplishment, and might have construed meaning within the learning environment in a relatively less complex manner, as compared to the graduate students. This depiction of the current study's participants would explain the inverse relationship found between the CCI and the LPC. Rice (1978a) concluded that "low LPC persons were more interested in, and knowledgeable about, variables in the task domain, whereas high LPC persons evidenced a similar involvement with aspects of the interpersonal or relationship domain" (Ayman et al., 1997, p. 357). A conclusion made by Ayman et al. (1997) is that "a low LPC score is a reflection of negative affect emanating from frustration with the inability to complete the task at hand. A low score may represent those individuals who have a self-concept that is strongly associated with accomplishment" (pp. 359-360).

Given this interpretation, it is not difficult to imagine a graduate student with a self-concept strongly associated with accomplishment who, in the learning environment, employs a complex construction of meaning. This individual would score relatively high on the CCI, and having a negative attitude toward someone who thwarts highly valued

task accomplishment, would score relatively low on the LPC. An undergraduate student, in contrast, might construe the learning environment in a relatively less complex manner than the graduate student, and not valuing accomplishment as strongly as the graduate student, might have the propensity to maintain a relatively positive attitude toward his or her least preferred coworker. This individual would score lower on the CCI and higher on the LPC than the graduate student, that is, consistent with the inverse relationship between the CCI and the LPC found in the present study.

<u>Synthesizing Interpretations</u>

Leadership style was initially defined in the present study as a characteristic way of understanding or making meaning of the environment. It was operationally defined by the LPC which, based on Fiedler's and his associates' formulations as they related to cognitive complexity, was interpreted as an individual's capacity to differentiate cognitively between elements in the environment. Although this definition of the LPC and understanding of leadership style is precise in relation to the literature on cognitive influences of leadership style, the results of the present study point to the need for a much more complex interpretation of leadership style.

Evident from the interpretations of the relationship between the CCI and the LPC just presented is that no single interpretation can or should stand alone. It would seem important, for example, to note that low-LPC individuals not only rated an undifferentiated stereotype of their least preferred coworker in an undifferentiated manner, but might also have been intensely engaged in the learning environment at the expense of engagement in a work-related domain, and perhaps, as a consequence, developed a strong value for task accomplishment and thus manifested negative attitudes

toward persons (or stereotyped stimulus objects) who run counter to accomplishment -- a value strongly associated with their self-concept. Thus, use of alternate interpretations of leadership style, in combination, may be warranted in light of the inverse relationship found between the CCI and the LPC. These alternate interpretations have originated from cognitive psychologists as well as Fiedler and his associates who have conducted research on the contingency theory for the past 30 years.

In a comprehensive review of Fiedler's contingency theory (the first complete review in over 16 years), Ayman et al. (1997) noted the evolution of the theory and its constructs over three decades of research. One very visible change in terminology was the switch from using "leadership style" to "leadership orientation." Ayman et al. (1997) noted that one of the main factors in the contingency theory is "a leader's attributes, referred to as task or relationship motivational orientation (formerly referred to as style)" (p. 351). The term orientation may in fact be more in line with the tendency or proclivity of individuals to construe meaning of the leadership situation in a fashion that is consistent with any number of interpretations, whether the interpretation is based on stereotyping, value-attitude structure, cognitive complexity associated with a specific environment or domain, or a combination of interpretations. More on the LPC as a construct (theoretical and psychometric implications) and its utility (higher education implications) will be presented in the Implications sections of this chapter.

Implications

The implications of the results of the present study are discussed in this section. Implications of the results are discussed as they relate to the psychometric properties of the measures, theoretical constructs, higher education policy and practice, and future

research.

<u>Psychometry</u>

In the broadest sense, psychometry is a technique or psychological theory of

mental measurement (<u>Webster's Ninth New Collegiate Dictionary,</u> 1983). In reference to

the current study, the implications for psychometry pertain to the psychometric properties

of the LPC, LEP, and Hogan/Em. Psychometric properties of a measure include, among

other elements, its reliability and validity. Although the results of the current study

provide no insight into the reliability of the measures used, the correlations between the

measures as they were identified in the results do provide potential implications for

validity.

The LEP, as a measure of cognitive complexity in the learning environment, may

have gained a modicum of additional validity from the results of the current study.

Replicating Lovell's (1990) findings, there was a statistically significant correlation

between the CCI and the Hogan/Em. The correlation of a LEP index to a measure of

empathy, thought to be an aspect of cognitive complexity, added to the concurrent

validity of the LEP. Lovell (1990) noted the importance of this correlation when he

stated, "thus, it may be concluded that the LEP 'taps into' the social-cognitive sphere in

meaningful ways. As a consequence, the LEP has gained in validity from the present

work; future researchers may turn to the LEP with added confidence" (p. 201).

Lovell's (1990) sample, although large, consisted of graduate students of

counseling. The present research employed a sample of urban graduate and

undergraduate students, and therefore may also have added to the strength of the

generalizibility of the LEP within the college student population in that the sample was

quite diverse in terms of student education level, discipline of study, and demographics (e.g., age, race, and nationality). Further, as noted by Lovell (1990), the correlation between the CCI and Hogan/Em added support to the proposition that the Hogan/Em scale, primarily reflecting a "cognitive role-taking" form of empathy (Hogan, 1969), may have a cognitive developmental aspect.

The main effect on education level for the CCI also added support for the criterion validity of the LEP. Moore's (1987) original reliability and validity study used a sample of undergraduate students and revealed a statistically significant criterion group main effect. Criterion validity was demonstrated with statistically significant CCI mean criterion group differences across student classifications (freshmen through seniors). Moore (1987) concluded that there was a "consistent upward trend one would expect from a measure of development" (p. 147). The present research extended the criterion validity to graduate students, with a main effect on education level for the CCI. In keeping with the anticipated upward trend, graduate students scored higher than undergraduate students on the CCI, thus corroborating the expected increase in complexity from the undergraduate to the graduate student level and thereby adding support to the LEP validity.

Additionally, the relationship between other demographic variables and the dependent measures were consistent with prior research findings, with age positively correlated with cognitive complexity, and no gender main effect for either cognitive complexity or empathy. These findings corroborate prior research findings (Hogan, 1969; Lovell, 1990; Moore, 1987) and, therefore, add to the validity associated with the LEP and Hogan/Em. Additionally, the finding that there was no main effect on U.S.

citizenship for the Hogan/Em, CCI, and LPC, coupled with the finding that there were no changes in test results with the effect of race held statistically constant (covaried out), added to the cross-cultural validity of these measures.

In contrast, this study did not find support for a relationship between empathy and leadership style. Although Woodall and Kogler Hill (1982) found a "modest relationship" (p. 802) between empathy and style of leadership (the LPC), the present research found no support for such a relationship. Given that the Hogan/Em has, now, been shown in more than one study to correlate with a developmental measure of cognitive complexity, the lack of a relationship between the Hogan/Em and the LPC, coupled with the inverse relationship found between the LPC and the CCI, casts serious doubt on the LPC construct validity when considering only the cognitive complexity interpretation of Fiedler's (1969) leadership style measure.

Finally, the unexpected finding of an inverse relationship between the CCI and the LPC presents implications for Fiedler's (1969, 1978) notion of leadership style. Contrary to expectations, it must be concluded that Fiedler's notion of leadership style/orientation is inversely related to cognitive complexity associated with the college student learning environment (CCI). Counter to the conclusions of several benchmark publications in leadership research (Foa, et al., 1971; Mitchell, 1970, Rice & Chemers, 1975) that have noted a positive correlation between the LPC and measures of cognitive complexity, the findings of the present study lend support, instead, to the interpretation of the LPC as a measure of a domain-specific value-attitude or goal (Fiedler, 1978; Rice, 1978a). One implication of this finding, however, is the additional support provided to the value-attitude interpretation of the LPC. The construct validity of the LPC as a measure of

value-attitude has, therefore, been enhanced by the current study's results and, consequently, there is another strike against the validity of the LPC as a direct measure of cognitive complexity.

Although the cognitive complexity interpretation of the LPC (capacity and tendency to differentiate between environmental or situational stimuli) has been called into question, it should be noted that the value-attitude interpretation also contains a cognitive component, and the CCI, a measure of epistemological complexity, was negatively correlated with the LPC. This rather intricate set of relationships may hold theoretical implications of its own.

Theoretical Constructs

The theoretical constructs that underpin the current study include "differentiation matching," which was outlined in Chapter 2 as the theoretical connection between leadership style and cognitive developmental theory, and the constructs that are the formulations of Fiedler's (1969, 1978) leadership theory and Perry's (1998) theory of student cognitive development. The present study's results hold implications for some of these theoretical constructs. The differentiation matching construct was called into question by the current study's results, and the idea that cognitive development progresses in a pattern by which individuals make meaning of the world in ways that stress either integration or differentiation, or connectedness or independence, was supported by the results of this study.

The concept that individuals develop cognitively by moving alternately between constructions of meaning that stress either integration and connectedness, or differentiation and independence, was described variously in most cognitive development

theories (Kegan, 1994; Kohlberg, 1981a; Loevinger, 1976; Perry, 1998) and offers a potential explanation of the inverse relationship found between the CCI and the LPC in this study. This theoretical construct is, then, supported by the current study's results in as much as the results can be potentially explained by the construct. To understand this explanation of the inverse relationship between the CCI and the LPC, the CCI must be interpreted in light of the Perry positions and the specific way in which individuals construe meaning from within these positions.

Although Moore (1990b) noted that "it is advisable to use the CCI as a continuous scale score rather than as a means to define subgroups" (p. 3), he also recognized that "it is possible to define loose groupings using the CCI score ranges" (p. 3) to define Perry positions. According to Moore's (1990b) CCI score ranges, the high-LPC participants in the current study, with a mean CCI score of 326.79, fall in Perry position 3. This position is what Perry (1981) called "Multiplicity Legitimate but Subordinate," or what is more generally called "early multiplicity" (Moore, 1987).

Early multiplicity is characterized by "the first acknowledgment of legitimate uncertainty in the world; instead of two boxes or categories, right and wrong, there are now three: right, wrong, and 'not yet known'" (Moore, 1987, p. 33). The introduction of uncertainty is tempered in that what is "not yet known" is knowable. The person in position 3, then, might be described as still lacking an independent, autonomous, or self-reliant meaning making structure. In other words, the sense of self is based on external valuations, in that from this position, external to one's own thoughts, there are "right ways, or methods, to find the right answers" (Moore, 1987, p. 34). Without an independent sense of self, the lack of autonomy might, therefore, translate into a feeling

of mutuality toward peers and coworkers. There may, then, exist a tendency toward providing a more positive evaluation of coworkers, even a person preventing task accomplishment (the least preferred coworker). Relatively positive ratings of the least preferred coworker by a person in Perry position 3 might result in a higher LPC score than a person in Perry position 4, or in a 3/4 transition.

According to Moore's (1990b) CCI score ranges, the low-LPC participants in the current study, with a mean CCI score of 350.42, fall in the Perry position 3/4 transition. Moore (1987) called this "the transition from early multiplicity to late multiplicity" (p. 34). The transition is "often triggered by the growing realization that hard work is not sufficient in and of itself" as the person "begins to understand issues of quality vs. quantity and the application of criteria" (Moore, 1987, pp. 34-35). As persons transition to position 4 they are moving toward a "focus on how to think--independent thinking as a means of making sense of things" (Moore, 1987, p. 35). In other words, "the 'not yet known' of position 3 has thus in a way become a new certainty of 'we'll never know for sure,' and thus what is most important is one's own thinking" (Moore, 1987, p. 35). Further, according to Moore (1987), as independent thinking develops, "the area of evaluation is frequently critical" (p. 34). Therefore, it might be expected that individuals in Perry position 3/4 transition, thinking somewhat independently and critically, would have the capacity and/or tendency to be more critical of their least preferred coworker than individuals in Perry position 3 -- a position associated with lack of autonomy and potential feelings of mutuality. This might result in Perry position 3/4 individuals scoring lower on the LPC than position 3 individuals, thus representing an inverse relationship between the CCI and the LPC.

It should be noted that the theoretical construct associated with construing the world from a connected/mutual or differentiated/autonomous view is not unique to the Perry scheme. There is, in most theories of cognitive development, the notion that in the evolution of development individuals either construe the world in an autonomous or independent way (a strong self-concept and ability to view others independent of self), or construe the world with a view focused on mutuality and connectedness or dependence on others. This theme is found in the theories of Kegan (1994), Kohlberg (1981a), and Loevinger (1976).

In Kegan's (1994) stage 4 or "institutionalism" stage, for example, the leader "may provide a warm 'shoulder to cry on' but is able to be empathic with, and in relation to, the other's pain (versus identified with it and responsible for it)" (Kegan, 1991, p. 227). The individual becomes "self-authoring" and is concerned with autonomy and competence (Rodgers, 1990). With the ability to separate one's self from others, comes the ability to more readily criticize others, thus, perhaps the tendency to rate a least preferred coworker more negatively. In contrast, in Kegan's (1994) stage 3 or "mutuality/interpersonalism" stage, the leader "may provide a warm 'shoulder to cry on,' but then feels identified with, [and] responsible for, the other's pain" (Kegan, 1994, p. 27). Stages 3 and 5 stress inclusion and connectedness (e.g., tendency not to judge harshly someone who interferes with task accomplishment - high LPC score or relationship leadership orientation), and stages 2 and 4 emphasize autonomy and separateness (e.g., tendency to judge harshly someone who interferes with task accomplishment - low LPC score or task leadership orientation). Stage 3 is what many undergraduate college students are experiencing (Rodgers, 1990), and stage 4, perhaps, what most graduate students are experiencing.

This might result in an inverse relationship between cognitive complexity and the LPC.

Similarly, an individual in Kohlberg's (1981a) level II or "conventional" stage would be characterized as maintaining social order and needing to meet the expectations of others (inclusion/connectedness), whereas someone in the level III or "postconventional" stage would be characterized as holding principles independent of societal norms (autonomous/separateness). This would represent the usual progression of cognitive/moral development from the traditional college-age freshman (17 to 19 years old) to the traditionally older graduate student (Pascarella & Terenzini, 1991). Likewise, Loevinger's (1976) "conformist" stage, "wherein individual behavior is largely determined by group behaviors, values, and attitudes" (Pascarella & Terenzini, 1991, p. 35), might be descriptive of undergraduates, whereas her "conscientious" stage wherein "rules and values have been internalized, and the individual has attained the capacity for detachment and empathy" (Pascarella & Terenzini, 1991, p. 35) -- capacity for independence -- might be descriptive of graduate students. Therefore, the theoretical constructs of Kohlberg (1981a) and Loevinger (1976), like Kegan (1994) and Perry (1998), seem to support the current study's finding of an inverse relationship between cognitive complexity and the LPC. The current study's results, then, support at least one theoretical construct that is common to these theories.

Although an implication of the present study is support of a theoretical construct common to cognitive development theories, another implication calls into question one aspect of the cognitive paradigm, or Fiedler's notion of leadership style. The cognitive paradigm of leadership style assumes that leadership style is antecedent to behavior and that leadership style, being related to the cognitive complexity of the leader, cannot be

readily changed, but instead changes or develops over time. The cognitive paradigm of

leadership was not supported by the present study's results to the extent that the

theoretical construct of "differentiation matching" (the match between a person's ability to

differentiate between situational variables and the differentiation required by the

situation) was not supported as the primary connection between leadership style and

cognitive complexity.

The concept of differentiation matching, advanced by Foa et al. (1971), assumed a

direct and positive relationship between cognitive complexity and the LPC. For example,

as a person's LPC score increased, the ability to differentiate cognitively (between the

person and the task, or elements of the situation), or cognitive complexity, was assumed

to increase. The inverse relationship that was found between the CCI and the LPC in the

present study, therefore, discounted differentiation matching as a concept that associated

leadership style (LPC) with cognitive complexity (CCI).

Because the construct of differentiation matching was not supported by the

present study's results, and in light of the value-attitude interpretation of the LPC, and the

autonomous versus connected meaning making associated with cognitive development, it

might be advisable to look toward these alternative concepts for an understanding of the

relationship between leadership style and cognitive complexity. For example, instead of

considering "the ability and tendency to differentiate" as *the* nexus between leadership

and cognitive development theories, it would appear one must, based upon the current

study's results, consider "self concept" in relation to a value-attitude orientation as a

potential connection between leadership style and cognitive complexity. In the current

study, it would appear that the graduate students possessed a strong self-concept

associated with accomplishment, coupled with the cognitive structure associated with the ability to rate others independent of self. In contrast, the undergraduate students might have possessed a self-concept less strongly associated with accomplishment in conjunction with a construction of meaning affiliated with one's identification with feelings of mutuality and connectedness or dependence on others.

Defining leadership style/orientation using the value-attitude theoretical axiom, then, supports the cognitive nature of leadership style to the extent that values have a cognitive derivation. More specifically, leadership style viewed as a self-concept associated with a value/goal of accomplishment, and a sense of self as either integrated/dependent or differentiated/independent from others, might be of particular relevance as a theoretical nexus to cognitive developmental theory.

Higher Education: Policy and Practice

Beyond theoretical constructs, the empirical evidence of a relationship between leadership style and cognitive development established by the results of this study points to implications for higher education policy and practice. These implications include the importance of assessing leadership style and the incorporation of a cognitive developmental understanding in the leadership development process.

It was initially posited (Hypothesis 4) that a direct positive relationship would be found between leadership style and cognitive complexity, which would support the contention that leaders in complex environments (especially the diverse human environment in urban centers) require similarly complex cognitive structures to be effective. However, although cognitive complexity and leadership style were found to be related, the direct negative relationship that they share forced an alternate understanding

of this complex relationship. In light of this study's results, cognitive complexity might play less of a "controlling" role in leadership development. Increasing cognitive complexity, although an admirable and central goal of higher education, may not need to be the central goal of leadership development. Instead, cognitive complexity might be seen as playing an "informing" role in leadership development.

Knowing the leadership style, or leadership orientation of students, in conjunction with an understanding of the position from which students construe meaning of their world, would inform the educator of the situational parameters that are most likely to present students with an ideal leader-situation match and situational parameters that offer students challenges to develop, cognitively and as leaders. Periodic leadership orientation and cognitive development assessment by the educator would be necessary for such awareness and, therefore, represents an implication of the present study's results.

In the present study, a difference was found between undergraduate and graduate students as indicated by a shift to a more cognitively complex construction of meaning within the learning environment. There was also a shift from a high-LPC or relationship leadership orientation to a low-LPC or task orientation. Being aware of potential differences in leadership orientation, and understanding the changing ways in which students understand and interact with their environment and the challenges it presents, requires periodic assessment by the educator as well as individualized attention.

The educator, working with a diverse urban college student population such as the one represented in the current study's sample, might expect freshmen, for example, to possess a high-LPC or relationship orientated leadership style and construe meaning from Perry's position 3 or early multiplicity stage. Fiedler and Chemers (1984) provided a

good summary of the high-LPC person's perspective when they stated,

> they need good relations in order to feel at ease with themselves. Their self-
>
> esteem depends in large part on how other people regard them and relate to them.
>
> As a result, high LPC people are concerned about what others think, and they are
>
> sensitive to what their group members feel. (p. 22)

According to the current study's results, it might be expected that as students progress to

their senior year and especially in graduate school, there will be a shift in leadership

orientation and cognitive development. The educator might expect the more advanced

student to possess a low-LPC or task orientated leadership style and construe meaning

from Perry's 3/4 transition position or be approaching the late multiplicity stage. Fiedler

and Chemers (1984) summarized the low-LPC person's perspective when they stated,

"task-motivated (low LPC) people find their main satisfaction in getting things done.

They gain more self-esteem from concrete achievement than from their relations with

others" (p. 24).

When working with high-LPC and early multiplicity students, for example, the

educator may want to provide moderately structured tasks in an environment that is

moderate in control (Fiedler & Chemers, 1984). Situational control "indicates the degree

to which a leader feels certain of being able to get the job done" (Fiedler & Chemers,

1984, p. 23). Although the situational control is dependent on the "leader's relationship

with the group, on the structure of the task, and on the power vested in the leader's

position," (Chemers & Fiedler, 1984, p. 23) the educator provides the task and, therefore,

can manipulate situational control by providing more or less structure in this respect. In

situations of moderate control, "relationship-motivated leaders are really in their element.

The situation has just enough uncertainty to challenge them, yet not enough to make them lose sight of the job" (Fiedler & Chemers, 1984, p. 23). However, in low control situations "they become so concerned with seeking the support of the group that they fail to get the job done," and in high control situations "relationship-motivated leaders are likely to feel bored and unchallenged....becoming involved with details and reorganizing the work....and thus are often seen by subordinates as bossy" (Fiedler & Chemers, 1984, pp. 23-24).

In contrast, the educator might want to provide either high or low task structure for low-LPC and late multiplicity students (Fiedler & Chemers, 1984). In low control situations, leaders who are task motivated concentrate on the job and do not worry about what others think of them. These students "are no-nonsense people who are likely to take charge early and start organizing things....generally speaking, low LPC leaders are quick to assign tasks, make up schedules, and check on progress" (Fiedler & Chemers, 1984, p. 24). They are, therefore, good in low control situations, but are also good in high control situations because "when they know that the job will get done, task-motivated leaders relax and let themselves take time to socialize and consider the feelings of their group members....in high control situations, they take the opportunity to learn more about their group and about how to do the job even better." (Fiedler & Chemers, 1984, p. 24). However, in moderate control situations, which involve personality clashes and personal conflicts, "task-motivated leaders tend to be less effective....[and] may bury themselves in their work rather than dealing with the needs of their group members" (Fiedler & Chemers, 1984, pp. 24-25).

It is important to note that the conclusions based on research findings such as

those in the current study are of an aggregate nature. There may very well be, for example, some freshmen who are already in the Perry 3/4 transition, beginning to think critically and independently, possessing a self-concept strongly associated with achievement, and therefore prone to a low-LPC or task leadership orientation. The individualized nature of development (leadership and cognitive) makes the need for individualized assessment even more salient, as does the continual evolution of meaning making throughout the educational experience.

Unfortunately, regular assessment of leadership style and cognitive development have not been incorporated into the policy or practice of most leadership development programs in the United States (Freeman et al., 1994). Of the 27 college leadership education programs reviewed by Freeman et al. (1994), 96% did not incorporate any principles of student development theory, and a full 30% consisted of a series of workshops that taught nothing but leader skills acquisition (no experiential component). The results of the present study, then, would warn against the practice of teaching "leadership skills" with no concern for the leadership orientation of the student, especially in light of that student's level of cognitive development and conception of self.

There has, therefore, been a shift in focus from the beginning of this study in how cognitive complexity is thought to relate to leadership style. Based upon rather unexpected results, the shift in focus was from cognitive complexity and leadership style as an "ability and tendency to differentiate" to a view of these concepts as the way individuals make meaning of their environment in relation to their concept of self (primarily associated with the value or goal of achievement). This different perspective, in itself, may represent a more complex and comprehensive means of viewing leadership

style. Defining leadership style as a value-attitude, in relation to the way in which individuals understand and make meaning of their environment, implies that educators must assess these aspects of students, and begin to incorporate cognitive development principles into the leadership education process. Further research, however, is needed to add relevance and strength to these higher education policy and practice implications.

<u>Future Research</u>

The finding here of an inverse relationship between the CCI and the LPC is a bit troublesome because the interpretations of such a relationship are based on primarily theoretical formulations. The interpretations offered by the current study's author are based on solid theory, but the data collected from this initial study is not sufficient to test empirically the speculations presented. Future research may take at least two logical paths from this point: (a) continue to ferret out the complexities inherent in the interpretation of the LPC-CCI relationship, and/or (b) explore the possibilities of other measures that may assist in bridging the gap between leadership development and student cognitive development theory. These approaches are not mutually exclusive and both seem appropriate and worthwhile for future research.

Of potential value would be a replication of the present study with additional measures to capture data needed to test empirically alternate hypotheses. The stereotyping, value-attitude, and domain-specific interpretations presented as justifications for the inverse relationship between the LPC and the CCI might be tested. For example, to test the stereotyping interpretation of the inverse relationship between the CCI and the LPC, an additional question could be asked to the participants after completing the LPC. The participants would be asked if they used a real person or a

conception of what they believe to be their least preferred coworker (a stereotype). This data would provide the proportion of high and low-LPC participants who rated a stereotyped least preferred coworker and provide evidence to evaluate the stereotyping interpretation of the LPC-CCI relationship.

The domain-specific interpretation might also be tested with the collection of additional data. A work-related history of the participants might be collected to determine if the race main effect on the LPC was related to the extent of engagement with the work versus learning domains. It was discovered in the current study that Black students tended to score higher on the LPC than White students. As noted previously in this chapter, if it is accepted that Blacks have been, on the whole and due to historical circumstances, lower in socioeconomic status than Whites, it could be argued that the Black students in the current study tended to have to work outside of the learning environment to a greater extent than the White students. Theoretically, the extent of engagement in a given domain relates directly to the complexity and comprehensiveness with which one construes meaning within that domain. Data on work history would help to confirm or deny the domain-specific argument for the race main effect on the LPC. That is, if the Black students were engaged in the workplace environment to a greater degree than White students, the Blacks would theoretically score higher than Whites on the LPC, if indeed the LPC is seen as a reflection of cognitive complexity (ability to differentiate between situational elements) within the workplace domain. It might also be interesting to test for an "employment" main effect (regardless of race) to determine if students who are employed while attending college score higher on the LPC than students who are not employed or engaged in the workplace domain.

Another domain-specific interpretation test might be conducted with the assistance of another measurement instrument, designed to test leadership style or orientation in the *learning* domain. At this time there does not appear to be a measure that is designed to assess the "cognitive leadership style" of the student -- a higher education domain-specific leadership style assessment instrument. The LEP asks students to rank the three most significant items when considering their ideal (a) learning environment, and then in that ideal learning environment, their (b) teacher, (c) themselves as students, (d) classroom atmosphere and activities, and (e) evaluation procedures. Future research might focus on developing a modified version of the LPC that places the differentiated stimulus in the learning environment or context, similar to the LEP.

In creating such an instrument, however, one would need to be careful to address the fundamental nature of leadership. That is, leadership is essentially the process of influencing followers to achieve tasks that ultimately result in organizational goal attainment. There is no argument in the literature that the process of leadership comprises a combination of task, interpersonal, and situational domains or influences (Bass, 1990). The LPC measure, from a domain-specific cognitive interpretation, uses an actual least preferred coworker as the stimulus on which the respondent's ability to differentiate between task and interpersonal domains is presumed to be assessed. A measure to assess student leadership style should preserve the task and interpersonal domain distinction, but place the stimulus to be differentiated in the learning environment -- i.e., the environment in which the leadership development takes place. The "task" for the student in the learning environment is to be successful. The term "success" might mean different things to different students (e.g., good grades, obtaining knowledge, skill

development, getting involved, etc.), but the fundamental "task" at hand is success or achievement in the learning environment, and the instructor is the focal point. Additionally, such a measure should, like the LPC, tap the strength with which the respondent's self-concept is associated with achievement.

If one were to create a measure that assesses the leadership style or orientation of a student in the learning environment, it might be called the Least Preferred Instructor (LPI) scale. The LPI, for example, might have instructions that are worded as follows:

Think of all the instructors with whom you have had classes. Next, think of the one instructor in your life, in whose class you were least successful. This individual may or may not be the instructor you also dislike the most. It must be the instructor in whose class you had the most difficulty succeeding. This is your "Least Preferred Instructor" (LPI). Think of a real instructor in your experience, not an imaginary character. Remember, it is not necessarily the instructor whom you like the least, but the instructor in whose class you were least successful.

One element the LPC possesses that the LPI, as proposed, would not, is the ability of the student to pick the least preferred individual to be rated. The student picking a least preferred coworker can choose from a boss, subordinate, or peer. Within the learning domain, the student might be asked to pick a least preferred "colearner," but the only individuals other than the instructors with whom the students are regularly engaged are classmates. Although there are always exceptions, classmates are not generally associated with or dependent on the task or success of the student. The LPI items might remain the same as those on the LPC because they have been shown to represent task and interpersonal elements (Rice, 1978b). If the items were altered in some fashion, it might

be in such a way to heed the warning of Cogliser and Schriesheim (1994) who found the LPC to be lacking in semantic differential comparisons. A measure such as the LPI might, therefore, place Fiedler's concept of leadership style squarely in the student development and learning domain.

Thus, an instrument such as the LPI would assess the respondent's leadership style as defined by the tendency to differentiate between task and interpersonal elements within learning environment domain. The modified version of the LPC would still be measuring Fiedler's notion of leadership style in as much as it is still a measure of one's tendency to differentiate between elements of the environment (adhering to the "cognitive paradigm" of leadership style), but domain specificity would be added to accommodate the theoretical requirements associated with measuring cognitive complexity within the learning environment. More precisely, the domain specificity required to assess leadership style in the student leadership development arena.

Would a measure such as the LPI be correlated with the LEP, a measure of cognitive complexity set in the learning environment domain? The answer to this question might be an endeavor for future research. One can speculate that the LEP, although assessing the overall cognitive complexity associated with the learning environment domain (asking the student to construe meaning of 5 stimulus objects affiliated with the learning environment domain), might be more closely related to the LPI, with its focus on the learning environment domain, than the LPC, with its focus on the work environment domain.

In addition to studying variants of the LPC, there might be other measures that may be used to explore the connections between leadership development and cognitive

development theory bases. The Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1986), for example, has been extensively used in leadership development literature (Fitzgerald & Kirby, 1997; Fleenor, 1997; Gardner & Martinko, 1996). The MBTI and what it measures,

> sometimes referred to as cognitive style, decision-making style, or problem-solving style, is another psychological construct that can be used to understand managers....[and] can be quickly and fairly reliably identified, quantified, and compared to other measures of management, leadership, and organizational effectiveness. (Walck, 1997, pp. 63-64)

The MBTI, designed to measure the Jungian psychological type preferences, measures individuals' preferences for perception (Sensing or Intuition -- ways of gathering information), judgement (Thinking or Feeling -- ways of making decisions), differences in orientation (Extroversion or Introversion), and different approaches to structure (Judgement or Perception). Although a thorough review of the literature involving the MBTI is beyond the scope of this discourse, the MBTI should be noted as "one of the most popular self-reported instruments in leadership and management development programs" (Kirby, 1997, p. 3). Not only has the MBTI been associated with leadership literature, initial studies have also been conducted which indicate a potential pattern of relationship with cognitive complexity and the Perry scheme.

McCaulley (1976, 1981), for example, indicated that intuitive types work quickly by means of hypothesis generation and testing, whereas sensing types tend to work slowly, attending to external cues, and in a step-by-step fashion. Moore (1985) noted that,

these differences in the processing of information seem to have a powerful

influence on educational performance; while the general population is estimated

to be 65% to 75% sensing, 99.6% of a sample of 500 adults who dropped out of

school before the eighth grade were Sensors, while 59% of 3676 Ivy league

freshmen were Intuitives (Myers, 1962). (p. 8)

Carskadon and Knudson (1978), compared the MBTI and level of conceptual system

(Harvey et al., 1961), a cognitive model similar to the Perry scheme, and found higher

proportions of Intuitors at the higher conceptual levels and higher proportions of Sensors

at the lower conceptual levels. This relationship is not surprising, "given the Intuitors'

comfort with abstractions and the manipulation of symbols rather than concrete data"

(Moore, 1985, p.9).

Moore (1985) used the Measure of Intellectual Development (MID), a measure of

the Perry scheme, to compare the MBTI to Perry positions 2, 3, and 4. He concluded, as

did Carskadon and Knudson (1978), that "there seems to be a strong tendency for

Intuitives, particularly Intuitive/Perceiving types, to be found more frequently at higher

levels of cognitive complexity, while Sensors and Judgers tend to be found less often at

those same levels" (p. 10). Essentially, there was a relationship between sensing and

dualism (Perry position 2), and between intuiting and late multiplicity (position 4). It

appears that to date there have not been any investigations into the relationship between

the CCI, a measure of college student cognitive complexity based on the Perry scheme,

and the MBTI (W. S. Moore, personal communication, October 26, 1998). There also

appears to be no research into the relationship between the LPC and the MBTI.

This study has raised many questions about the LPC construct, and researchers

may elect to explore these questions further, or seek alternative measures, such as the MBTI, to explore the connections between leadership and student cognitive development theories. Although continued LPC construct validation may be an interesting research path, based on the numerous construct interpretations raised by the present study's findings, it would seem that future research attempting to bridge the gap between student cognitive development and leadership research may be better advised to search elsewhere for assessment of leadership style/orientation. A complete review of other potential measures for such a purpose is outside the scope of the current research, but it is suggested that the MBTI be considered for one such line of research.

Summary and Conclusions

This study sought to demonstrate that a focus on cognitive development should be an integral part of the leadership education of urban college students. Most leadership theories do not explain the psychological change in ability as a leader develops. These theories promote a form of "leadership training" that focuses on leader behaviors and does not account for psychological "readiness" and change. Cognitive development might be important to the development of leaders who must deal with complex environments such as those found in urban centers. In a call for papers for the "Fourth Leadership Conference," organized by the National Resource Center for The First-Year Experience and Students in Transition (1999), it was noted:

> We are challenged as well by the need for tomorrow's leaders to think globally, recognizing that leadership will require an understanding of and respect for the different cultures involved....How do we help students and citizens alike gain the ability to see a situation from multiple perspectives and thereby develop a capacity

for public judgement that is different from personal judgement? (p. 1)

An alternative approach to "leadership training," then, might be "leadership development education," which would incorporate cognitive developmental principles in the developing leader's educational experience. The current research, therefore, examined leadership style in light of cognitive developmental theory.

In the present research, leadership style was defined by Fiedler's (Fiedler & Chemers, 1984; Fiedler & Garcia, 1987) LPC scale and interpreted as the capacity and tendency to differentiate cognitively between elements in the environment (Foa et al., 1971). Fiedler's (1967) contingency theory of leadership is the only leadership theory that views leadership style as a cognitive aspect of personality, an antecedent to behavior, and something that can only change or develop slowly over time (Bass, 1990). Fiedler's theory was, therefore, uniquely in line with student cognitive development theories such as the Perry (1998) scheme, which viewed cognitive development as a progression from a polarized, absolutist view of the world to a cognitively complex, differentiated way of knowing which is grounded in an evolving expression of personal values and lifestyle (Perry, 1981).

It was posited, then, that there would be a direct and positive relationship between Fiedler's notion of leadership style (the LPC scale) and Perry's notion of cognitive complexity (the CCI). If this were true, it might lend support to the notion that cognitive development should be an integral part of leadership education. That is, if higher education is to produce leaders who can effectively comprehend the complex blend of technological, social, cultural, and political ingredients that comprise the urban center, there must be a focus on development of more complex and comprehensive means of

construing or making meaning of the environment in what might be called "leadership development education."

It should be noted that the majority of the empirical studies that explored the relationship between the LPC and cognitive complexity were conducted in the 1970s and 1980s. Most of the more current publications that focused on this relationship were reviews of the literature or other references to the earlier works (e.g., Ayman et al., 1997; Chemers, 1997; Fiedler & House, 1994; Snowden & Gorton, 1998). The current study, then, took a fresh look at the relationship between the LPC and cognitive complexity, exploring complexity from an epistemological and student development perspective. This is the first study to conduct such an analysis, the results of which have implications for the psychometry of the measures involved, the theoretical constructs involved, and the practices and policies associated with student cognitive and leadership development in institutions of higher education.

The principle findings of the present study indicated that, contrary to expectations, cognitive complexity and leadership style were inversely related and that cognitive complexity accounted for less than 5% of the shared variance with leadership style. These results cast doubt on the interpretation of the LPC as a reflection of cognitive complexity, or ability and tendency to differentiate between elements of the environment. The LPC, nevertheless, was related to student cognitive complexity, and alternative interpretations of the inverse relationship between the CCI and the LPC were advanced. These theoretical explanations involved the potential stereotyping of the least preferred coworker, domain-specific characteristics of cognitive complexity, and an alternate interpretation of the LPC construct as a value-attitude. It was also noted that the inverse

relationship between the CCI and the LPC might be explained through the interpretation of the LPC as a value-attitude, in conjunction with the notion maintained by many cognitive development theories that individuals develop cognitively by moving alternatively between constructions of meaning that stress either connectedness or independence.

In light of these findings, leadership style might still be defined from a cognitive perspective as a characteristic way of understanding or making meaning of the environment, but instead of this definition strictly relying on a cognitive complexity perspective or interpretation, a more complex understanding of the definition of leadership style might be applied. Additionally, contrary to the original postulations of the present study, cognitive complexity might play less of a "controlling" and more of an "informing" role in leadership development education. Knowledge of the leadership style, or leadership orientation of students, in combination with an understanding of the position from which students construe meaning of their world, would inform the educator of the situational parameters that are most likely to present students with an ideal leader-situation match and situational parameters that offer students challenges to develop, cognitively and as leaders. Leadership style/orientation and cognitive development assessment would, therefore, be necessary for such awareness. Regular assessment as students develop cognitively would be required to keep the educator abreast of the evolving cognitive and leadership orientation development.

Continued research to provide empirical support for these theoretical speculations and interpretations is needed. Although the theoretical grounds for such postulations are sound, so too were the theoretical grounds for postulating a positive and direct

relationship between the CCI and the LPC. Future research might continue to explore the

LPC-CCI relationship with a replication of the present study. A replication of the present

study might incorporate additional measures aimed at empirically analyzing the

stereotyping, domain-specific, and value-attitude interpretations of the LPC-CCI

relationship that were advanced in this discourse. Future research might also utilize other

measures that hold promise for bridging the gap between the leadership development and

the student cognitive development disciplines. The MBTI might be one such measure,

which was shown to be related to Perry's (1998) concept of meaning making, and has

been widely used in leadership development studies (Fitzgerald & Kirby, 1997). Only

through continued research efforts can the wealth of knowledge held within the

leadership literature be merged with that held within the field of cognitive development in

an effort to provide students with the leadership development education that will prepare

them for the complexities inherent in the urban center.

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APPENDIX A

LEAST PREFERRED COWORKER MEASURE

DIRECTIONS:

Throughout your life you have worked in many groups with a wide variety of different people -- on your job, in social clubs, in church organizations, in volunteer groups, on athletic teams, and in many others. You probably found working with most of your coworkers quite easy, but working with others may have been very difficult or all but impossible.

Now, think of *all the people* with whom you have ever worked. Next, think of the *one person in your life* with whom you could work least well. This individual may or may not be the person you also disliked most. It must be the one person with whom you had the most difficulty getting a job done, the one single individual with whom you would least want to work -- a boss, a subordinate, or a peer. This person is called your "Least Preferred Coworker" (LPC).

On the scale on the next page, describe this person by placing an "X" in the appropriate space. The scale consists of pairs of words that are opposite in meaning, such as *Very Neat* and *Very Untidy*. Between each pair of words are eight spaces that form the following scale:

Very Neat									Very Untidy
	8	7	6	5	4	3	2	1	

Think of those eight spaces as steps ranging from one extreme to the other. Thus, if you ordinarily think that this least preferred coworker is quite neat, you would write an "X" in the space marked 7, like this:

Very		X							Very
Neat	8	7	6	5	4	3	2	1	Untidy
	Very Neat	Quite Neat	Some- what Neat	Slightly Neat	Slightly Untidy	Some- what Untidy	Quite Untidy	Very Untidy	

However, if you ordinarily think of this person as being only slightly neat, you would put your "X" in space 5. If you think of this person as being very untidy (not neat), you would put your "X" in space 1.

Sometimes the scale will run in the other direction, as shown below:

Frustrating									Helpful
	1	2	3	4	5	6	7	8	

Before you mark your "X", look at the words at both ends of the line. There are no right or wrong answers. Work rapidly; your first answer is likely to be the best. Do not omit any items, and mark each item only once. Think of a real person in your experience, not an imaginary character. Remember, it is not necessarily the person whom you like least, but the person with whom it is (or was) most difficult to work.

LEAST PREFERRED COWORKER (LPC) SCALE

Pleasant	8	7	6	5	4	3	2	1	Unpleasant
Friendly	8	7	6	5	4	3	2	1	Unfriendly
Rejecting	1	2	3	4	5	6	7	8	Accepting
Tense	1	2	3	4	5	6	7	8	Relaxed
Distant	1	2	3	4	5	6	7	8	Close
Cold	1	2	3	4	5	6	7	8	Warm
Supportive	8	7	6	5	4	3	2	1	Hostile
Boring	1	2	3	4	5	6	7	8	Interesting
Quarrelsome	1	2	3	4	5	6	7	8	Harmonious
Gloomy	1	2	3	4	5	6	7	8	Cheerful
Open	8	7	6	5	4	3	2	1	Guarded

Backbiting									Loyal
	1	2	3	4	5	6	7	8	

Untrust-worthy									Trustworthy
	1	2	3	4	5	6	7	8	

Considerate									Inconsiderate
	8	7	6	5	4	3	2	1	

Nasty									Nice
	1	2	3	4	5	6	7	8	

Agreeable									Disagreeable
	8	7	6	5	4	3	2	1	

Insincere									Sincere
	1	2	3	4	5	6	7	8	

Kind									Unkind
	8	7	6	5	4	3	2	1	

APPENDIX B

LEARNING ENVIRONMENT PREFERENCES MEASURE

This survey asks you to describe what you believe to be the most significant issues in your IDEAL LEARNING ENVIRONMENT. Your opinions are important to us as we study teaching and learning concerns in college. We ask, therefore, that you take this task seriously and give your responses some thought. We appreciate your cooperation in sharing what you find most important in a learning environment.

The survey consists of five sections, each representing a different aspect of learning environments. In each section, you are presented with a list of specific statements about that particular area. For each area, please rate each statement in terms of its significance or importance to you using the **rating scale** below. Once you've rated all of the items in a section, go back through the list and rank the three items most significant to you as you think about your ideal learning environment. Try not to focus on a specific class or classes as you think about these items; focus on their significance in an ideal learning environment for you.

Rating Scale:

A	B	C	D
Not At All Significant	Somewhat Significant	Moderately Significant	Very Significant

Please mark your answers on the separate computer answer sheet provided; be sure to indicate both your ratings of individual items and your ranking of the top 3 in each section. See the example below, and then turn the page to begin.

COURSE CONTENT / VIEW OF LEARNING

MY IDEAL LEARNING ENVIRONMENT WOULD:

		Moderately Significant	Very Significant
1.	Emphasize b	C	D
2.	Focus more (methods or h	C	D
3.	Insure that I	C	D
4.	Provide me v	C	D
5.	Allow me a (opinions.	C	D
6.	Emphasize l(expertise.	C	D
7.	Let me decid or wrong, ba	C	D
8.	Stress the pr	C	D
9.	Focus on the ramifications	C	D
10.	Serve primar integrating t	C	D
11.	Stress learnin learning by t	C	D
12.	Provide me v and seeking	C	D
13.	Emphasize a between the	C	D

This is a sample page from five pages of items which comprise the Learning Environment Preferences measure. The items are not shown in full to protect the publisher. The complete instrument and scoring service may be obtained from the publisher:

William S. Moore, Ph.D.
Center for the Study of Intellectual Development
1520 14th Avenue, SW
Olympia, WA 98502
206-786-5094

APPENDIX C

HOGAN/EM MEASURE

DIRECTIONS: Read each of the following statements carefully and decide how you feel about it. If you agree with the statement, or feel that it is true about you, answer TRUE (T) on the blank in front of that statement. If you disagree with the statement, or feel it is not true about you, answer FALSE (F) on the blank in front of that statement.

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This is a sample page from two pages of items which comprise the Hogan Em Scale. The items are not shown in full to protect the publisher. The complete instrument and scoring service may be obtained from the publisher:

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Consulting Psychologists Press, Inc.
3803 E. Bayshore Road
P. O. Box 10096
Palo Alto, CA 94303
800-624-1765

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The Hogan Em scale may be administered as a separate measurement, or it may be administered as part of the California Psychological Inventory, by Harrison G. Gough.

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APPENDIX D

BIOGRAPHICAL QUESTIONNAIRE

1.) What is your age? _____

2.) What is your sex (circle one)? Male Female

3.) What is your race (with which you most closely identify)? _____

4.) What is your enrollment status (circle one):

Freshmen
Sophomore
Junior
Senior
Graduate student - masters
Graduate student - CAS or doctoral

5.) What is your city or county of residence? _____

6.) You are considered a native of the U.S. if you were born in the U.S., Puerto Rico, or any outlying area of the U.S. or were born in a foreign country but have at least one American parent. Are you a native of the U.S. (circle one)?

Yes No

7.) What is the number of languages spoken in your household other than English (if English is the only language spoken in your household, answer 0)?

_____

8.) What is the number of languages you speak, other than English (if English is the only language you speak, answer 0)?

_____

APPENDIX E

SAMPLE LETTER TO INSTRUCTORS

January 26, 1998

To: Dr. Thompson
        Counseling Services

From: Scott B. Harrison
        Director of Information Technology
        Student Services

Re: Dissertation Data Collection - COUN 680

I am writing to request your support and assistance with the collection of data for my dissertation. Your COUN 680 course was picked in a random selection of all courses taught at the university this semester. I would very much like to collect data from the students in this class who are willing to participate.

The title of my study is "Cognitive Complexity and Empathy as Predictors of Leadership Style in an Urban College Student Population." On a sheet attached I describe more fully the proposed research.

If you agree to assist I would only need about 10 minutes of one class session. I need to ask the students to participate and then distribute the subject consent form and questionnaire packet to those who are willing to participate. I also need very briefly to explain how to answer one questionnaire that requires an opscan answer sheet. I can come back to the next class session and quickly collect the completed questionnaires.

I will call you in a day or two to discuss the possibility of your assistance. If you need to contact me, I can be reached at 683-3755 or sbharris@odu.edu. Thank you so very much for your consideration.

Attachment

APPENDIX F

SUBJECT CONSENT FORM

Investigator: Scott B. Harrison
Department of Educational Leadership and Counseling
Darden College of Education
Old Dominion University

Description
The purpose of this investigation is to evaluate in college students the relationship between interpersonal perceptions and preferred learning environment.

I, _____, have agreed to participate as a subject in this study. I understand that I will be participating in a study which requires me to complete four paper and pencil questionnaires. These questionnaires ask basic demographic information of me and how I perceive or feel about certain situations such as my preferred learning environment.

Exclusionary Criteria
I am able to read, write and complete the questionnaires associated with this study, and to the best of my knowledge am not aware of any circumstance that would prohibit my participation in this study.

Risks and Benefits
The testing procedures that I will undergo have little risk of physical or emotional harm. I also understand that I am requested not to place my name, social security number, or any other personal identifier on the questionnaires to avoid any possible risk of breach of confidentiality. However, I understand that all precautions will be taken to ensure complete confidentiality. There also exists the possibility that I may be subject to risks that have not yet been defined. I understand that the main benefit to accrue from this study is the attainment of information relative to perceptions of college students in relation to others and their preferred learning environment. I also understand that pertinent information relative to my responses to this study will not be discussed with me because to insure confidentiality the investigator will not associate individuals with specific questionnaire responses. A detailed summary of the study's hypotheses and anticipated results will be provided to me in writing immediately after I complete the questionnaires. I may also contact the investigator, Scott B. Harrison, directly (757-683-3755) to discuss or ask questions about the study.

Costs and Payments
I understand that my efforts in this study are voluntary, and I will not receive remuneration to help defray incidental expenses associated with my participation.

New Information
Any new information obtained during the course of this research that may be relative to my willingness to continue to participate in this study will be provided to me.

Confidentiality
I understand that any information obtained about me from the research, including questionnaires, will be kept strictly confidential. I also understand that the data derived from this study could be used in reports, presentations, and publications, but that I will not be individually identified unless my consent is granted. I do understand however, that my records may be subpoenaed by court order or may be inspected by federal regulatory authorities. When the study is complete this subject consent form will be destroyed.

Withdrawal Privilege
I understand that I am free to refuse to participate in this study or to withdraw at any time and that my decision to withdraw will not adversely affect my care at this institution or cause a loss of benefits to which I might otherwise be entitled. If I do decide to withdraw, I agree to undergo all trial evaluations necessary for my safety and well-being as determined by the investigator. I also realize that the investigator may withdraw my participation at any time throughout this investigation if he observes any contraindication to my continued participation.

Compensation for Illness or Injury
I understand that in the unlikely event of injury or illness resulting from the research protocol, no monetary compensation will be made, but first aid will be available to me by the investigator. I am advised that if any injury should result from my participation in this research project, Old Dominion University does not provide insurance coverage, free medical care or any other compensation for such injuries. In the event that I have suffered injury as a result of my participation in this research project, I may contact Scott B. Harrison (757-683-3755) at Old Dominion University who will be glad to review the matter with me, and Dr. Val Derlega, Chairman of the Institutional Review Board, Old Dominion University, at 757-683-3118.

Voluntary Consent

I certify that I have read the preceding sections of this document, or it has been read to me; that I understand its contents; and that any questions I have pertaining to the research have been answered. I also understand that this consent form will be destroyed after the study is complete. If I have any concerns, I can express them to the Darden College of Education Faculty Governance Research Scholarship Committee (Dr. Robert Case, 757-683-4754, 133 H&PE Building). A copy of this consent form will be given to me. My signature below indicates that I have freely agreed to participate in this investigation.

_____   _____

Subject's Signature   Date

_____   _____

Witness' Signature   Date

Investigator's Statement

I certify that I have explained to the subject, whose signature appears above, the nature and purpose of, and the potential benefits and possible risks associated with participation in this study. I have answered any questions that have been raised by the subject and have encouraged him/her to ask additional questions at any time which arise during the course of this study.

_____   _____

Investigator's Signature   Date

APPENDIX G

SUBJECT DEBRIEFING SUMMARY

<u>Study Title</u>:
Cognitive Complexity and Empathy as Predictors of Leadership Stye in an Urban College Student Population

<u>Principal Investigator</u>:
Scott B. Harrison
757-683-3755 sbharris@odu.edu

<u>Purpose</u>:
The purpose of the study is to examine leadership style in light of cognitive developmental theory by investigating the capacity of cognitive complexity and empathic ability, separately and jointly, to predict leadership style. The study therefore tested the following hypotheses:

1. In a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the Cognitive Complexity Index (CCI) on the Learning Environment Preferences (LEP) instrument, accounts for a statistically significant amount of variation in leadership style, as measured by the Least Preferred Coworker (LPC) scale.

2. In a sample of urban college undergraduate and graduate students, empathy, as measured by the Hogan/Em subscale of the California Psychological Inventory, accounts for a statistically significant amount of variation in leadership style, as measured by the LPC scale.

3. In a sample of urban college undergraduate and graduate students, cognitive complexity, as measured by the CCI, and empathy, as measured by the Hogan/Em, jointly account for a statistically significant amount of variation in leadership style, as measured by the LPC scale.

4. In a sample of urban college undergraduate and graduate students, subjects scoring high (above the mean item score) on the LPC will obtain a statistically significant higher mean score on the measures of cognitive complexity (CCI) and empathy (Hogan/Em) than subjects scoring low (below the mean item score) on the LPC, regardless of education level.

5. In a sample of urban college undergraduate and graduate students, graduate students will obtain a statistically significant higher mean score than undergraduate students on the measures of cognitive complexity (CCI) and empathy (Hogan/Em), regardless of leadership style (LPC).

The five hypotheses tested were designed to determine: (a) to what extent cognitive

development/complexity (CCI) and empathic ability (Hogan/Em), separately and jointly, account for or predict leadership style (LPC score); (b) whether differences in leadership style (high-LPC subjects versus low-LPC subjects) are associated with differences in cognitive development (CCI) and empathy (Hogan/Em); and (c) whether differences in college education level (undergraduate versus graduate) are associated with differences in cognitive development (CCI) and empathy (Hogan/Em). Implications for a new leadership development model based on cognitive attributes may be drawn from the results of the study.

VITA

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Employment:
Assistant Director of Student Activities   July 1987 - June 1994
Old Dominion University, Norfolk, VA

Director of Information Technology   July 1994 - Present
  for Student Services
Old Dominion University, Norfolk, VA

IMAGE EVALUATION
TEST TARGET (QA−3)

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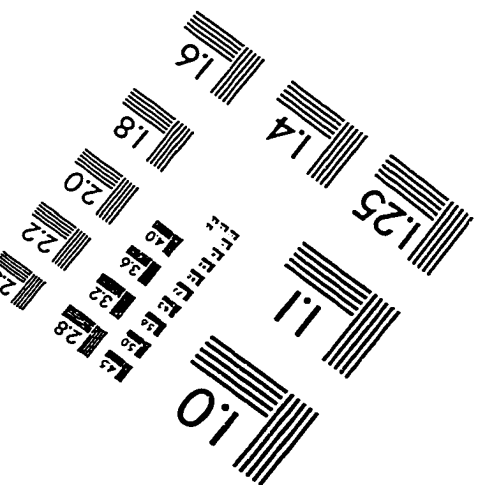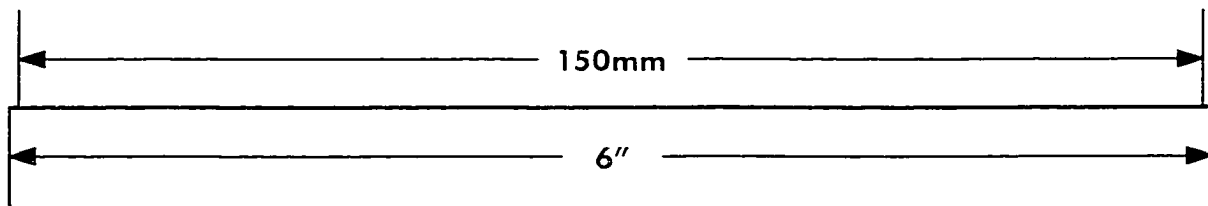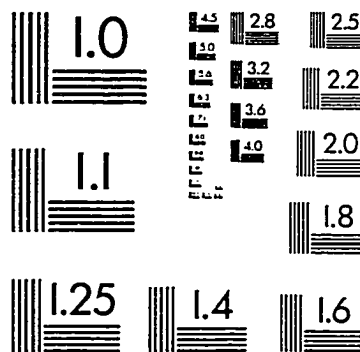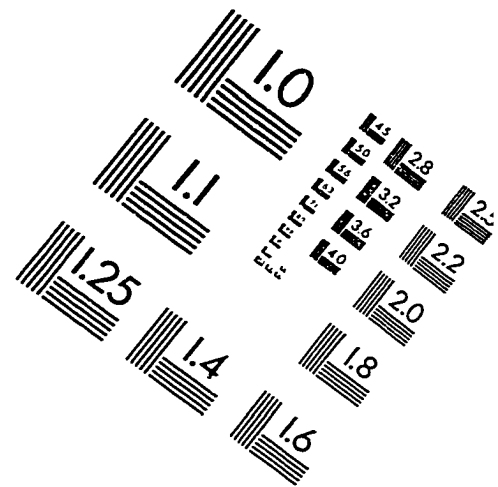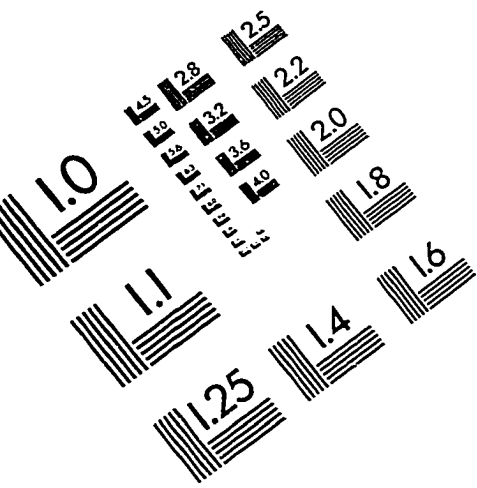
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