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A Comparison of Cognitive Development Between Whites and African Americans Based on William Perry's Scheme of Intellectual and Ethical Development

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A COMPARISON OF COGNITIVE
DEVELOPMENT BETWEEN WHITES AND
AFRICAN AMERICANS BASED ON WILLIAM PERRY'S
SCHEME OF INTELLECTUAL AND ETHICAL DEVELOPMENT

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ABSTRACT

A COMPARISON OF COGNITIVE DEVELOPMENT BETWEEN WHITES AND AFRICAN AMERICANS BASED ON WILLIAM PERRY'S SCHEME OF INTELLECTUAL AND ETHICAL DEVELOPMENT

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Old Dominion University, 1999
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This study compared cognitive complexity between student groups based on cultural background and academic class utilizing William Perry's (1970) cognitive theory of intellectual and ethical development. In addition, the study examined the influence of gender and socioeconomic status (SES) on cognitive development. The goal was to ascertain whether Perry's theory, developed from his research on a relatively homogeneous college student population without consideration of the impact of a culturally diverse environment, would be valid for culturally diverse students.

The research design employed to investigate cognitive development used a cross-sectional sample of entering freshmen and graduating seniors attending a predominantly White, public urban university. The total population used in the investigation consisted of 1,248 students. Cognitive development was measured and defined by the Cognitive Complexity Index (CCI) on the Learning Environment Preferences (LEP; Moore, 1987).

Analyses of the cross-sectional samples revealed evidence of significant differences in cognitive complexity as defined and measured by the LEP between

cohorts of African American and White students. Between freshmen cohorts, CCI scores indicated that White freshmen averaged higher than African American students on the LEP when gender and SES were controlled. Although similar differences in cognitive development were found between senior cohorts, significant differences were not found when SES and gender were controlled. Further, cross-sectional analysis of the interaction between culture and academic class status indicated no significant differences in cognitive development when SES and gender were controlled.

The qualitative component utilized comparative analyses to determine whether themes, representing cognitive development, would develop along cultural and academic levels. Although interview responses generally supported Perry's (1970) scheme, analyses of responses revealed that not all subjects understood and interpreted the questions in the same manner. Themes found within interviewee responses indicated that students may have either similar or distinct worldviews based on their culture, academic class status, or socioeconomic level. Cultural differences were found to exist around themes of learning orientation and perceptions of authority.

In conclusion, Perry's scheme provides a framework and description of the routes for intellectual potential. However, the present study indicated inadequacies of the Perry scheme to assess the cognitive complexity of African American students.

Dedicated to memories of the late Mr. and Mrs. Hampton Taylor (my guardian angels) and my late father, Johnnie A. Johnson.

All glory be to God.

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CHAPTER I

INTRODUCTION

Colleges and universities in the United States have followed a traditional mission of transforming and enriching the lives of all students (Boyer, 1987). Urban universities have exemplified the commitment to this mission as they respond to the environment that they serve. Specifically, Dillion (1980) defined the mission of urban institutions as a commitment to dealing with the problems and needs of the city, meeting the needs of the community, and enriching and transmitting culture.

In 1937, the American Council on Education (ACE) began to shape professional practice in student affairs by defining the Student Personnel Point of View (SPPV). The SPPV suggested that college faculty and student affairs professionals should fulfill their mission by responding to the whole person, personalizing the experience, and meeting students at their levels of development (Saddlemire & Rentz, 1986). This statement implied a call for student affairs professionals to recognize their responsibility to respond to all students, whether members of racial and cultural minorities or members of the dominant White culture.

For much of this nation's history, however, higher education in the United States was racially segregated by law; it was not until the 1960s that large numbers of African American students began attending predominantly White institutions (Fleming, 1981). The equity school reform movement of the 1960s resulted from a combination of pressures, including the civil rights movement, legal precedents set by the Supreme Court, and supportive public policy. For the first time in American history, university admission opened to African Americans by law. Unfortunately, American colleges and universities were unprepared to meet the needs of this new population (Fleming, 1981). The institution's unpreparedness was due to the lack of prior contact and exposure to the culture of African Americans (Fleming, 1981). It was also due to the institutional culture of American colleges, which was rooted in Euro-American values. The university culture, heavily influenced by the White American majority, continued to thrive and receive reinforcement from the majority cultural values of the broader American society (Duryea, 1991).

Historically, approaches to teaching and learning in American colleges and universities have been modeled after those of German and British universities. These teaching and learning models were originally based upon Western philosophy and a commitment to research. The cultural values transmitted to predominantly White institutions through such models have

influenced the manner in which students are viewed and how education is approached. Most importantly, cultural values influence the direction in which educators attempt to move students academically, how student behavior is evaluated, and how theories of student development are utilized to shape the student environment (McEwen, Roper, Bryant, & Langa, 1990). Tierney's (1991) assessment of organizational culture in higher education demonstrated that "the culture of an organization is grounded in the shared assumptions of individuals participating in the organization" (p. 127).

Often taken for granted by the individuals themselves, these assumptions were identified through institutional norms, curriculum design, required readings, and behavioral expectations. As Tierney (1991) observed, organizational culture owes its existence in part to "the actors' interpretation of historical and symbolic forms" (p. 127). Educators and student affairs professionals have relied on a body of knowledge rooted in and reinforced by Euro-American values. However, these values often prove unsuccessful in meeting the needs of student groups that are increasingly multicultural and thus may include other cultural influences and values.

Several decades after the integration of African Americans into American universities, retention rates for African American students at predominantly White campuses remained consistently lower than their White counterparts

(Kemp, 1990). Even though African Americans comprised about 21% of the nation's college-age population and 16% of college enrollment in 1989, they accounted for only 9% of bachelor degrees awarded to U.S. citizens (National Center for Education, 1990).

Although the percentage of African American, Latino, and American Indian students enrolled in four year colleges and universities steadily increased, from 11.5% to 14%, over the 10 year period from 1982 to 1992, only 10% of those who graduated in 1992 were African American, Latino, or American Indian (Chronicle of Higher Education, 1995). Consistently lower college retention rates for African American, Latino, and American Indian students in comparison with White students raises important issues regarding the extent to which cultural prejudice, based on race and the psychological effects associated with minority status, has affected the development, learning, and ultimate academic and personal success of African American students. Anderson (1988) suggested that college retention programs have not been successful for ethnic minorities in part because of the ethnocentric assumption that minorities have the same cognitive framework as Whites. Anderson's hypothesis is supported by the research of Weathersby and Tarule (1980) and Perry (1981). The authors proposed that anxiety and change accompany the process of learning in the system we define as "self." On the one hand, the learning process is capable of stimulating a

developmental crisis from which the individual emerges with new personality strengths. On the other hand, too much inner stress and disequilibrium place some students, particularly minority students; "at risk" as they face the life changes brought on by the college experience. Minority students must confront the challenges of being submerged into a new cultural environment as well as the typical adjustments made by college students.

William Perry (1981) theorized that individuals' cognitive skills are capable of adaptive and increasingly complex intellectual and ethical development throughout higher education. Yet, students may come to college with highly fixed information-processing styles or learning styles, established by their cultural background, that may be unresponsive or adversely responsive to the intellectual tasks required for success within their institutional learning environment. Perry (1970) proposed a scheme that "addresses the interface between students' intellect, the way they understand the world and the nature of knowledge... and their identity, the way they find personal meaning for their role in that world..." (King, 1978, p. 38). Ironically, the scheme proposes to describe personal meaning making with only minimum consideration of the impact of personal differences, such as culture. According to Perry (1970):

the scheme reduced to a minimum the consideration of individual differences based on personality, temperament, ability, sociology and

personal history. The scheme allows for many such differences; indeed, we saw the scheme through them, but our exposition has emphasized the common core. (p. 206)

In reference to social context, Perry contended that the team "... would not of course say that all such colleges are the same, but only that their differences would not be detectable or essential in the students' consideration of the issues we have addressed" (p. 207). Perry (1970) and his team made a deliberate choice to "focus on a common scheme of development and consider the students' milieu in terms of a pluralistic institution, a liberal arts college" (p, 206).

It is important to distinguish between learning styles and cognition while recognizing the interrelatedness between the two. Ferrell and Keefe (1990) have pointed out that learning style and cognitive style have been often confused and the distinctions between them blurred. The term cognitive style has been used for a longer period of time, and the processes and the competencies described by the constructs, at least in theory, are prerequisite to learning styles (Ducette, Sewell, & Shapiro, 1996). The process of thought and its product have been described as cognitive style (Ramirez, 1989b). Cognitive style is the manner in which humans perceive, organize, and remember information (Ramirez, 1989b). Perry has chosen to describe the organization of intellectual and ethical development in a nine-position sequence. Perry's model is concerned with

"meaning making." Perry (1970) described the cognitive process as "to 'make sense' that is, to interpret experience meaningfully" (p. 41).

Smith (1982), by contrast, defined learning style as the "individual's characteristic ways of processing information, feeling, and behaving in learning situations" (p. 4). While there is some agreement about the essential categories of learning styles, there is little agreement about the exact number of learning style variables or what specific learning styles exist. The work of Dunn, Dunn, and Price (1975), for example, yields 21 styles classified into five broad groupings: environmental factors, emotional factors, sociological preferences, physiological needs, and cognitive-psychological inclinations.

There is considerable controversy around the exact nature of learning styles and about their origin. Each among the five groups of learning styles described by Dunn et al. (1975) assumes to some extent that there are significant physiological underpinnings to learning styles. In comparison, writers who are more concerned about cultural influences on learning styles either downplay or deny their physiological basis (see, for examples, Ramirez & Castaneda, 1974; Shade, 1984; Wilson, 1971). A more elaborate discussion of the relationship between culture and cognitive development is offered in Chapter II. Ultimately, cognitive style and learning style are interrelated as individuals make meaning

of the world based on the information processed through their individual learning styles (Akbar, 1985; Hale-Benson 1986; Wilson, 1971).

During the late 1960s and 1970s, a number of developmental theories described predictable changes in reasoning and thinking that occur in the post-adolescent years. Kohlberg (1984) presented the process by which individuals make meaning of their experience in the moral domain. Perry (1970) explored questions of knowing and valuing among college students. The populations upon which these theories are based were relatively culturally homogeneous as they consisted of primarily White males from privileged backgrounds (Stage, 1991). In contrast, the contemporary American student body represents a tapestry of differentiation in social background, race, culture, gender, disability, lifestyle, and sexual orientation.

Statement of the Problem

The changing demography of both higher education and the overall population of the United States points to an increasingly multicultural society and underscores the importance of cross-cultural understanding and education. Current practices and program development on college campuses are based on developmental theory that originated before these vast demographic changes took place. Today, we must question whether theories such as those proposed in the late 1960s and 1970s by William Perry and other developmental theorists can

be successfully applied to students from a wide range of cultural backgrounds and into the next century, or is modification necessary?

Perry's (1970) theory of intellectual and ethical development has attracted widespread acceptance as a major model of cognitive development (Knefelkamp, Parker, & Widick, 1978; Pascarella & Terenzini, 1991). Consequently, in their attempt to meet the developmental needs of all students, educators and student affairs professionals have generalized the application of the developmental model for programming (Anderson, 1988). Perry's original research and theoretical development were based on a primarily White, male, middle-class, traditional age population at a highly selective, private institution (Belenky, Clinchy, Goldberger & Tarule, 1986). Perry admitted to this research limitation when he commented that he and his colleagues "may be accused of suggesting, even when we do not affirm, some pretty large-sized generalizations about human development in our culture on the basis of a few, homogeneous and specialized subjects in one highly specialized setting" (p. 204).

Today's student body represents variations in background and lifestyle. This has resulted not only in diverse demographics, but in a configuration of students that challenges traditional values, assumptions, and conventions. Perry (1970) based his research on his belief that the values built into his scheme were those he assumed "to be commonly held in significant areas of our culture,

finding their most concentrated expression in such institutions as colleges of liberal arts, mental health movements, and the like" (p. 45). Perry's assumptions may no longer be applicable and thus may be inadequate for understanding the life experiences of members of the increasingly diverse college population and the developmental tasks they face.

Colleges and universities, originally designed by and for the privileged, still function as such in many ways. Student activities and organizations tend to favor traditional students who come from families where the precedent of attending college is well established (Anderson, 1988). Typically, programming targeted for the needs of one particular cultural group has not been considered practical. Further, the curriculum has been predominantly Euro-centered, for the most part ignoring the accomplishments of minorities and women (Rendon, 1994). Competition, as opposed to collaboration, is stressed in teaching and learning (Rendon, 1994). Instruction is largely conducted using lecture and other techniques that empower the professor as the sole authority, and assessment tends to focus on learning outcomes as opposed to learning processes (Rendon, 1994). Unfortunately, these educational expectations and practices may not match the cultural knowledge and experiences possessed by all students entering the process of higher education. Typically, students entering college go through a process of unlearning past attitudes and behaviors and learning new attitudes,

beliefs, and values that are quite removed from those of the new university culture. In comparison, for survival purposes, minority students and other nontraditional students are forced to adapt and interact with the university culture on two levels: (1) the traditional transitional challenges from high school to college, and (2) those cultural challenges presented as a result of confronting social and institutional barriers. In response to this new university environment, students cognitively tend to either assimilate or accommodate the new information encountered in the new environment. Because educators have relied upon a body of knowledge that supports and reinforces Euro-American values, they have often been unsuccessful in responding to the educational and cultural needs of African American students (Baker, 1998 and Bulhan, 1985).

Due to the relatively homogeneous college student populations of the late 1960s and 1970s, one of which provided the basis for his original study, Perry's scheme for intellectual and ethical complexity was not developed, normed, or validated on samples that included African Americans. Further, Perry's theory was constructed without consideration of the influence or interaction of a racially diverse environment on the development of racial attitudes, perspective, or concept of self. As such, Perry's model may not adequately describe the cognitive maturation of minority students, and may be culturally and racially-biased.

Research in the area of cognitive psychology and individual differences has provided evidence that individuals utilize diverse cognitive strategies for processing information and that there are diverse patterns of development (Barbae & Swassing, 1979; Hilliard, 1976; Shade, 1982). This evidence suggested that variables such as social class, culture, and gender may interact in complex ways to influence human learning and cognitive development.

Research Questions and Hypotheses

Utilizing William Perry's scheme, this study investigated the degree to which culturally distinct themes and strategies cultivated within the African American community are present in the cognitive development of African American university students. The interaction between the student, the student's culture, and the urban college environment was examined to identify similarities and differences between the cognitive development of African American and White students enrolled at a predominantly White urban, southeastern, mid-size, state university. The Learning Environment Preference tool (LEP) developed by Moore (1987) was used in measuring cognitive development.

Research Questions. The following questions were posed: (a) What differences in cognitive development will be seen based on LEP (Moore, 1987) results between African American and White American freshmen and senior college students who attend an urban, predominantly White university? (b)

What differences and similarities will be seen after controlling for socioeconomic status (SES) and gender? (c) What themes, relative to cognitive development, may be discovered in responses by selected students to semi-structured interview questions; will such themes, if any, vary by culture and academic class?

The research questions are addressed from both a qualitative and quantitative approach. Questions (a) and (b) were addressed using a quantitative approach and (c) was addressed using a qualitative approach.

Hypotheses. The first two questions were expanded into the following null hypotheses.

1a. There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP.

1b. There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP when SES and gender are controlled.

2a. There will be no difference in cognitive complexity between African American and White senior college students as measured by the LEP.

2b. There will be no difference in cognitive complexity between African American and White senior college students, as measured by the LEP when SES and gender are controlled.

3a. There will be no difference in cognitive complexity between African American and White freshmen and senior college students as measured by the LEP.

3b. There will be no difference in cognitive complexity between African American and White freshmen and senior college students, as measured by the LEP when SES and gender are controlled.

Definition of Principle Terms

For the purposes of this study, the following terms have been operationally defined:

Class Status is defined in this study by student's academic classification as either freshmen or senior.

Cognitive Development is defined by William Perry's model of ethical and intellectual development (Perry, 1970) and measured by the LEP (Moore, 1987). Perry's model described cognition as "making sense" about the world and knowledge (Perry, 1970, p. 41). Perry described development in meaning-making as a nine-position progression of thought from dualism through multiplicity to varieties of commitment in relativism. The scheme addressed the "interface between student's intellect, the method used to understand the world and the nature of knowledge, and identity" (King, 1978, p. 39). For purposes of statistical comparison within the study, the Cognitive Complexity Index (CCI) score was

selected from LEP results to represent an overall development average. The CCI was calculated with a formula using all of the position preference percentages to produce a single score (Moore, 1990).

Culture is defined empirically for the present study by data retrieved from the university student database. Students classified themselves as either Black American or White. African American is now the preferred term used to describe the culture that has been historically termed Black or Afro-American, and thus is used in the present study. As defined by Nobles (1982), culture comprises the "patterns for interpreting reality that give people a general design for living which consists of both surface structures (language, values and behavior) and deep structures (worldview, ideology, and cosmology)" (p. 17). Thus, for the purpose of this study, culture is referred to as the general design for living characterizing a particular racial or ethnic group.

Cultural Differences are defined as statistical differences found between African American and White students in cognitive complexity as measured by the CCI of the LEP.

Development or growth is defined as the movement of a student from a lower position to a higher level on Perry's model of ethical and intellectual development during the time between his or her first and senior years of college.

Learning Styles is defined by Smith (1982, p. 4) as the individual's "characteristic ways of processing information, feeling, and behaving in learning situations," that is, how the individual learns to learn.

Student Development Theory is defined as a body of theory and associated concepts that attempts to explain the process of human development as it may apply to college students of any age (Bloland, Rogers, & Stamatakos, 1994).

Contributions of Study

For many years research on the cognitive development of African American students was limited (Fleming, 1981; Gilson, 1990; King, 1989). However, the relationship between culture and individual cognition has become the subject of frequent controversy. Herrnstein and Murray (1994) stated in The Bell Curve that "the differences in intellectual capacity among people and groups and what those differences mean for America's future is among the most sensitive in contemporary America--so sensitive that hardly anyone writes or talks about them in public" (p. 21).

The results of the present study may help faculty and staff better discern differences in cognitive development, as defined by Perry levels, among African Americans at different stages in their academic pursuits. Strange and King (1990) argued that, to facilitate students' progress toward developmental goals, student

affairs professionals must be able adequately to describe three particulars: (a) students' individual differences, (b) differences in human environments, and (c) the consequences of specific person-environment interactions.

Hopefully, the current research may contribute to the knowledge base of student development for which educators design and assess interventions to meet institutional goals. The results of this study can influence student recruitment, instruction, and faculty hiring and program development. In response to student diversity, institutions can begin to re-establish standards of quality that promote an environment that supports development for all students. Characteristics of student groups by ethnicity and socioeconomic class can help educators and administrators understand culture uniqueness. At the same time, however, expectations or stereotypes should not be imposed on the individuals because of their group membership. It must be kept in mind that all learning environment preferences and motivational factors are found within all ethnic groups and social classes. Research does not indicate that a specific cognitive style is unique to everyone in a specific cultural group. The goal of educators and student affairs professionals is to create instructional and campus environments that advantage all students.

Clarification of cognitive development among African American students as defined by Perry's scheme could provide benefits to both students and the

universities educating them. Specifically, the knowledge of African American development could be integrated directly into campus ecology. Campus environments could be redesigned to increase satisfaction, academic performance, and personal, intellectual, and social development. Consequently, the results of the present study may well contribute to the limited literature devoted to African American college student development as measured by the LEP.

Summary

This chapter introduced the investigation of patterns of cognitive development for African American college students and identifies the parameters of the study. Contained herein is (a) a brief discussion of literature on cognitive development of students and the impact of culture, (b) a discussion of the lack of currently available information relative to the impact of culture, socioeconomic status, and gender on cognitive development as measured by the LEP, and (c) an overview of the implications of the present research for this particular institution under study and the present knowledge base. In addition, the specific research questions associated with this study have been stated, and operational terms have been defined. Chapters included in this study are: Chapter II, Review of Literature; Chapter III, Methodology; Chapter IV, Data

Analysis and Results; and Chapter V, Summary, Recommendations, and Conclusions.

CHAPTER II

LITERATURE REVIEW

The theoretical basis for the present research is rooted in developmental theory and cross-cultural psychology. This chapter provides an overview of cognitive development and its recent critiques. Despite the sizable literature that exists on college student development, there remains a considerable void in existing literature pertaining to the development of minority students (Baker, 1998; King, 1989; & Shade, 1984). The theoretical framework is outlined using an interdisciplinary literature review in an attempt to move beyond the limited knowledge base documented the literature on the cognitive development of African Americans as measured by the Perry scheme.

The literature review is organized in two major sections. The first section examines the cognitive development of college students, empirical assessments, and instrumentation for William Perry's theoretical framework of cognitive development. The second section explores the effects of external factors, such as culture and socioeconomic status (SES), on the development of cognition and establishes a rationale for recognizing the uniqueness of African American cognitive development. This uniqueness is demonstrated through a review of relevant publications from cross-cultural psychology and consideration of the worldviews of Africans and African Americans based on their respective cultural

systems. This framework of literature establishes the context for the present study in which the differences between African American and White college students, attending a predominantly White urban campus, were examined based on the Perry scheme and measured by the Learning Environment Preferences (LEP).

Cognitive Development

According to Pascarella and Terenzini (1991), students make gains from freshman to senior year on a variety of different dimensions of learning and cognition. Cognitive development theories attempt to describe the increasing degrees of complexity with which individuals make meaning of their life experience as they confront questions of morality (Kohlberg, 1984) and questions of knowing and valuing (King & Kitchener, 1981; Perry, 1970). Cognitive structural theorists seek to describe the process of change by concentrating on the cognitive structures individuals create in order to give meaning to their worlds.

Until about 25 years ago, most of the research related to cognitive and intellectual issues was subsumed under the category of general intelligence. Since that time, there has been a great deal of research classified in the areas of intellectual development and cognitive styles.

Jean Piaget (1932, 1966) has been responsible for the major assumptions imbedded in the cognitive development theories of Kohlberg (1969) and Perry (1970). Piaget elevated the importance of thought and information processes in the comprehension of child development. King (1978) described the procedures an individual must accomplish when information is processed, "an interpreter who selectively attends to stimuli, imposes a 'meaningful' order onto the stimuli that are comprehended," (p. 36). According to Piaget (Piaget & Inhelder, 1969), cognitive development can be explained using four distinct stages: sensory-motor, pre-operational, concrete operational, and formal operational. The four stages are described below using the research of Piaget and Inhelder (1969).

During the sensorimotor period (from birth to 2 years), a child's cognitive system is limited to motor reflexes at birth, but the child builds on these reflexes to develop more sophisticated procedures. By the age of 2, children learn to generalize their activities to a wider range of situations. The child between the ages of 2 and 6/7 years has experienced preoperational thoughts. According to Piaget, at this age children acquire representational skills in the areas of mental imagery, and especially language. As opposed to preoperational children, children in the concrete operations stage (6/7 to 11/12 years) are able to take another's point of view and take into account more than one perspective simultaneously. Finally, children who have attained the formal operation stage

(11/12 to adult) are capable of thinking logically and abstractly. Perry extended Piaget's framework of formal operations by identifying and describing a stage sequence in the intellectual and ethical development of young adults or college students.

Undoubtedly, there were many reasons for Piaget's position of dominance in developmental psychology. Among these were the theory's emphasis on cognitive processes (assimilation, accommodation, and disequilibrium) that prevailed across wide areas of specific content. Development within the Perry scheme is also mediated in assimilation and accommodation by an individual's assumptions about knowledge and values.

According to Perry (1970), as individuals experience conflict or disequilibrium in their existing cognitive belief structures, either of two processes occur: assimilation or accommodation. In assimilation, the individual perceptually reorders or reinterprets the source of conflict to make it consistent with current knowledge, belief, or value structures (Chickering, 1969). In comparison, the new experience or challenge forces the students to accommodate the information and alter their cognitive structures to admit more complex, new forms (Chickering, 1969). Disequilibrium can be described as conflict or challenges confronted by individuals which cannot be handled by existing cognitive constructs (Perry, 1970).

Measures of Cognition

Prevailing measures of cognition in the 1950s relied heavily on factual knowledge and verbal ability, even when purporting to measure concepts. In contrast to such views, Ginsburg (1972) argued that Piaget's genetic epistemology provided a better basis for understanding poor children's cognitive abilities.

In the late 1950s and 1960s, Ginsburg (1972) conducted a review of research on poor children, mostly African Americans, that resulted in two significant conclusions. First, there were profound methodological problems with previous research on poor children. For example, the confounding nature of social class and ethnicity made the findings and conclusions ambiguous. Further, it was not clear what standardized tests of achievement and ability were actually measuring (Jones, 1988). Ginsburg (1972) exposed the problem of test score disparity in academic achievement between African Americans and European-Americans. Although performance data were initially taken at face value and gave rise to the early deficit-deficiency models to account for these differences, Ginsburg (1972) exposed the inadequacy of these models to serve as valid measures of underlying academic capacity or competence. Although this distinction between test performance and the degree of underlying academic

capability has broad-based applications, its usefulness was first revealed in assessing cognitive competence among diverse cultural groups.

Ginsburg's (1972) second conclusion recognized the strong tendency for researchers to adopt the Piagetian framework as a conception of cognitive functioning and the clinical interview as a method of investigating cognitive competencies in culturally different groups. For example, instead of considering infants of poor parents as cognitively deficient, Piaget's developmental model, which stresses universally shared stages of cognitive development, is offered as a more accurate conceptualization (Jones, 1988).

Ward (1973) raised the question, "How much of the variance among people is attributable to culture and how much to maturational and other factors?" (p.15) Piaget (1966) highlighted the issue in this way:

The kind of psychology we develop in our social environments remains conjectural as long as comparative, extensive and systematic research is not available; a great effort is still to be made in this direction. . . . Only such studies allow us to separate the effects of biological and mental factors from those of social and cultural influences on the formation and socialization of individuals. (p. 6)

Piaget's theory was the first to describe children's thought processes in detail. His "conceptualization of mature cognition (i.e., formal operations),

permitted adult thinkers to construct a mechanistic understanding of knowledge and reality" (Creamer, 1990, p. 82). Building on the foundation laid by Piaget's theory, theories of post-formal thinking began to emerge which better described adult thought processes.

An alternative method used by many social scientists and linguists for cognitive assessment is language analysis. The researcher interprets and looks for themes within language, some of which may not be directly expressed in the data, but emerge after intensive analysis (Tesch, 1990). Cognitive structures are manifested in commonalities or themes that repeat across data (Tesch, 1990).

Tesch (1990) labeled the study of the cultural aspects of language as ethnographic qualitative research. Ethnography is based on the proposition that "because language is the primary means for transmitting culture from one generation to the next, much of any culture is encoded in linguistic form" (Tesch, 1990, p. 81). Ethnographic research focuses on the study of cultural expressions where language is the transmitter of the phenomenon studied, not the object of study. Researchers have carved out regularities from the data that they regard as themes, concepts, or variables. In most cases, researchers have assumed the existence of connections or relationships among them.

Perry's Theoretical Framework

William Perry extended Piaget's framework for intellectual development in children by identifying and describing a sequence of intellectual and ethical development of young adults or college students. Perry (1970) used an open-ended and unstructured interview to measure the intellectual and ethical development of White male undergraduate students from Harvard (classes of 1958, 1962, and 1963). Perry's scheme of development was a result of the qualitative analyses of ways students described their experiences and metamorphoses over their college years (Moore, 1991).

In his 1970 book, Forms of Intellectual and Ethical Development in the College Years: A Scheme, Perry (1970) compared a student's moral and intellectual progress to humankind's fall from God as depicted in Genesis. In the Bible, humanity fell "out of relationship with God," while for Perry, the student has fallen from a world of absolutes and simple truth into a complex world of contexts and commitments (Moore, 1991). The forms of personal meaning-making about the world and knowledge described in Perry's work depict a nine-position progression toward increasingly abstract, complex thought. His scheme addressed the "interface between intellect, a student's understanding of reality, and the actual nature of knowledge and personal identity" (King, 1978, p. 39).

Perry's scheme described Positions 2 through 5 as reflecting systematic

cognitive-structural change toward increasing differentiation and complexity. In Positions 6 through 9, the focus shifted to what Perry calls "ethical concerns in the classical Greek sense: issues of identity and commitments..." (Moore, 1991, p. 3). Perry (1981) stated that the "positions are by definition static, and development is by definition movement." He continued by explaining that "the drama lived is in the variety of the ways students find to move from a familiar pattern of meanings that have failed them, to a new vision that promises to make sense of their broadening experience, while it also threatened them with unanticipated implications for their selfhood and their lives" (p. 78).

The nine positions of the scheme were collapsed into four major categories into which King (1978) has divided the positions: Dualism, Multiplicity, Contextual Relativism, and Commitment in Relativism. Between each of these four categories are what Perry describes as *Transitions*.

Dualism: Positions 1-2. Even though Position 1 has rarely been observed empirically, it symbolizes a state where knowledge and truth are conceived of as absolutes (Perry, 1981). A student proceeding from Perry's first position understands truth in terms of a "black and white" absolute. There may be a diversity of opinion, but a person at this level of cognitive development believes that authorities possess the truth and this truth is accepted without question as fact.

Dualism becomes more evident in Position 2, as differing perspectives and beliefs are acknowledged but are rejected as wrong (Moore, 1991). The world is seen in polar terms, that is, right versus wrong, we versus they. Knowledge and goodness are perceived as quantitative. Dualistic students look for answers and expect teachers to provide them.

Multiplicity: Positions 3-4. A person who makes meaning within these stages believes that diversity and uncertainty are legitimate, since "Authority" temporarily has not found the answer. A student's dualistic structure of thinking is challenged to accommodate the revelation that multiple answers may exist. Positions 3 and 4 represent a move toward "Multiplicity." At this level, students acknowledge that there are multiple perspectives on a given topic or problem, and those who hold different opinions are not simply seen as wrong (Moore, 1991). Hence, students cope with conflict by viewing every opinion as valid and problems are apparently unresolvable.

The transition from early multiplicity (Position 3) to late multiplicity (Position 4) is characterized by a realization that hard work or great effort does not guarantee good grades. Thinking becomes more qualitative; it is no longer strictly quantitative. The student in this case may believe "I'm being graded on my opinion and you can't judge personal opinion." Students who are thinking

from the perspective of this position are aware that authorities, in special cases, want relativistic thinking.

Contextual Relativism: Positions 5-7. The progression from Position 4 to Position 5 is considered by Moore (1991) to be the most significant movement within the Perry scheme because all knowledge and values (including the authority) are no longer considered absolutes but knowledge is interpreted in context. Students finally recognize themselves as legitimate sources of knowledge along with authorities such as teachers and textbooks. "Authorities are no longer deified or resisted, but are valued for their expertise" (King, 1978, p. 39). Students realize the need to evolve and endorse their own choices from the multiple "truths." Position 6 finds students contemplating commitment.

Commitment in Relativism: Positions 7-9. According to research by Moore (1991) and others, very few undergraduate students demonstrate post-Position 5 thinking. Consequently, little work has been devoted to Positions 6 through 9. Positions 7, 8 and 9 focus on how students cope with the consequences of their commitment(s). As the students experience the implications of commitment, they choose a personal style.

King (1978) pinpointed a unique feature of Perry's scheme. In contrast to other developmental theories, Perry provided three alternatives to forward progression throughout the positions. Perry (1970) referred to these as

temporizing, escaping, and retreating. An individual “temporizes,” by delaying movement from a position while exploring implications or hesitating to take the next step. Those who “escape,” avoid “the responsibility of commitment.” And those who choose the third alternative, “retreat,” return to a dualistic position or to early multiplistic positions of absolute authority, “perhaps to find security and strength to cope with an environment that proves too challenging” (King, 1978, p. 39). Both forward progress and regression through the positions of the scheme’s continuum may occur (King, 1978).

Replication Studies

Surprisingly, there have been few replication studies of Perry’s original research other than those of Clinchy and Zimmerman (1975) and Kitchener and King (1981). Clinchy and Zimmerman (1975) completed longitudinal studies based on Perry’s theory while King (1977), Kitchener (1977), and Kitchener and King (1981) investigated the construct of reflective judgment that focused on how people reason and arrive at a point of view, that is, how people consider the nature and role of evidence in their arguments, how they analyze and synthesize available evidence, and what role authorities play in their judgment making. This construct is based on Perry’s scheme as well as on the work of Loevinger (1976); Harvey, Hunt, and Schroder (1961); Broughton (1975); and others. The results of Clinchy and Zimmerman’s (1975) research supported the validity of

the original scheme, as well as, elaborated on several positions. The purpose of Kitchener and King's companion studies was to develop a measure of Reflective Judgment and to investigate the relationship between Reflective Judgment and two other measures of advanced intellectual development, Piagetian formal operations and verbal aptitude, among students at different educational levels. These studies used a cross-sectional design with a matched sample consisting of 20 graduate students, 20 college juniors, and 20 high school students. A significant upward progression of Reflective Judgment scores was found across the three groups. These studies indicated that intellectual development continued and could be traced through the post-adolescent years.

Blake (1976), Meyer (1977), and Moore (1989) reported similar cross-sectional results. Blake (1976) and Meyer (1977) used semi-structured interviews, while Moore (1989) used a paper and pencil instrument called the Learning Environment Preference (LEP) to measure student position on the Perry model.

In 1989, for the first time, Patricia King and others explored the intellectual development of African American college students on a predominantly White campus using the Reflective Judgment model of post-adolescent intellectual development. The study examined relationships among students' intellectual development, academic and social integration, and it specified noncognitive factors, and background characteristics (e.g., high school

grade point average and class rank, family income, and socioeconomic status). The study was conducted at a large Midwestern State university with a 3% African American student population. African American participants completed a four-part survey that consisted of a section on background information, the Institutional Integration Scale that measured social and academic integration, the Noncognitive Questionnaire that covered a variety of attitude and background related areas, and a Reflective Judgment Interview that presented dilemmas from different intellectual domains. In a 10-year review of Reflective Judgment research, the class mean scores obtained in the 1989 study were found to be comparable to those in previous studies, falling in the middle of the range of class scores from other studies reported by Kitchener and King (1989). Only the seniors varied somewhat from this pattern; their scores fell in the lower third of the range of senior class scores.

King and Taylor (1989) found that factors associated with students' perceptions of the learning environment, such as degree of comfort, willingness to take intellectual risks, and feelings of belonging, had an effect on their intellectual development. No systematic pattern of relationships was found between or among the three test instruments.

The finding that participant responses vary with test characteristics and test demands has been particularly problematic for stage theorists as some

assessment strategies impose heavier cognitive demands than others (Creamer, 1990). For example, asking respondents spontaneously to produce and then defend their own arguments about a given issue has required more complex cognitive abilities than does paraphrasing another's ideas as an indication of comprehension. Therefore, from King and Taylor's (1989) studies, it can be concluded that cognitive-developmental assessment is not independent of context; differences in assessment procedures can influence the score an individual achieves on a developmental assessment tool.

Assessment and Instrumentation Research on the Perry Scheme

A significant body of research (Belenky, Clinchy, Goldberger & Tarule, 1986; Knefelkamp, 1974; Knefelkamp & Cornfeld, 1978; Mentkowski & Strait, 1983) has reflected awakening interest in assessment and instrumentation related to Perry's scheme of intellectual and ethical development (Moore, 1991). After examining this body of research, Moore (1991) concluded that, while interviews may provide a rich and valuable resource for assessment, they are impractical for use in a school setting. He has suggested two alternative approaches to unstructured interviews: (1) the Measure of Intellectual Development (MID), a production-task measure; and (2) the Learning Environment Preferences, a recognition-task "objective" measure.

The Measure of Intellectual Development. Moore (1991) reported that in response to the limitations of individual interviews, Knefelkamp (1974) and Widick (1975) developed alternatives to the interview format. The instrument, called the Measure of Intellectual Development (MID), represents a combination of sentence stems and semi-structured essay tasks.

Mentkowski and Strait (1983) used the MID to measure development on the Perry continuum. In a cross-sectional analysis, seniors scored significantly higher than freshmen on two of the three essays. The findings of a longitudinal analysis, however, were more ambiguous. Students increased about .40 of a standard deviation from freshman to senior year on one essay, but decreased .20 of a standard deviation on another (Mentkowi & Strait, 1983). At first glance, the former gain seemed quite small. As pointed out by King (1990), however, the magnitude of the gain may not be as important as the fact that, among college students, such a gain typically reflects a qualitative shift from a style of reasoning based largely on personal beliefs to one that explicitly uses evidence in making judgments.

The Learning Environment Preferences. Based upon years of qualitative work with the MID and Rest's (1979) Defining Issues Test (DIT), Moore (1987) developed the first alternative to the interview format, a recognition-task measure now titled the Learning Environment Preferences (LEP; Moore, 1991).

“This instrument focuses on student preferences for specific aspects of the classroom learning environment shown to be associated with increasing complexity on the Perry scheme of intellectual development” (Moore, 1991, p. 13).

The Perry scheme has been validated based on populations assessed so far by the LEP across gender differences, age groups, institutional types, and even culture to a limited extent (Moore, 1991). Moore (1991) recommended that validation of the LEP be studied across diverse student populations. W. Moore (personal communication, August 8, 1999), asserted that during the last decade related research has focused on gender differences for the LEP; but that he was unaware of any published results that were related to racial or ethnic comparisons.

Zhang (1995) made a cross-cultural examination of Perry's cognitive theory through the development of the Zhang Cognitive Development Inventory and tested its validity on a population of Chinese college students. A unique pattern of cognitive development was found among the Chinese college students under investigation that differed from the one described in Perry's (1970) theory based upon American college students. Chinese freshmen scored highest in Relativism and Commitment in Relativism but lowest in Dualism. Dualism scores increased for the sophomores and increased even more for the juniors.

Juniors obtained the lowest Relativism scores and sophomores the next lowest. In their senior year, students were slightly less Dualistic and indicated more Relativism and Commitment in Relativism. Zhang (1995) commented that the life style of Chinese students is very restricted and they are exposed to an authoritarian teaching environment. Whether these or other factors in Chinese culture are related to this dualistic trend could not be determined from this study. Zhang's research suggests that students' cultural background and experience in the learning environment may influence students' cognitive development.

In a developmental cross-sectional design, Davis (1993) compared traditional and nontraditional students on the dependent variables of attentional/interpersonal styles and learning preferences. The LEP and the test of Attentional and Interpersonal Style (TAIS) operationally defined learning preferences and attentional/interpersonal styles, respectively. Nontraditional students demonstrated significantly higher scores on the CCI of the LEP than traditionally aged undergraduate students. There were some significant differences on the LEP due to age, gender or ethnicity. Specifically, White students were found to score significantly higher on the CCI than Asians. There were no differences among African Americans, Hispanics, and Whites on the CCI. Gender comparisons showed that males scored significantly higher on

measures of analytical skills, impulsiveness, control, physical competitiveness, and introversion, and lower on expressed affection.

Cooper and Robinson (1993) examined the effects of cooperative learning on a variety of student outcome measures including the LEP. Although there were statistically significant main effects on cognition, no significant gains were found in Perry positions from pre- to post test among general education students. Specifically, significant gains were found in knowledge-level measures of course mastery for cooperatively taught courses.

Related Research

The purpose of this section is to explore research related to those factors that may impact cognitive development. As mentioned previously, early work on cognitive development focused primarily on men, and the resulting theories were generalized to all adults. When women did not fit the theory, they were described as underdeveloped (Gilligan, 1982). Attempts to explain the differences between men and women are predominantly based on differing socialization practices. Girls are typically raised in different environments and are taught different ways of coping, behaving, and viewing the world.

According to Harding and Hintikka (1983):

we cannot understand women and their lives by adding facts about them to the bodies of knowledge which take men, their lives, and their beliefs

as the human norm.... Furthermore, it is now evident that if women's lives cannot be understood within the inherent inquiry frameworks, then neither can men's lives. (p. ix)

Further, the review of literature also suggested that as a result of socialization, women and some cultural groups tend to share cognitive style characteristics, such as valuing the social environment around them, and valuing cooperation rather than competition (Lasley & Matczynski, 1997). Of the researchers suggesting that the cognitive development of women involves different factors than the cognitive development of men, Carol Gilligan has received the most attention. Carol Gilligan (1982) has consistently raised the possibility of gender differences in cognitive structural development. Gilligan's work is relevant to the present research because it moved beyond the traditional culturally bound preconceptions of development based on life experiences of men.

Gilligan (1982) believed that traditional cognitive development research is inadequate because of the unique socialization of White women in our society. This unique socialization is paralleled against the experience of African Americans. Gilligan pointed out that Piaget's "girls are an aside, a curiosity to whom he devotes four brief entries in an index that omits 'boys' altogether

because 'the child' is assumed to be male. In Piaget's research from which Perry derived his theory, females simply do not exist" (p. 150). Gilligan (1982) wrote:

the move toward the tolerance that accompanies the abandonment of absolutes is considered by William Perry (1970) to chart the course of intellectual and ethical development during the early adult years. Perry describes the changes in thinking that mark the transition from a belief that knowledge is absolute and answers are clearly right or wrong to an understanding of the contextual relativity of both truth and choice. . . .

Though both genders move away from absolutes in this time, the absolutes themselves differ for each. In women's development, the absolute of care, defined initially as not hurting others, becomes complicated through a recognition of the need for personal integrity. (pp. 165-166)

Using Kohlberg's (1984) Moral and Ethical Development Model, Gilligan found that first-year female students predominantly scored either between Position 2 and 3, or at Position 3. A mixed group of seniors, on the other hand, generally scored between Positions 3 and 4, with men usually scoring slightly higher than women (Kitchener & King, 1985a).

While studying moral reasoning, Gilligan (1982) discovered a form of reasoning that she believed to be different from the reasoning described by

Kohlberg. Gilligan called this different way of reasoning the care and responsibility voice, and described Kohlberg's reasoning as the justice voice. In research reported by Gilligan (1986a), most (about 80%) but not all women preferred the care voice, and most (about 70%) but not all men preferred the justice voice. Moral choices are evaluated through rules and principles of fairness and relationships of reciprocity (Gilligan, 1986a). Duty and obligation are the result of impartial analysis using rules and principles of justice (Gilligan, 1986a).

Gilligan (1986a) was not alone in noting gender differences. In replicated research of Perry's longitudinal study, Clinchy, Lief, and Young (1977) found differential developmental conceptions of commitment for girls in a "traditional" and a "progressive" high school. They found that seniors scored significantly higher than sophomores at the progressive school, but not at the traditional school.

Kohlberg (1984) rejected Gilligan's assertion that his theory was biased and not applicable to both genders. Kohlberg proposed that Gilligan's care voice was not a separate cognitive structure, but a style that was similar to what Kohlberg calls his substage, "A." He maintained that, if age, occupation, and educational level are held constant, then the research of Arnold, Burkhart, and Gibbs (1984), and Denny (1988), did not support the conclusion that men score

higher than women using his or Gibbs's scoring systems. Using cross-cultural and longitudinal data, Kohlberg (1969) asserted that in every culture, all children could be expected to display the same fixed order of stages as they grow older. Kohlberg also argued that although the sequence of stages may be invariant from culture to culture, the presence of higher stages appears to be culture-specific; this implies that only the first several stages constitute universal modes of moral reasoning. Similarly, Edwards (1975) suggested that the complexity of a culture is an important variable since greater cultural complexity is associated with higher stages of moral development. However, the perception that a principle-oriented morality is a higher stage than a law-oriented morality is a western value-laden judgment, and both Piaget and Kohlberg were criticized for cultural bias (Simpson, 1974). Specifically on the issue of sequencing, Simpson (1974) summarized, "that according to cognitive developmental theory, low scores on moral judgment measures by Chicano children indicate that such children generally have not been exposed to the types of moral problems that encourage them to take on the role of the generalized other as they seek to find appropriate solutions to such problems and, concurrently, progress through the stages of development" (p. 10).

In the 1997 Women's Ways of Knowing tenth anniversary edition, Belenky et al. reflected on their early examination of women's cognitive development.

Using an interview case study methodology, Belenky et al. (1997) described five distinctive perspectives from which women view reality and draw conclusions about truth, knowledge, and authority. Embedded in the interviews were questions based on Perry's (1970) epistemological positions and also standard questions developed by Gilligan (1982) and Kohlberg (1984) for coding of moral orientation or stage. The women included in the study were drawn from nine different academic institutions and human service agencies. Participants were rural and urban American women of different ages, classes and ethnic backgrounds, and educational histories. Analysis of interviews produced two unique differences from Perry's (1970) original research. While classifying the women's data using Perry's scheme, Belenky et al. (1997) found first that women's thinking did not match his categories. Second, due to the diversity of women studied in their research, inconsistent patterns of universal developmental were found. Belenky et al. concluded that Perry's analysis of interviews with men and his developmental scheme were results of a relatively homogeneous group of people socialized into a similar system of values, standards, and objectives.

Gilligan (1982) ascribed to Jean Baker Miller's (1976) analysis of women's orientation to power, which describes how women perceive authority, a strong theme in William Perry's scheme of cognitive development. Gilligan (1982)

pointed out that Miller found women's position in relationships of dominance and subordination to be very important in psychological development. Gilligan's (1982) summary of Miller stated that, women may be dominant or entwined in temporary nurturing relationships and, conversely, subservient in relationships of permanently unequal social status and power. Thus, women's psychology reflects both the dominant and subordinate sides of moral responses which relationships produce.

The impact of gender on cognitive development has been reported for most groups (Kogan, 1976; Witkin, 1977). However, whether these variations in gender exist in African American culture as measured by LEP cannot be determined from the available evidence. Nevertheless, we must consider the unique socialization experience of African Americans and the cultural influences on cognitive development. Although research surrounding the cognitive development of African American students based on the Perry scheme is limited, other aspects of African American college student development have been analyzed. Branch-Simpson (1984) compared African American students' psychosocial developmental tasks to those reported by Chickering (1969) and other researchers who based their theories on a homogenous White population.

Branch-Simpson (1984) conducted psychosocial biographical interviews with African American male and female college students and used content

analysis to identify developmental tasks descriptive of their experience. Branch-Simpson's findings suggest several areas of overlap with Chickering's vectors; however, there were some differences in (a) religious-spiritual influences, (b) interpersonal relationships, (c) ways of knowing, and (d) the influence of family and extended family on African American students.

Strong patterns of religious and spiritual dimensions were found in the developmental processes described by the participating African American students. While the whole student was a focus of most predominantly White institutions and student affairs programs, spiritual development or faith was not often addressed. Branch-Simpson (1984) also found the theme of interpersonal relationships to be interwoven among several psychosocial domains and in ways of knowing. According to Branch-Simpson (1984), the African American students "placed their trust in networks of human and spiritual relationships" where as Chickering's traditional model placed "trust in technology and science" and value in the "acquisition of objects."

Branch-Simpson (1984) also found that African American students in the study differed from White students in ways of knowing. While African American students indicated their belief that "knowing is symbolic imagery; Logic is a union of opposites," White students indicated their belief that "knowing is cognitive; Justice logic dominates" (Branch-Simpson, 1984, p. 66).

The influence of family and extended family were also found to be differentiated along ethnic lines with African American students placing more emphasis on family relationships than White students. This finding contrasts with Chickering's (1969) theorizing that separation from family is part of the process of developing emotional and instrumental autonomy. Branch-Simpson (1984) reported that both genders within the African American culture tended to stay connected to family and that this supports the development of autonomy. Finally, Branch-Simpson (1984) asserted that African American students find connected learning critical: "Knowing must be personal. Students want relationships with their teachers, men less so than women" (Branch-Simpson, 1984, p. 66).

Further, in a cross-cultural study of middle-class urban boys in the United States, Taiwan, and Mexico, Kohlberg and Gilligan (1971) reported that sequence and direction of stage development followed the same progression in each culture, yet the degree of development in other cultures was not as rapid as it was in the United States. The research of Kohlberg and Gilligan provides support for universal sequencing of stages as well as the relationship between culture and the rate or degree of development.

In summary, this related research demonstrates that culture may interact with cognitive development. More specifically, the impact of culture may affect

not only the degree of development but also the interpretation of measured results.

African American Cognitive Development

From the 1950s through the 1960s, educational researchers paid little attention to specific features of African American culture as a determining variable (Tulkin, 1972). Instead, the experiences of African Americans fell under the rubric of cultural deprivation-disadvantage and were considered to be limited to socioeconomic status variables. The cultural deprivation-disadvantage approach is the model by which educational research primarily deals with subpopulation variation. Resisting the cultural deprivation disadvantaged model, Jones (1988) suggested that culture (defined instead as a set of adaptive processes operating independently of the interaction with social class) may play a significant role in determining socialization patterns and developmental outcomes. In more recent years, the labeling of African Americans as disadvantaged or "at risk" has been replaced with the adaptation survival premise (Tulkin, 1972, p. 13). Proponents of this thesis suggest that African Americans have developed a parallel culture in response to their isolation through discrimination, slavery, and ghettoization (Tulkin, 1972).

All components of a culture are built upon some basic conceptual system or philosophically-based worldview, and various cultural systems tend to

include the same general themes such as life, death, birth, morality, human nature, and religion. Although these themes appear across cultures, they are often viewed differently within each culture (Matthews, 1977).

A conceptual system is a pattern of beliefs and values that defines a way of life and describes the world in which people act, judge, decide, and solve problems (Matthews, 1973). The conceptual system becomes embedded in a particular network and is transmitted to its members through a complex matrix of socialization practices (Matthews, 1973). The socialization process merely transmits choreographed patterns of behavior that an individual learns to copy (Anderson, 1988). Wilson (1971) suggested that culture impacts various aspects of perception and cognitive behavior. It would seem feasible that different ethnic groups with varying cultural histories, different adaptive approaches to reality, and different socialization practices would differ in their respective cognitive processing style.

Both socio-cultural and environmental factors are important in the development of any cultural style. Socio-cultural factors include cultural values and beliefs, socialization practices such as child rearing and familial systems of reward and punishment, and gender role development (Anderson, 1988). Witkin (1977) suggested that a richly diverse environment may be important and, additionally, the amount of environmental stress is crucial. Witkin

explained that, initially, children do not differentiate themselves from the environment but, as they mature, the process of psychological differentiation does occur and is affected by environmental variation and stress. The nature of this differential ultimately may be reflected in the child's cultural style (Witkin, 1977).

The environment offered by institutions of higher education, in many ways, promises to facilitate intellectual and personality growth. However, a number of barriers exist for any given student, depending on such factors as method of instruction, nature of contact with faculty, and influences of informal educational subculture. If college students in general face such developmental challenges, what outcomes can be expected for those who come to college with special sets of characteristics that must somehow be reconciled with existing educational environments? Characteristics that have been identified by educational research that may interact with existing educational environments for African Americans include the unique psycho-history of African Americans in this country, the impact of racial hostility, and environmental stress (Ogbu, 1981). In addition, DuBois (1953) described one of the greatest struggles for African Americans as the constant struggle to reconcile two disparate identities--that of African American, on the one hand, and American citizen on the other.

Because the social, cultural, and environmental milieus of ethnic and racial groups differ, one should expect these differences to be reflected in their respective cultural/cognitive styles. The influence of sociocultural factors on cognition is supported by crosscultural research.

Cross Cultural Research

Several researchers have compared cultural styles with particular cognitive models. Often this cross cultural research has utilized very disparate cultural groups, for example, Africans and Mexicans compared to Anglo-Europeans and White Americans. But what about a case in which different ethnic groups share the same country and, to some degree, a similar lifestyle? Is it possible that such groups manage to maintain a distinct cultural style while existing within the context of the dominant Western culture?

Herskovitz (1958) contended that a significant number of African behaviors, values, and beliefs have been sustained by contemporary African Americans. He suggested that these sociological constructs survive because of the existence of institutions like the African American church and the African American family. Simply because some behaviors are borrowed from the dominant culture does not mean that a group member's entire cultural style has changed. The cultural style of the African American subgroup has been sufficiently encapsulated within its own culture to prevent total assimilation. The

psychology of Blackness is reflected in the family, close relationships, child rearing, language, learning styles, and patterns of psychological actualization (Shade, 1982a; White, 1984).

It has been shown that certain cognitive processes are culturally influenced. For example, Clark, Fifer, and Lesser (1965) found that four ethnic American groups displayed a distinct pattern of cognitive processes as measured in verbal memory, concept formation, numerical memory, and spatial relationships. This was true regardless of the difference in performance due to socioeconomic status. Of the four groups, African Americans were high on the verbal task but lowest on the space conceptualization task.

Joseph White (1970) who suggested that the psychological orientation of Blacks is distinct from that of Whites also illustrates culturally distinctive patterns of cognitive processes. White (1970) stated, that, "there is a distinctive, coherent, persistent Afro-American psychological perspective, frame of reference, worldview, or cultural ethos that is evident in the behavior, attitudes, feelings, life styles, and expressive pattern of Black Americans" (p. 2). This psychological perspective or worldview is, according to White (1970), "a set of assumptions, values, ideas, and behaviors shared by a particular group of people that are [sic] transmitted from one generation to the next" (p. 2). White continued, asserting that:

the Afro-American psychology perspective, the foundation for the psychology of Blackness, is characterized by seven interrelated primary dimensions: openness to self and others, tragedy and resilience, psychological connectedness and interdependence, the oral tradition, creative synthesis, fluid time perception, and the value of direct experience combined with respect for the elderly. (White, 1970, p. 2)

According to White (1970), the African American and African worldview can be differentiated from the European American worldview. At the heart of the European American worldview is the problem of the mind-body dualism first illuminated by Descartes which has generated and sustained a number of dichotomies including rational-irrational, affective-cognitive, and master-slave (White, 1970). The individual is considered as separate, distinct, alone, apart from and independent of other individuals within the European American worldview (White, 1970). Further, the linguistic language tradition of European Americans is visual-written. Records of events, history, narratives, contracts, and rules are transmitted by means of the written word. White describes the outcome of such a tradition:

The Euro-American worldview spawned a reductionistic psychology concerned with categorization, mental measurement, and the establishment of norms. The primary unit of study was the individual,

and emphasis was centered on the early years of child development.

Differences and diversity from established norms were treated as deviant.

Unacceptable thoughts, feelings, and impulses were regulated into the unconscious. (White, 1970, p. 14)

Matthews (1977) similarly contended that history, geography, environment, and cultural conditioning operate to produce a different organization, structure, ranking, and use of feeling and emotion in different groups of people. Each culture has evolved around some worldview within a philosophical system, and it is this view that permeates the basic threads of cultural development (Matthew, 1971). Hence, African Americans as a distinct cultural group will have unique organization, structuralization, and presentation of thought.

The most distinctive characteristic of the African philosophical system is its focus on unity and connection (Hale-Benson, 1986; White, 1970). Humans are rhythmically united with nature and the universe. Humanity is considered to be a function of connectedness which demonstrates the interdependence of community, nature, and cosmos (Mbiti, 1970). All systems of thought and behavior, from the more formal sciences to the more simple practical concerns, are interwoven into a functional system (Mbiti, 1970). Thus, the human being is physically, affectively, and cognitively united with the nature cycle of existence.

For Africans, faith, reason, and the emotions are mutually dependent. The Europeans, on the other hand, maintain a worldview in which reality is contemplated, experienced, and lived separately (Anderson, 1988). For Africans, there is no conflict between cognitive and emotional systems. According to Anderson (1988), this systematic unity appeared irreconcilable in European terms and so the African way of thinking was considered illogical. What was considered logical was the European approach to cognitive and emotional functioning. This approach evolved into a verified way of life in which certain clearly defined behaviors commanded a separation of affect and cognition (Anderson, 1988).

Shade (1982a), in her review of research relating to African American patterns of cognition, defined cognition as the act of knowing, and, more specifically, as a culturally induced way in which individuals organize and comprehend their world. According to Shade, within the act of cognition are the processes of perception, memory, mental elaboration and reasoning. Cole and Scribner (1974) pointed out that the processes of cognition are universal; differences are found in the way that we use the processes. The basis of these variations is found in the demands of a specific eco-cultural environment (Berry, 1976; Thompson, 1969). Shade (1984) examined the patterns of knowing that have been developed and transmitted within the African American community;

she believes that Americans of African descent have developed a unique culture as the result of coping with and adapting to a race-conscious society, and a part of that culture includes specific and unique cognitive strategies. Shade (1984) used the information-processing paradigm to examine the unique way in which African Americans “perceive, encode, represent, and analyze information” (p.5).

African American Perceptual Style

One distinction found in the perceptual style of African Americans was in the area of information reception (Shade, 1984). Within information reception, there seems to be a hierarchy of development which produces preferred sensory channels (Shade, 1984). Barsch (1971) proposed that African American children possess a tendency toward the gustatory, olfactory, and tactile senses. However, as the child gains experience and cognitive effectiveness increases, the kinesthetic, auditory, and visual modes become the most dominant (Barsch, 1971). In contrast, mainstream American culture has preferred learning through the visual channel as a means for learning (Barsch, 1971).

It is, however, an error to assume that all individuals or members of a particular ethnic group have the same modality preference. According to Barbae and Swassing (1979), individuals have a preferred modality through which they receive information, and that preferred modality may not be the visual channel.

Wober (1966) agreed and further suggested that the demands of the environment cause this preference to develop.

More recently, Shade (1992) empirically discovered the possibility of a unique African American cognitive style. Shade reported that the assumption that African Americans have a unique cognitive style seems to emanate from studies that investigate only one dimension of cognition, such as that of field independence versus field dependence. However, this stylistic preference "represents only one of several dimensions represented by the construct" (Shade, 1992, p. 256). Shade (1992) reported that Watchel (1972) and Vernon (1973) described cognitive style as a pattern of strategies that includes not only perceptual style, but also the examination of preferences in conceptual differentiation and interpersonal interaction. Hence, Shade (1992) asserted that to "determine a particular cognitive style, one must examine the consistency of performance in more than one arena" (p.256).

Shade (1992) examined unique cognitive style by using a sample of ninth grade students stratified by race, gender, and achievement level. African American and European American students were given three cognitive style tasks. A significant difference between African American and European American students in their perceptual orientation to the environment was found as a result of Shade's examination. Specifically, differences were found between

African American and European American students in areas of sensory modality preference, cue selection, and information analysis and organization.

Hilliard (1976) suggested the following worldview characteristics of African Americans: view things within an environmental system, rather than as isolated parts; seem to prefer intuitive rather than deductive or inductive reasoning; tend to approximate concepts of space, number, and time rather than aiming at exactness or complete accuracy; prefer to attend to people stimuli rather than nonsocial or object stimuli; and tend to rely on nonverbal as well as verbal communication.

Shade (1984) reported that groups of people have worldviews that provide "philosophical underpinnings of their behavior" and pointed out that having such a worldview "helps the individual meet the demands and challenges presented by people and social situations in ways that will preserve their physical, spiritual, and psychological integrity" (p. 8). Survival of a group of people who live in an urban society with biases predicated on skin color form a worldview based on distrust and caution (Shade, 1984).

Although only a few scholars of cognition have chosen to study African Americans, the available evidence could lead to the conclusion that the difference in cognitive development can be attributed to characteristics of socioeconomic, field-dependent, and nonanalytic categorizing, which is the information-

processing strategy used by many African Americans (Shade, 1982). Because this strategy is not the strategy preferred in an educational setting, cultural conflict can be expected to occur.

While in the last 10 years there has been limited research done on the cognitive development of African American college students, the relationship between culture and individual cognition has become a provocative theme in cross-cultural psychology (Shade, 1982). However, although this relationship is accepted for various Western and non-Western cultures, educators and psychologists have not widely applied it to subcultures within American society (Anderson, 1988).

According to the Laboratory of Comparative Human Cognition (1983) cited in Jones (1988), cross-cultural research has had several significant consequences for developmental psychology. First, it has been discovered that the methods of describing cultural environments and psychological ecologies are lacking. Second, when experimental research is carefully designed, with steps taken to ensure task saliency, stimulus familiarity and equivalency, and questions are asked in ways appropriate to the particular culture of interest, the major finding is that people share the same basic abilities across cultures. Third, how these processing abilities are organized and utilized varies between and

within cultures according to specific features of the history of an individual's activities related to the task at hand.

Cognitive theories of human development focus specifically on cognitive skills but generally fail to delineate how such skills relate to an individual's affective expression. In addition, most theories do not adequately express the dynamic relationship between the person and the environment (Benjamin, 1986; Bloland, Rogers, & Stamatakos, 1994).

Cultural influences.

Michael Cole (1991) borrowed from Cole and Cole (1989) when he suggested that psychologists rethink development in terms of a "cultural historical or cultural context" view of developmental psychology. This view holds that two factors labeled "biology" and "the environment" do not interact directly, but are directly affected by a third factor, namely, culture (Cole, 1991).

In the 1960s Cole began his attempt to understand cultural variations in cognitive development. In his early work, he demonstrated that by changing the content and procedure of testing, it is possible to modify significantly the cognitive performance of non-literate African adults. The research sought to specify the importance of links between context and content (Cole, 1991).

Context, as used by Cole, refers to the conditions including content and social organization, in which the contents exist. In other words, the content may exist,

but only has meaning within a certain context. Cole (1991) believed that culture was a “source in the structuration of behavior” and provided “tools to be used in that process of construction” (p. 17).

Culture’s contribution is of the utmost relevance when seeking to understand its role in a child’s future development. Parents’ cultural perceptions predispose their children’s future. This can be illustrated by considering Cole’s (1991) research which demonstrated that adults ignorant of the actual gender of a newborn will treat it quite differently depending upon the infant’s symbolic/cultural “gender.” Adults literally create different forms of interaction based on their cultural experience; for example, adults will attribute masculine “manly” virtues to “boy” infants while they treat “girl” infants in a gentle manner and attribute to them feminine virtues (Luria, Provezano, & Rubin, 1974).

Cohen (1974) defined culture as a process of adaptation. The general view of African American culture is that it has a distinct pattern of thinking, feeling, and acting that has developed as a way for African American individuals to adapt to racial discrimination. Charles Keil (1966) suggested that this adaptation results from “experiential wisdom” which provides African Americans with unique “worldviews.” Keil, chose the term “worldview” to describe culture just as William Perry (1970) used it to describe cognitive schemes. Finally, culture was defined by Nobles (1982) as “patterns for interpreting reality that give

people a general design for living, and consists of surface structures like language, values, behavior and deep structures such as worldview, ideology, and cosmology" (p. 17).

According to Shade (1982b), the African American worldview dictates that people within one's environment should be approached with caution, wariness, and a sense of distrust. Perkins (1975) stated that individuals who develop the ability to manipulate the system, and can successfully establish contact with others in order to achieve certain desired goals, do not become victims of domination. As part of this people awareness and the need to control the environment, or perhaps as a result of it, African Americans seem to develop a unique affective or personal orientation that manifests itself in attention to social cues, the attachment of subjective meanings to words, preference for social distance, and sustained use of nonverbal communication (Perkins, 1975). This need to avoid potential victimization may play a role in African Americans' perceptions of authorities and thus influence their responses to mechanisms that measure their cognitive development on the Perry ethical and intellectual scheme.

Alternative explanations.

Culture is not the only explanation for cognitive differences shown between ethnic groupings. Recent research suggests several alternatives that

may partially explain these differences in cognitive development. According to Banks (1988), variables such as geographical location, religion, gender, and social class are some of the most important of these other explanatory factors.

The traditional models of status attainment are of limited relevance to African Americans in general because of their focus on socioeconomic status (Allen, 1987). Class status in the wider community is usually based upon education, occupation, financial achievement and sometimes birth into a family with established status. Ogbu (1978) stated that the inferior status of African Americans fits all of the criteria of caste stratification rather than class stratification. A caste system exists when an individual's lifetime position within a status or class group is permanently determined at birth by skin color, racial group membership, or both. Being African American has become synonymous with lower caste status. Because of institutional and economic racism, achievement of all the trappings of middle-class society which include education, occupation, and money will not bring comparable "pay-offs" (McAdoo, 1992).

Fleming's research supports an alternative paradigm. Fleming (1981, 1984) focused on the influence of college racial composition on the intellectual development of African American students. Using a cross-sectional design, she compared separate cohorts of African American freshmen and seniors at both a predominantly African American institution and a predominantly White

institution. In a design statistically controlled for group differences on socioeconomic status and SAT scores, Fleming found generally greater freshmen-senior differences on measures of critical thinking, intellectual flexibility, and concept formulation at the predominantly African American institution than at the predominantly White institution. There were no significant overall freshmen-senior differences at the White institution on any of the three measures.

As cognitive psychology has increased understanding of individual differences, general awareness has deepened that individuals may develop diverse cognitive strategies for processing information and distinct development patterns (Cohen, 1969; Hale-Benson, 1986; Jenkin, 1982; Shade, 1984; and White, 1984). Examinations of this possibility further suggest that additional variables such as social class, culture, and gender interact in complex ways to influence learning and cognitive development.

Evidence from both empirical and theoretical studies indicates some preliminary support for the premise that African American students participate in a coherent culture that shapes their cognitive development and affects the way they approach academic tasks and behave in traditional academic settings (Cohen, 1969; Hale-Benson, 1986; Jenkin, 1982; Shade, 1984; White, 1984). The predominance of theoretical studies, in contrast to empirical studies, highlights

the need for the present research described in Chapter III. The present research seeks to increase knowledge of cultural similarities and differences in ethical and intellectual development of college students.

Summary

This chapter began with a consideration of the cognitive development of college students. Second, it offered a brief overview of William Perry's theory of college student development and assessment. Third, the chapter focused on the importance of studying African American college student cognition and the impact of culture and other external factors on development. This grounding facilitates the consideration of the original questions under study: (a) What variability in cognitive complexity on the LEP will be seen between African American and White American freshmen and senior college students attending an urban, predominately White campus; and (b) what differences occur in cognitive development between African American and White students after controlling for socioeconomic status and gender?

CHAPTER III

METHODOLOGY

The purpose of this research endeavor was to investigate college students' cognitive development through a cross-sectional design (Isaac & Michael, 1990). Cognitive development was defined and measured by the Cognitive Complexity Index (CCI) taken from the Learning Environment Preferences (LEP; Moore, 1990). Results were analyzed utilizing a sample of entering freshmen and graduating seniors attending a mid-sized, southeastern, urban, public university. Specifically, the study was designed to test the following hypotheses.

1a. There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP.

1b. There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP when socioeconomic status (SES) and gender are controlled.

2a. There will be no difference in cognitive complexity between African American and White senior college students as measured by the LEP.

2b. There will be no difference in cognitive complexity between African American and White senior college students, as measured by the LEP when SES and gender are controlled.

3a. There will be no difference in cognitive complexity between African American and White freshmen and senior college students as measured by the LEP.

3b. There will be no difference in cognitive complexity between African American and White freshmen and senior college students, as measured by the LEP when SES and gender are controlled.

In addition to these hypotheses, the following qualitative research question was asked:

4. What themes, relative to cognitive development, may be discovered in responses by selected students to semi-structured interview questions? Will such themes, if any, vary by culture and academic class?

This chapter serves as a review of the methods and procedures applied to test the research hypotheses and qualitative research question. It includes a discussion of the sample, instrumentation, procedures, and data analyses.

Sample

After receiving permission from the University's Human Subjects Committee and the Associate Vice President for Academic Affairs, LEP data were retrieved from the University Assessment Office. As one of several assessment tools, the original LEP data were collected by the University's Testing Center for fall 1994, first-time entering freshmen, a population base of 1,248. The

total included 603 male and 645 female freshmen. Data from 493 native graduating seniors were collected as part of the university's senior assessment program. Among the total senior group, there were 214 males and 279 females. Gender composition for all cohort groups was proportional to the represented population. Biographical Questionnaire results from 1994-95 were also drawn from the university's assessment information to retrieve demographic data. Scores from 343 students were not used in the comparison as a result of missing data or because they had indicated a racial category other than African American or White on the University's student database.

Two subject groups were selected from the fall 1994, freshmen population, forming Cohorts I and II. Cohort I, the African American population, consisted of 378 students who ranged in age from 18 to 35. A comparison sample, Cohort II, consisted of 870 White students who ranged in age from 17 to 46. Cohorts III and IV consisted of seniors graduating in December 1994 and May 1995. The senior group was also divided by culture: Cohort III included 82 African American students who ranged in age from 22 to 31, and Cohort IV consisted of 411 White students who ranged in age from 21 to 28.

Fourteen African American students (7 seniors and 7 freshmen) and 14 White students (7 seniors and 7 freshmen) were randomly selected from the university assessment pool for student interviews.

Instrumentation

The instrument used to measure cognitive complexity on the Perry scale was the Learning Environment Preferences (LEP; Moore, 1987). In addition, the Biographical Questionnaire (Old Dominion University, 1990) and the interview questionnaire adapted from Davis (1993) were used to collect biographical data and qualitative data respectively.

Learning Environment Preferences (LEP)

Results of the LEP (Moore, 1987), administered as part of the university's assessment program, provided data describing cognitive development as related to cognitive complexity. The original instrument was developed by William Moore (1987) to measure cognitive development according to a scheme of intellectual and ethical development devised by William Perry (1970). Cognitive development was measured and operationalized by the Cognitive Complexity Index (CCI) taken from the LEP (Moore, 1987).

The LEP is a survey instrument consisting of 65 statements divided into five different content domains: View of Knowledge/ Learning, Role of the Instructor, Role of the Student and Peers, Classroom Atmosphere/ Activities, and Role of Evaluation. Each domain represents a different aspect of the learning environment. Respondents rate descriptive items on a Likert scale. Participants completed a computerized form of the LEP developed by Pickering (1987) with

permission and feedback from Moore. Specifically, respondents were asked to rate each item's importance to them in an ideal learning environment ranging from "not at all significant," to "somewhat significant," "moderately significant," and "very significant." In each section, respondents were then asked to rank order the three items that were most important to them overall.

Raw data were analyzed using a computer scan sheet and program developed by Pickering (1987). Results included percentage responses for Perry's positions 2 through 5 and a composite score, (CCI). According to Moore (1990) the CCI "is calculated with a formula using all of the position preference percentages to produce a single score ranging from 200 (stable Position 2) to 500 (stable Position 5)" (p. 9). The CCI represents the degree of cognitive complexity that can be inferred in the thought of students as they select their ideal learning environment. Cognitive complexity is determined across five content domains. "These domains focus on student preferences for specific aspects of the classroom learning environment that indicate increasing complexity on the Perry scheme of intellectual development..." (Moore, 1990, p. 5). The LEP addresses only the primary intellectual segment of the scheme (Positions 1-5) based on the argument that at the present time the complex upper positions of the model are assessed adequately only by in-depth interviews (Moore, 1990).

According to Moore's (1990) manual for the LEP, the instrument was designed to be used in colleges and universities with undergraduate students. Moore's original sample was drawn from a diverse group of institutions: a small public comprehensive college, a medium-sized regional public research university, a public community college, and an honors program at a small liberal arts college. Moore's total sample reflected a gender breakdown of 47% men and 53% women. The classification breakdown was as follows: 38% freshmen, 34% sophomores, 10% juniors, and 18% seniors (Moore, 1990). Information on race or culture was unavailable (W. B. Moore, personal communication, October 13, 1994).

Moore (1990) reported that the reliability of the LEP was assessed for internal consistency and stability. First, to assess internal consistency alpha reliability coefficients were computed for each individual domain and for each position across all five domains. Scores ranged from $\alpha = .63$ on Role of Evaluation to $\alpha = .66$ on View of Knowledge. Scores for positions ranged from $\alpha = .81$ for Position 2 to $\alpha = .84$ for Positions 4 and 5. A second examination of the instrument's reliability over time was completed, i.e., test-retest reliability. The results of CCI showed a one week test-retest correlation of $r = .89$ (Moore, 1991). This approach to reliability provides an index of the confidence with which one

can ascribe longitudinal differences on the instrument to change or development, rather than to measurement error.

Validity of the LEP was calculated in three ways: criterion group differences, concurrent validity, and construct validity. Criterion group differences were explored by using analysis of variance (ANOVA). Results of the ANOVA indicated that on the CCI there is a statistical difference across class levels for traditional-aged students. Concurrent validity was determined using intercorrelations of scores from a similar developmental instrument, the Measure of Intellectual Development (MID), grade point average, and the CCI (Moore, 1990). Construct validity focused on (a) whether the LEP appeared to be measuring underlying factor constructs that correspond to positions 2 through 5 on the Perry scheme and (b) whether the LEP appeared to be measuring a phenomenon that demonstrates developmental progression. According to Moore (1991), "factor analysis yielded negative correlations between factor 2 and factors 1 and 3, supporting the definitions of those factors as Position 2 and Positions 4 and 5, respectively" (p.15).

Moore (1991) provided support for the typical validity of a developmental measure. Results of the ANOVA indicated a significant difference across academic class levels on the CCI. However, there was no consistent or significant difference by gender as can be seen in Table 1 taken from Moore

(1990). "Nevertheless, the overall means for the sample reflect a steady progression from freshman to senior, even though the sophomore and junior means are almost identical" (see Table 2; Moore, 1990, p. 24).

Table 1

Analysis of Variance for Gender and Class on the CCI

Source	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Gender	1	5910.1	2.56	.11
Class	3	8771.0	3.8	.01*
Interaction	3	2342.3	1.01	.39
Error	462	2310.4		

Note. * $p < .05$ Table 1 displays ANOVA results for the CCI on the validation study. From *The Learning Environment Preferences: Establishing Preliminary Reliability and Validity for a Objective Measure of the Perry Scheme of Intellectual and Ethical Development* (p. 24), by Moore, W. S. 1990. Unpublished doctoral dissertation, University of Maryland. Copyright 1987 by Moore. Reprinted with permission.

Table 2

Means and Standard Deviations for the CCI by Gender and Classification

Class	Males			Females			Overall		
	<u>Mean</u>	<u>SD</u>	<u>n</u>	<u>Mean</u>	<u>SD</u>	<u>n</u>	<u>Mean</u>	<u>SD</u>	<u>n</u>
Fr.	341.9	50.6	75	325.4	46.3	75	333.7	47.4	150
Soph.	349.9	48.1	85	350.1	46.6	85	346.1	47.9	170
Jr.	342.3	48.8	30	346.9	48.6	30	346.2	48.6	60
Sr.	361.4	48.0	45	346.9	48.7	45	354.2	48.4	90
Grd. <u>M</u>	348.6	49.1		338.8	47.2		343.7	48.3	
Totals			235			235			470

Note. Table 2 displays the mean/standard deviation results for the CCI on the validation study. (Grd. M) denotes the grand mean taken from the four mean scores of student groups. From *The Learning Environment Preferences: Establishing Preliminary Reliability and Validity for a Objective Measure of the Perry Scheme of Intellectual and Ethical Development* (p. 24), by Moore, W. S., 1990. Unpublished doctoral dissertation, University of Maryland. Copyright 1987 by Moore. Reprinted with permission.

In his dissertation, Moore (1987) described inherent limitations in the development of assessment instruments and, additionally, constraints of the instrument due to the original sample: "The age and complexity ranges of the

students' sample were somewhat restricted, although some effort was made to broaden the range through the sampling of honors program students" (p. 105). In addition, Moore (1987) stated that " moreover, the sample overall was too homogeneous and did not reflect an adequate number of minority students, nontraditional-aged students, community college students, or graduate students to translate the results to these populations with any great degree of confidence" (p. 178).

Moore (1991) described several advantages of the LEP, based on instrument characteristics: (a) the instrument's objective style permits simple administration and scoring; (b) the LEP is much less expensive to administer and thus can be used by a wider audience because of its straightforward and objective approach; and (c) the format of the measure provides a more discriminating assessment of specific items.

As an assessment alternative to the LEP, Moore (1991) presented the research of Mentkowski and Strait (1983) which supports the use of production measures such as interviews and the Measure of Intellectual Development (MID). The MID and other production measures assess not only respondent abilities but their motives for given responses (Moore, 1991).

Biographical Questionnaire

Since 1990, the Biographical Questionnaire has been administered to all entering freshmen, as part of the university's assessment program. It is a 34-item questionnaire designed to elicit information concerning students' backgrounds and family educational, occupational, and socioeconomic data (See Appendix B). Among specific items collected are parents' educational and occupational levels, and family income. Hollingshead's (1962) method of computing (SES), based on levels of parents' occupation and education, was used to determine the family social position or SES in the present study. Hollingshead (1962) proposed that statistically combining these two factors would result in identification of an individual's social position and academic class status. Given the nature of the instrument, reliability and validity data are not available.

Interview Questionnaire

The questionnaire, consisting of four open-ended questions, was adapted from Davis (1993; see Appendix C). Davis' (1993) original questionnaire was based on the five domains of Moore's (1987) LEP and on one question relating to nontraditional age students. All original questions were used in their entirety except the question focusing on nontraditional age students due to content irrelevancy for the present study. For the purpose of piloting the questions, several trial questionnaires were administered to undergraduate students to

gather reactions and suggestions for instrument modifications. Interviews were conducted using a semi-structured question protocol. All students were asked four open-ended questions with the addition of some probing questions for clarification. Qualitative data were collected from the interview results. Given the nature of the instrument, reliability and validity data are not available.

Design of the Study

The research endeavor was developmental in design in accordance with the criteria described by Isaac and Michael (1990). A developmental cross-sectional design was determined to be appropriate to examine differences and similarities based on culture. Isaac and Michael (1990) stated that:

the purpose of developmental research is to investigate patterns and sequences of growth and/or change as a function of time. Developmental research is characterized by a focus on the study of variables and their development over time. The research asks, what are the patterns of growth, their rates, their directions, their sequences, and the interrelated factors affecting these characteristics? (p. 47)

Typical methods of sampling for developmental designs are longitudinal or cross-sectional. Cross-sectional sampling was chosen for the present study for several reasons, including available subject pool, lower cost, and expediency (the

actual passage of time is eliminated by sampling different subjects across age ranges).

The precedent of previous research established additional support for the design and sample methodology selected. Although limited research precedents were found that specifically explored cognitive development of African American students as defined by Perry's (1970) scheme, five studies of general cognitive development were found that utilized the cross-sectional design (Cooper & Richardson, 1993; Davis, 1993; Fleming, 1984; King, 1989; Shade, 1992).

Numerous studies have validated the constructs of ethical and intellectual aspects of cognition (Perry, 1970; Piaget, 1969; King, 1981; Knefelkamp, 1974; and Kohlberg, 1984). However, certain design limitations must be acknowledged that relate to any study of psychological constructs such as ethical or intellectual development.

Addressing these design limitations, Campbell and Fisk (1959), as cited in Creswell (1994), used multiple methods to measure a psychological trait to ensure that the results were not due to the design of the study. Denzin (1978) coined the term "triangulation" to describe the process of combining methodologies and analyses. "The concept of triangulation was based on the assumption that any bias inherent in a particular data source, investigator, or

method would be neutralized when used in conjunction with other data sources, investigators, or methods" (Creswell, 1994, p. 174). These methods might be drawn from qualitative and quantitative data collection procedures. Several types and styles of combining methodologies were cited by Grant and Fine (1992), including "observations supplemented with structured, quantitative observations; the mixing of ethnography and experimental research; and the successful combination of survey research and qualitative procedures" (p. 7-10).

In addition to triangulation, Caracelli, Graham, and Green, (1989) presented five advantages of combining data collection methods: "(a) triangulation which seeks convergence of results; (b) complementation, wherein overlapping or different facets of a phenomenon may emerge; (c) developmental, wherein the first method is used sequentially to help inform the second method; (d) initiation, wherein contradictions and fresh perspectives emerge; and (e) expansion, wherein the mixed methods add scope and breadth to a study" (p. 18).

In the present study, a combined design was utilized to triangulate or converge data analyses from both quantitative and qualitative formats. Creswell (1990) presented a "dominant-less dominant model" which best describes the present research. In this model, the researcher presents the study within a single, dominant paradigm with one small component of the overall

study drawn from an alternative paradigm. For example, the quantitative, dominant paradigm in the present study is used to test the hypotheses using a developmental design. Complementary to the dominant paradigm, a less dominant paradigm is used to address the qualitative question by utilizing interviews for the triangulation in data collection. The advantage of this approach is that it supports a consistent paradigm while still allowing for an in-depth examination of another aspect of the study (Creswell, 1990).

The design of this study incorporates the advantages of both the qualitative and the quantitative paradigms. Moreover, "the overall design perhaps best mirrors the research process of working back and forth between inductive and deductive models of thinking in a research study" (Creswell, 1990, p. 179).

Further, based on a review of related literature and the questions raised by the present research, traditional data collection methodology must also be questioned; consequently, a mixed design is used. Na'im Akbar (1985) stated that "the methodology of European American sciences presents an issue for research dealing with non-European Americans" (p. 21). Akbar (1985) argued:

Empirical methodology and its reliance on statistical normalcy present issues for research. The equation of central tendencies with naturalness or normality is an increasingly disturbing phenomenon. The pervasive and

controlling concept of the average or mean in statistics produces some interesting conclusions about reality. Statements about normality can shift depending on increases and decreases in frequencies. The effort to define himself as a majority influence in a world in which he has minority status becomes a primary objective of the European American male. (p. 22)

When African Americans consistently fail to fit into the traditional organization, leadership, and decision-making strategies, as well as other spheres of personal and social life, one must begin to question the validity of the normative research model and premise. The present research attempts to increase the validity of analysis by incorporating a mixed design for data collection and triangulation. The triangulation of data created a platform for the comparison between LEP results and individualized subject responses.

Procedures

The LEP was administered to all fall 1994 first-time entering freshmen as part of the University's assessment program. The LEP was also administered to graduating seniors during the summer and fall semesters of 1994 and spring semester of 1995. The LEP was used to collect data for the primary dependent variable of Cognitive Complexity as defined by the CCI. Simultaneously, demographic information was also collected to identify the key independent

variable of SES expressed in the form of a continuous score. Additionally, the independent variables of student academic class status (freshman or graduating senior), gender (male or female), and culture (African American or White) were obtained from the University's student database.

Subjects completing the computerized edition of the LEP (Pickering, 1989) were presented with a list of specific statements representing the five domain sections (see Appendix A). The statistical Analysis System (SAS; 1990) was used to replicate the scoring protocol designed by Moore (1990). Subject scores on the CCI were compared by academic class and culture and then by culture when gender and SES were controlled statistically.

This quantitatively dominant study was supplemented by qualitative interviews. Qualitative data were collected to enhance or add breadth to the study. Qualitative data were collected from 28 randomly selected students from the original 1994 assessment pool. Students were contacted in late April 1995 by phone and letter to schedule a one hour appointment (See Appendices E and F for Cover Letter and Letter of Consent). Following the pilot, students were interviewed using open-ended questions drawn from the LEP scale adapted from Davis (1993; See Appendix C).

Data Analysis

Quantitative Analysis

After the CCI scores were computed, a statistical analysis of the cross-sectional data was completed using the Statistical Package for the Social Sciences (SPSS) for Windows (Norusis, 1993). Specifically, to address hypotheses 1a and 2a, two general linear model ANOVAs were used to determine whether, independently, culture and academic class status of students measured at one point in time affect the dependent variable defined by the CCI. The General Linear ANOVA models were used to account for unbalanced data.

A general linear ANOVA was used to address hypothesis 3a. The two-way ANOVA provides information indicating whether a statistically significant interaction between the two variables of academic class status and culture exist. A series of post hoc univariate tests were calculated to ascertain which group scored higher on the CCI.

To examine hypothesis 1b, 2b, and 3b, an analysis of covariance (ANCOVA) was chosen to statistically adjust initial differences between groups and the correlation between means. The statistical technique of covariance permits the comparison of groups based on culture and academic class status when initial differences among subjects, based on gender and family SES, are controlled. Results for all analyses were considered statistically significant if the

p value was less than .05, the standard level for educational research (Borg & Gall, 1989).

Qualitative Analysis

To examine the fourth question and triangulate data, students' verbal responses to questions were assessed for similarities and differences between academic class and culture. In preparation for data analysis, semi-structured interviews of 28 randomly selected students were tape recorded and transcribed. Constant comparative analysis techniques, as described by Glaser and Strauss (1967), were used to categorize respondent statements and phrases into six previously identified themes. The six themes were selected from the literature review, as those themes that distinguished an African American worldview from the worldviews of other cultures and overlapping themes taken from Perry's (1970) Judge's Manual. Judges or raters in Perry's original interviews identified Perry's (1970) themes using the Judge's Manual. Specifically, interview responses were coded by the following theme categories: dualism, authority, family, integration, intuitive versus inductive problem solving, and perception of stimulus. See Appendix G for a description of each theme, and refer to Chapter II for highlights of related research.

Analysis of themes, for purposes of interpretation, occurred as the researcher examined the data for commonalties across, and uniqueness within,

the themes. Interpretations of respondent statements were based on metaphors, analogies, and synthesis of data as suggested by Miles and Huberman (1994) for the analysis of qualitative data.

CHAPTER IV

RESULTS AND ANALYSIS OF DATA

Chapter IV presents results of data collected and analyzed to investigate the similarities and differences in cognitive development, as measured by the Learning Environment Preference (LEP), between African American and White freshmen and senior college students. Specifically, the Cognitive Complexity Index (CCI) from the LEP was used to represent an overall average score for each individual's cognitive complexity. Quantitative analyses were used to address the primary research hypotheses. As a complement to the quantitative analyses, qualitative data analyses were used to assess student motives for selection and understanding of LEP response items.

Quantitative Analysis

The cross-sectional samples were compared using the general linear model for analysis of variance (ANOVA) and analysis of covariance (ANCOVA). The Statistical Package for Social Sciences (SPSS) for windows (Norusis, 1993) was used to compute all statistical analyses. Each hypothesis, research question, and analysis is presented below. Specific details of significant data are presented in the following paragraphs. Table 3 provides a summary of mean CCI scores by academic class and culture.

Table 3
Summary of CCI Means and Standard Deviations by Academic Class and Culture

Culture	<u>N</u>	<u>M</u>	<u>SD</u>
Freshmen			
African American	378	307	52.32
White	870	315	59.42
African American and White combined	1248	312	58.32
Seniors			
African American	82	308	48.59
White	411	323	56.60
African American and White combined	493	319	57.59

Note. The CCI ranges from 200 to 500, with 200 representing Position extreme 2 and 500 representing Position extreme 5.

Freshmen Differences

Hypothesis 1a: There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP.

An ANOVA was performed to analyze cultural differences among freshmen as measured by the LEP (see Table 4). LEP scores of freshmen indicated a significant difference in cognitive complexity between African American and White students ($F = 5.47$, $df = 1$, $p = 0.020$). A comparison of the CCI scores indicated that White freshmen scored an average of 315, ($SD = 59.42$) in comparison to the African American average of 307, ($SD = 52.35$). (See Table 3 for a display of CCI means.) Therefore, the first null hypothesis that posited there would be no difference in cognitive complexity between African American and White freshmen students as measured by the LEP was rejected.

Table 4

ANOVA for Freshmen by Culture

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Main Effect: Culture	1	5.467	0.020*
Residual	1246		

* $p < .05$

Freshmen Differences Adjusted for SES and Gender

Hypothesis 1b: There will be no difference in cognitive complexity between African American and White freshmen college students as measured by the LEP when socioeconomic status (SES) and gender are controlled.

An ANCOVA was used to statistically adjust for initial differences among freshmen based on gender and SES. Overall, no significant differences were found between African American and White freshmen on the covariates ($F = 2.59$, $df = 2$, $p = 0.076$). Specifically, the covariant of SES was not found to be significant ($F = 0.64$, $df = 1$, $p = 0.424$). Analysis of the gender covariant, however, revealed statistically significant differences between African American and White freshmen ($F = 4.17$, $df = 1$, $p = 0.041$).

Results of the ANCOVA for hypothesis 1b indicated a statistically significant difference for the main effect between cultures ($F = 8.39$, $df = 2$, $p = 0.004$). (See Table 5 for ANCOVA results.) Even though there were significant differences attributed to the covariant of gender, there were still significant differences by culture among freshmen. Thus null hypothesis 1b was rejected; there were differences in cognitive development, as measured by the LEP, between African American and White freshmen when SES and gender were controlled. The mean score for White freshmen ($M = 315$, $SD = 59.42$) was greater than that of African American freshmen ($M = 307$, $SD = 52.32$).

Table 5

ANCOVA for Freshmen by Culture

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Covariates	2	2.587	0.076
SES	1	0.641	0.424
Gender	1	4.168	0.041*
Main Effect: Culture	2	8.39	0.004*
Residual	1209		

$p < .05^*$

Senior Differences

Hypothesis 2a: There will be no difference in cognitive complexity between African American and White senior college students, as measured by the LEP.

An ANOVA was performed to analyze cultural differences between seniors. Results indicated statistically significant differences in cognitive complexity between African American and White students ($F = 5.13$, $df = 1$, $p = 0.02$) and thus null hypothesis 2a was rejected (see Table 6). The mean scores for White seniors ($M = 323$, $SD = 56.60$) were greater than those of the African

Americans seniors ($M = 308$, $SD = 48.29$). (See Table 3 for means and standard deviations.)

Table 6

ANOVA for Seniors by Culture

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Main Effect: Culture	1	5.129	0.024*
Residual	491		

* $p < .05$

Senior Differences Adjusted for SES and Gender

Hypothesis 2b: There will be no difference in cognitive complexity between African American and White senior college students, as measured by the LEP when SES and gender are controlled.

ANCOVA procedures revealed no significant differences between African American and White seniors attributable to the covariates of SES and gender, either combined ($F = 0.18$, $df = 2$, $p = 0.84$), or individually: SES ($F = 0.33$, $df = 1$, $p = 0.568$), and gender ($F = 0.05$, $df = 1$, $p = 0.825$). Main effects of hypothesis 2b did not indicate statistically significant differences between cultural groups ($F =$

3.03, $df = 2$, $p = 0.083$; see Table 7). Therefore, hypothesis 2b was not rejected; there were no significant differences between African American and White seniors when initial differences of SES and gender were controlled.

Table 7
ANCOVA for Seniors by Culture

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Covariates	2	0.18	0.835
SES	1	0.33	0.568
Gender	1	0.05	0.825
Main Effect	2	3.03	0.083
Residual	441		

Class Status and Culture Interaction

Hypothesis 3a: There will be no difference in cognitive complexity between African American and White freshmen and senior college students as measured by the LEP.

ANOVA was used to analyze hypothesis 3a. The data analysis indicated that there was no statistically significant interaction between the variables of academic class status and culture, ($F = 0.80$, $df = 1$, $p = 0.372$); therefore, null

hypothesis 3a was not rejected. Specifically, the mean score for African American freshmen was 307, ($SD = 52.32$) and 315, ($SD = 59.42$) for White freshmen. The mean score for African American seniors was 308, ($SD = 48.59$) and 323, ($SD = 56.60$) for White seniors. (See Table 3) There was, however, a significant main effect for culture ($F = 9.22$, $df = 1$, $p = 0.002$) although not for academic class status ($F = 1.34$, $df = 1$, $p = 0.24$; See Table 8 for ANOVA results.)

Table 8

ANOVA for Culture and Class

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Main Effects	2	8.66	.000*
Class	1	1.34	.238
Culture	1	9.22	.002*
Class X Cultural Interaction.	1	0.80	.372
Residual	1737		

$p < .05^*$

Class Status and Culture Interaction Adjusted for SES and Gender

Hypothesis 3b: There will be no difference in cognitive complexity between African American and White freshmen and senior college students as measured by the LEP when SES and gender are controlled.

As previously stated, an ANCOVA was used to examine hypothesis 3b. Neither of the covariates was found to be significant either combined ($F = 2.0$, $df = 2$, $p = 0.14$), or separately: SES ($F = 0.23$, $df = 1$, $p = 0.64$), and gender ($F = 3.56$, $df = 1$, $p = 0.059$); (see Table 9). Results of the ANCOVA interaction of academic class status and culture indicated no statistically significant differences ($F = 0.41$, $df = 1$, $p = 0.52$). Thus, there was failure to reject the null hypothesis 3b; there was no difference in cognitive complexity as measured by the LEP between African American and White freshmen and senior college students, when SES and gender were controlled. After the adjustment of mean scores, the main effect of academic class status was not found to be significant, ($F = 1.04$, $df = 1$, $p = 0.31$) while culture revealed significant differences, ($F = 9.33$, $df = 1$, $p = 0.002$).

Table 9
ANCOVA for Culture and Class

Source of Variation	<u>df</u>	<u>F</u>	<u>p</u>
Covariates	2	2.00	0.137
SES	1	0.23	0.635
Gender	1	3.56	0.059
Main Effects	2	8.34	0.000*
Class	1	1.04	0.307
Culture	1	9.33	0.002*
Class X Culture Interaction	1	0.41	0.523
Residual	1649		

$p < .05^*$

The analyses of the cross-sectional samples revealed evidence that there were significant differences in cognitive complexity (as measured by the LEP) between African American and White students both freshmen and seniors. Cultural differences between freshmen cohorts were found in cognitive complexity even when gender and SES were controlled. Comparatively, although differences were found between senior cohorts, significant cultural differences were not found when SES and gender were controlled. Interestingly, the covariant of gender contributed significantly to differences for freshmen, but

not for seniors. While these cultural differences between academic class among cohorts were significant, they were not large numerically. The cross-sectional analysis of the interaction between culture and academic class status indicated no significant cultural differences in cognitive complexity.

Qualitative Analysis

After finding significant LEP differences based on culture, qualitative data were analyzed to address the following qualitative research question: What themes, relative to cognitive development, may be discovered in responses by selected students to semi-structured interview questions? Will such themes, if any, vary by culture and academic class?

According to Tesch (1990) the process of qualitative data analysis is eclectic; there is no "right way." Miles and Huberman (1984) suggested that better designs organize information into a compact form so that the analyst can draw a justified conclusion or move to the next step of analysis. Tesch (1990) stated, "Your data usually are not presented as one amorphous mass. Thus, they are naturally partitioned into sets or units" (p. 115). Tesch (1990) went on to comment, "My definition of such a unit is: a segment of text that is comprehensible by itself yet contains multiple ideas or pieces of information. These units are included making the meaning of the segment unmistakably clear" (p. 115). The foregoing guidelines given by Tesch (1990) and Miles and

Huberman (1984) provided general direction for the qualitative analysis completed in this study. Specific procedures for the analysis are described below.

Following general methodological guidelines suggested by Glaser and Strauss (1967), respondent interview language was analyzed through the “constant comparative” technique and segmented based on six previously identified themes. The six theme categories were selected from the literature review as those themes that distinguished aspects of African American worldviews from those of other cultures. Several of the cultural themes identified overlap with some of those cognitive structures elaborated in Perry’s (1970) Judge’s Manual. The six theme categories present both similar and distinct worldviews between African Americans and Whites that may impact LEP results and, hence, measurement of cognitive development. The themes identified were: dualism, authority, family, integration, intuitive versus inductive problem solving, and perception of a stimulus. (See Appendix G for a description of each theme, and refer to Chapter II for highlights of related research. Transcripts of selected interview results are documented in Appendix D.

In preparation for data analysis, semi-structured interviews of 28 randomly selected students were tape recorded and transcribed. Students were randomly selected from those utilized in the quantitative portion of study.

Respondent statements and phrases were categorized by theme using constant comparative analytic techniques described by Glaser and Strauss (1967). Those phrases determined, by the researcher, not to match the identified themes were noted for future analysis. Comparative analysis is a term used to describe a systematic strategy for uncovering hypothesized themes from the data. The strategy provides "modes of conceptualization for describing and explaining" categories (Glaser & Strauss, 1967, p. 3). They proposed that a distinction could be made within the functions of comparative analysis based on uses of data results. For purposes of this study, comparative analysis was employed to determine whether themes would develop along cultural and academic levels. The resulting evidence was used to illustrate similarities and differences in cognitive development between African American and White students.

One of the major limitations of qualitative methods such as constant comparative analysis is that the findings are subject to other interpretation. In the observation process, observers bring their past experience, and will interpret data through the filter of their past experiences and expectations. During the process of data categorization and comparison for this study, the researcher acted alone as observer and interpreter of data; therefore, the qualitative findings of this study were based on the researcher's experience and background. Verbatim accounts of participant interview responses are offered in Appendices

D, H and I, to provide reviewers and other readers with the means for accepting, rejecting, or modifying the investigator's conclusions.

After themes were established, the data were analyzed for particular cases or statements that negatively or positively supported similarities or differences between cultures and academic classes. Interpretations of statements or phrases were based on metaphors, analogies, and synthesis of data as suggested by Miles and Huberman (1994) for the analysis of qualitative data. Identified themes in subject responses to questions based on the six themes revealed several similarities and differences based on culture and academic class. Although interview responses generally supported Perry's (1970) scheme, some responses suggested that participant reasoning may support diverse worldviews. The worldview distinctions held by African Americans could have affected selection of LEP answers. The following trend summaries were advanced from raw data using constant comparative analysis techniques for categorizing and analyzing data (Glaser & Strauss, 1967). Each theme summary provided a description of participants' worldviews as reflected in the identified themes.

Dualism

Freshmen of both cultures shared a progression from very simple to more complex sets of assumptions about the nature of knowledge and the learning process. For example, a common pattern surrounding the Dualism theme for several freshmen of both cultures included the view that “we” (indicating all students) are one collective body and “they” (the professors) are the keepers of knowledge. A White freshman stated, “The professor is there to teach information, and we are there to learn. They are educated.” An African American freshman stated, “Students do what students do and teachers do what teachers do.”

The majority of seniors, both African American and White, showed a progression to a more complex thought process by demonstrating the ability to express an awareness of multiple perspectives. For example, an African American senior commented that his ideal learning environment would be “unlike the traditional setting. It would be like...we were exchanging ideas and the teacher is not necessarily right or wrong, or that he doesn’t have all the answers.” This particular student recognized the expertise of the instructor but suggested that “the student’s perspective should be incorporated into the learning experience.”

As expected, some students seemed to possess both dualistic and multiplistic viewpoints surrounding different issues. Perry's scheme would describe these students' cognition as transitioning between Positions 2 and 3. A White senior stated, "I think students should play an important role in making university policy because of a diverse perspective." This statement reflected a multiplistic viewpoint because the senior believed that multiple perspectives would benefit university policy making. Two questions later, however, the same student explained from a very dualistic perspective that she preferred professors to lecture in class rather than engage in discussion. She commented that, "I like kinda straightforward teaching; the professor lectures about the topic and I write it down."

Authority

Responses around the theme of authority seemed to demonstrate a great difference in perspective based on culture and academic class status. Typically, White freshmen made comments such as "the professors are old," and "they should tell us their expectations." One student commented, "I am working and have a lot going on; professors don't understand." Several White freshmen students expressed comments that indicated a somewhat unappreciative attitude or lack of respect for professors. White students' comments reflected a higher

priority placed on obligations outside the classroom rather than on those in the educational setting.

In comparison, several African American freshmen expressed a respectful attitude toward their professors recognizing them as knowledgeable. An African American freshman stated, "Professors are the keepers of knowledge; we are there to learn." This student's perspective would be judged to be at a lower level according to Perry's scheme because the student viewed the professor as being the agent of truth. Based on the literature reviewed in Chapter II and other comments made by African Americans, one could hypothesize that the student may, through her culture-tinted perspective, view the professor as a respected wise elder. According to the traditions and values of African American culture, the elder is respected and revered by younger members of the community because of age and experiences. Respect for the elder does not necessarily mean that the elder has the only answer or perspective, but that his or her perspective is worthy of consideration. Further, within the African American culture, younger members of the community are discouraged from interrupting or confronting elders in public because these actions would be seen as disrespectful. Overall, African American students of both freshmen and senior classes expressed that they felt privileged to be in this setting with a wise teacher.

Family

Among African American students, a new theme emerged within data responses categorized as authority related. The new theme, observed in data produced by African American students, demonstrated the interrelatedness between authority figures, family and the community. A frequently occurring theme in African American seniors' comments described the value of interpersonal relationships. For example, developing a friendship with one's students was seen as an ideal trait of a "good" professor. Among African Americans, there seemed to be a need for an interrelatedness of community, family, and authority figures. One African American senior stated, "the role of the instructor should be one of mentor, but I have never had a mentoring relationship with a professor." In contrast, a White senior stated that "students should be more involved with policy making.... Students have a lot to contribute to university administration." This White student viewed her unique perspective as equal to that of professors. According to Perry's scheme, this independent thinking is characteristic of higher level cognition. Any students desiring a mentoring relationship with their professors would be judged lower on the Perry scheme than other students who desired to participate in policy making. The students' desire for a relationship that focused on meeting their needs would be considered self-centered and suggestive of a dependence on the instructor.

Integration

An additional distinction in responses made by African American students occurred within the theme of integration. This theme centers on the students' viewing the world from a systemic or interrelated perspective. For example, learning occurs within a system that integrates feelings and logic. Several African American students, both seniors and freshmen, stated that hands-on learning is important. One senior stated, "Not only is the content important, but the ideal learning environment incorporates writing." The student went on to say, "Writing allows me to express my opinions and feelings in response to the topic." This statement is characteristic of the integration of feelings and ideas often seen in African American cognition. However, a limited number of comments made by White students indicated a need for integration in thought as well. The researcher was unable to draw conclusions about cultural distinctions regarding integration because both African American and a limited number of White students made statements that demonstrated an integration of feelings and ideas.

Perception of Stimulus

Both African American and White students of both academic class levels expressed a need for multiple or diverse methodologies in class instruction and format. One White freshman stated that he "works best in a group setting where

discussion and group work is used.” The majority of statements by both freshmen and senior African American students indicated that films and active participation characterize the ideal method of instruction. Of the students interviewed, senior responses around the theme of perception of stimulus indicated some differences based on culture. African American seniors seemed to prefer or to have greater success with visual learning and projects. For example, one senior commented that she “needed to get involved with the material to learn, like seeing a video or being shown a diagram on the board.” In contrast, White seniors stated a preference for class discussions and hands-on work. One student asserted that she “believed in hands on application that related the material to real life.”

Intuitive versus Inductive Problem Solving

The questions and responses given for this part of the study did not provide data that would distinguish intuitive versus inductive thinking processes between groups. Due to the narrow focus of the interview questions and semi-structured format, questions were not specific enough to guide the respondent in the domain/theme that was observable. For a display of interview results see Appendices H and I. The appendices document the most frequently made statements judged by the researcher to be representative of the six themes.

Contribution of the Qualitative Analysis

In conclusion, the qualitative analysis of language and worldviews presented an informative component in the triangulation of data. The analysis of language used by subjects and the interpretation of questions revealed a system of cultural knowledge. Based on the analyses in this study, there seemed to be some differences in response and interpretation along cultural lines to the qualitative stimulus questions; it seems likely, therefore, that cultural differences must similarly exist regarding items on the LEP.

As described above, the discussion and analysis of interview responses provided the researcher with examples of diverse perspectives of learning and cognition among White and African American cultures. Diverse worldview perspectives between cultures were found around themes of orientation to family, attitudes toward authority roles, and integration of logic and feelings. These themes indicated that students may have mutual or distinct worldviews based on their culture and academic class status, which may have an effect on cognitive development and, subsequently on the LEP results.

CHAPTER V

DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

This chapter provides a summary of the research conducted and presents various conclusions that can be drawn from the findings. In addition, implications for practice and recommendations for future research are addressed.

Summary

In contrast to the more uniform profile of college students found in the 1960s and 1970s, today's students have become increasingly heterogeneous (National Center of Education Statistics, 1998). As a result, educators are now faced with a need to understand the "dilemma of differences." Despite the extensive literature available regarding college student development, there remains a considerable dearth of literature on the cognitive development and assessment of African American students. According to Moore (1991), the major criticisms of assessment revolve around the validity of using methods for measuring and evaluating cognitive development that have been normed and validated using samples which have not included non-traditional students.

For the past 20 years, most research studies investigating the intellectual development of college students have used populations that have been unrepresentative of current minority enrollments. Meanwhile, the enrollments

of African American students continue to increase on urban college campuses. Presently, African Americans constitute the largest minority student population of the institution under study. Specifically, Memex Press (1997) reported that African American students represent 18% of the undergraduate class. Similarly, Anderson (1988), Branch-Simpson (1984), Bulhan (1985), Rendon (1994), Shade (1992), and White (1984) contend that history, geography, environment, and cultural conditioning operate to produce a distinctive psychological perspective or worldview among African Americans. Therefore, a comparison of cognitive development which emphasizes cultural differences between African American and White students was chosen as the focus for this study, based on limited information supporting the utilization of the Perry (1970) scheme to describe, explain, and assess African American students.

Using the Perry (1970) scheme of intellectual and ethical development, similarities and differences in cognitive complexity between African American and White students were investigated. The Learning Environment Preferences (LEP) tool measured cognitive complexity. Students involved in the study were enrolled in undergraduate programs of one mid-sized American urban institution. Therefore, interpretations of the research findings are limited to this particular campus and other similar campuses.

The analyses of the cross-sectional samples revealed evidence of significant differences in cognitive complexity (as measured by the LEP) between African American and White students between freshmen and seniors. Between freshmen cohorts, those differences were found in cognitive complexity even when gender and socioeconomic status (SES) were controlled. Mean scores from White freshmen were greater than those of African American students. Although similar differences were found between senior cohorts, they did not reach significance when SES and gender were controlled. Specifically, the mean score for White seniors was greater than that of African American senior cohorts. Interestingly, the covariant of gender contributed significantly to differences for freshmen, but not for seniors. The differences found exclusively between freshmen would suggest that males and females enter college with different learning preferences based on cognition. While these differences between cohorts are significant, they are not large numerically.

In addition, the cross-sectional analysis of the interaction between culture and academic class status indicated that there were no significant cultural differences in cognitive development. The data analysis also indicated that there was no significant interaction between culture and class status, when gender and SES were controlled.

In conclusion, the research findings of the quantitative analysis indicated significant cultural differences between freshmen cohorts in cognitive complexity even when gender and SES were controlled. Comparatively, although differences were found between senior cohorts, significant cultural differences were not found when SES and gender were controlled. No significant interactions were found between academic class and culture; therefore the effects of culture were not dependent on the effects of academic class.

The analyses of qualitative data also supported the existence of cultural differences. Differences between African American and White students were found around three of the five themes used to describe student's worldview. Specifically, cultural differences were found to exist around themes of orientation to family, attitudes toward authority roles, and integration of logic and feelings. A more thorough summary of qualitative results are presented in the limitation section.

Limitations

The findings of this study, however, should be interpreted with several methodological considerations kept in mind. One limitation of using a cross-sectional design (collection of data at one point in time) rather than a longitudinal design may potentially be found in the generalization of study

results. A longitudinal design would provide greater statistical power because group comparisons could be made with the same individuals.

Based on the research findings of this study, I would also suggest some consideration be given to the validity of using the LEP for students of diverse ethnicity. According to Moore, (personal communication, October 13, 1994 and August 8, 1999) empirical data to support the validity of assessing ethnically diverse students by using LEP test norms were unavailable at the time of this study.

An attempt to confirm this study's findings and address these methodological concerns was made through triangulation of data. After finding significant LEP differences based on culture, qualitative data were analyzed. In the tradition of qualitative research, this component expanded upon the quantitative findings by providing rich descriptions of themes found within interviewee responses. These themes indicated that students may have mutual or distinct worldviews based on their culture and academic class status, which may have an effect on cognitive development and, subsequently, on the LEP results. Although interview responses support Perry's (1970) scheme generally, the analysis of interview responses reveals that not all subjects understood and interpreted the LEP questions in the same manner. Cultural differences were

found to exist around themes of orientation to family, attitudes toward authority roles, and integration of logic and feelings.

Qualitative findings as reported in the literature show that students of both cultures share, generally, a progression toward more complex sets of assumptions about the nature of knowledge and the learning process. In the present study, however, African American and White students who participated in the qualitative interviews differed in their perceptions of authority and other learning orientations. According to the Perry (1970) scheme, many of the African American responses relating to themes of authority and preferred learning orientation would have been judged dualistic or at a lower level of cognitive complexity. For example, African American students frequently view the professor as an agent of truth- -someone who already has the answers- -as opposed to viewing the professor as just another adult leading the learning process.

Explanations of Cultural Differences

The differences between African American and White students observed in the quantitative component of this study may result from an ethnocentric bias built into the definitions of Perry's stages and the underlying assumption that the scheme is universally applicable. In Perry's (1970) original research, judgments were made regarding students' positions and development within the

Perry scheme based on their interview responses. Judgments appear to have been made regarding cognitive complexity without considering each student's unique cultural value system. Zurcher (1998) would relate these ethnocentric biases to cultural test bias. Specifically, Zurcher (1998) describes this phenomenon as "inappropriate standard samples." According to Zurcher (1998), when a standardization sample does not include individuals from diverse backgrounds (or does not include enough of them to approach the percentage of that group in the general population), score interpretations for individuals of culturally diverse backgrounds may not accurately reflect their true ability as compared to the individuals who made up the original sample.

The unique cultural value system of African Americans has evolved as a by-product of oppression and racial discrimination within the American society (Shade, 1982). The cultural value system would logically be expected to affect students' worldviews and thus affect both the students' LEP responses and the way they would interpret the interview questions. In addition, I would postulate that if diverse worldview perspectives exist between African American and White students, the probability of culturally unique learning orientation and cognition are, therefore, increased. An analogy of tinted glasses can be made to illustrate this point. Imagine students viewing the world or the process of learning through glasses tinted with a variety of cultural biases and values rather

than differences in structures of knowing. According to Williams (1993), "the search for universals is still there, but now there are qualifications regarding culture. Culture, therefore, becomes a variable to be taken into account, but only to the extent it is needed to throw light on the individual organism" (p. 11).

In exploring additional explanations for differences found between African American and White students' cognition, one should consider the African American value system which is heavily influenced by religious and spiritual beliefs and which emphasizes the importance of African American traditions and customs. Several examples from the interview responses are illustrative. One example is the need to develop personal style and self-expression, which may be viewed by African American students as the way to function successfully in a social setting. Similarly, respect for elders as leaders and authorities are central themes in African philosophy. This principle of honor and respect may partially explain why African American students are more likely to regard the professor as a definitive agent of truth than are White students.

Other explanations for these differences may be found in the interpretation of the value orientations themselves and in the extent to which the participants in the study identified with African American culture. For instance,

in the first example, a student's respect for authority based on kinship or heredity does not negate a co-existing valuing of the group over the individual.

Certainly, African Americans differ in the degree to which they manifest behaviors representative of the cultural values, beliefs, and practices attributed to the African American community. However, according to Gay (1975), diverse cultural identity "does not invalidate the existence of underlying basic cultural components which grew out of an essential core of shared experiences" (p. 35). Cultural identity was described by Devereux (1980) as a "complex and multidimensional construct that can encompass such factors as ethnic identity formation, ethnic identification, language, self-esteem, degree of ethnic consciousness, and the ethnic unconscious" (p. 8).

In conclusion, Perry's scheme provides a framework and description of the routes for intellectual potential based on homogeneous norming data. However, this study and previous research have indicated inadequacies of the Perry scheme to assess the cognitive complexity of African American student populations. Specifically, the Perry scheme provides a framework for describing and for assessing those cognitive developments typically found in a Liberal Arts college predominantly populated by White students (Bizzell, 1984). The scheme values certain objects of knowledge and ways of thinking that one must master in order to participate in that particular community (Bizzell, 1984). For example,

the community requires students to evaluate competing ideas according to a variety of sources and evidence. This way of thinking might not be valued in a community or culture in which tradition or the judgment of a revered authority is sufficient to validate an argument (Bizzell, 1984).

Further, educators and student development professionals must consider the impact of assimilation and accommodation on the development of minority African American students emerged into a predominately White cultural environment. Based on different cultural orientations and histories of development, students may experience the same environment differently. Minority or nontraditional students are driven by survival to adapt or assimilate into the new university culture on two levels: (a) they must experience the transitional challenges from high school to college that all students experience, and (b) they are faced with the additional challenge of confronting social and institutional barriers as a result of their minority culture. Nontraditional or minority students can only experience social and academic success in this new culture if they are willing not only to assimilate but to accommodate the new information produced as a result of the environmental interaction. Specifically, Baker (1998) identified three themes which were shown positively to impact the academic success of African American college students: faculty-student relationships, instructional design issues, and perceptual barriers. A permeating

thread found among all three themes focused on the importance of the social interactions between faculty and students.

Ulibarri (1976) identified several institutional barriers for minority students found in the American educational system: (a) socio-culturally insensitive instructors; (b) teaching methods not relevant to minority values and curricula which stress acculturation and assimilation, omitting significant aspects of the minority cultures; (c) curricula that reflect societal constraints which limit opportunities for minorities to get involved and advance in the Euro-American social milieu; (d) lack of minority faculty, administration, and students; (e) high costs and poor financial resources; (f) racism and segregation. The normal processes of assimilation or accommodation experienced by all college students are enhanced by environmental challenges presented to minority students as a result of their culture. Minority students are asked to assimilate into the new dominant culture and give up their individual and cultural identities; often, for survival, academic and social success must be perceived to outweigh both individual and cultural losses. The ideal scenario would allow minority students to experience assimilation and accommodation within this new culture while maintaining a balance between their cultural identities and the culture of the new academic environment.

Recommendations for Further Research

The major focus of this study has been the exploration of similarities and differences in cognitive complexity (as measured by the LEP) between African American and White college students. The research adds to the field of student development by examining the cognitive complexity of African American college students in an urban institution using Perry's (1970) scheme of intellectual and ethical development. Additionally, the study contributes to the knowledge base by studying African American "ways of knowing" through qualitative interviews.

Based on the results of this study and literature review, three major assumptions may be made regarding the cognitive development of African Americans. The first assumption is that preferred learning orientation or style is an important dimension to consider in the process of knowledge acquisition (Shade, 1982, 1984, 1992; Akbar, 1985). Wilson (1971) suggested different cultures produce different learning styles. He further elaborated that different ethnic groups with different cultural histories develop adaptive approaches to reality, and that different socialization practices would have an impact on their respective cognitive/learning styles. Similarly, Ramirez and Castaneda (1974) proposed that most children learn how to learn through the cultural context in which they were reared.

The second assumption is that culture affects cognition and worldview (Hale-Benson, 1986; Hilliard, 1976). According to Shade (1982), the worldview of African Americans focuses on adapting to the demands and challenges presented by people and social situations arising due to the role color plays in this society. In other words, the concept that seems to organize and unify the world for African American students is "survival" in a color-coded world. Based on the results of this research, cultural differences in cognition seem to be manifested particularly in African American students' information processing strategies.

The third assumption is that African American customs, beliefs, and values are strongly rooted in African culture and the heritage that has emanated from that culture down through the years (Hale-Benson, 1986; Nobles, 1982). In light of the previously stated results and assumptions, five recommendations are made for further research.

First, for the present research, a cross-sectional design was used to examine posited differences by academic class and other factors like SES and gender. A stronger study would employ a longitudinal design to control for cohort effects.

Second, a more finely grained examination of the present quantitative results may prove useful. The results have been reported and analyzed using the

CCI score; other informative results may be discovered when the analyses distinguish between specific Perry positions.

Third, based on differences found in this study between African American and White students on the LEP, the next logical stage of exploration would involve determining what factors may contribute to these differences. It is important that further research be conducted that examines the nature of universality of Perry's (1970) theory.

Fourth, because research in the area of African American intellectual and ethical development may still be in its theory-building stages, further study is needed to refine an instrument to assess cognitive development and to translate the resulting theory into practice in academic settings. LEP instrumentation should be explored for test item bias in the user's interpretation. Further, test norms should be updated based on present college student populations. Personal interviews may provide richer information about the range of students' feelings, cognitions, and self-perceptions than does the Likert scale format of the LEP. Ultimately, interviews, case studies, or sentence completion approaches may enable the researcher to gain a deeper understanding of each student. Unfortunately, the latter may be impractical for institution-wide assessment.

Finally, based on the previously stated assumptions, the last critical step in studying the cognitive development of African American college students will be the examination of the relationship between culture, learning styles, and the Perry scheme. I believe that the results of such a study would produce a positive correlation between more complex or higher Perry positions and those students who prefer an independent learning environment. These students would have a very low need for environmental guidance and stimulation.

Conclusions and Implications

In the rapidly approaching new millennium, higher education will continue to wrestle with the challenges inherent in the increasingly diverse student population. Professors, counselors, and administrators must recognize the importance of understanding the complex issues students confront as they enter the world of the collegiate environment. Student affairs professionals and faculty have traditionally drawn on student development theory to understand student needs and design learning environments. The results of this study suggest that old models of student development and learning should be rethought based on current research models that emphasize the diversity in today's college student populations. Those who design learning environments should be cautious when utilizing theories of student development, such as Perry's (1970) scheme of cognitive development.

Perry's (1970) scheme describes the effects of a certain liberal arts curriculum at a particular place and time. Bizzell (1984) warns that "to use Perry's description of effects as a model of causes on which curriculums could be developed would be to neglect the emphasis Perry himself places on the function of education as acculturation, rather than training, which emphasizes values, rather than merely techniques" (p. 452). Bizzell (1994) believes that the greatest value of the Perry scheme to teachers and administrators is in its ability to provide a philosophical map of the changes liberal education seeks to induce in students.

Those responsible for teaching and helping students must create models of human and student development that take into account the unique needs and experiences that students of diverse backgrounds bring to the college campus. This is not to suggest that students may not benefit from adopting approaches and attitudes different from their own and that sometimes ethnicity or culture differentiates these approaches. Difference and divergence from established norms must not be treated as deviant or be regarded as weaknesses. When the needs and abilities of an annually increasing sector of the student population are ignored, we are, in effect, ignoring what Astin (1984) has described as the most significant resource available to colleges and universities: students themselves.

Recommendations for Campus Ecology

Effective university programs and instruction either must remove the institutional barriers or function within them to improve achievement and retention of African American students. A number of researchers believe that the factor found most to impact retention and success of African American students at predominantly White institutions is the campus social environment (Sedlacek, 1996 & Schwitzer, Griffin, Ancis, and Thomas, 1999). I assert that the campus environment must become more supportive and less challenging in order for the person—environment interaction to be more developmental and satisfying for African American students.

Although a single theoretical alternative to Perry's (1970) scheme cannot be offered, I can recommend the integration of three different theories for the redesign of campus environments: (a) student development theory, (b) person-environment interaction theory, and (c) learning theory. An alternative theory of cognitive development would only provide a theoretical explanation of the students' development, but would not address issues relating to campus social environment or retention. The eclectic application of various components from the three theories is more likely to provide the optimum environment in which personal, intellectual, and social development of students of diverse cultural backgrounds can occur.

Lewin's (1936) famous paradigm $\{B = f(P \times E)\}$ and person-environment interaction models such as those of Rodgers (1984a) and Moos (1979) represent possible theories from which components could be drawn and used as a basic paradigm for the redesign of university programming and teaching. To increase understanding of individual needs, student development theories can be integrated for purposes of assessment. For example, to correct for generalization in application of the Perry scheme, Lewin's equation could be restated to incorporate Perry's scheme to describe the cognitive growth or by-product (B) as a function of the (P) person and the interaction (X) with the environment (E), that is, the college campus. The utilization of person-environment interaction models, as general paradigms for student affairs work, forces us to include the assessment of the student, their environment, and the interaction between the student and environment in programming and teaching.

While cross-sectional analysis does not provide the means for conclusive judgments, the significant differences (measured by the LEP) found between African American and White students in their freshmen and senior years have several implications for educational practices. It becomes important to determine what steps institutions can take to develop new models of student learning and development that would more appropriately represent the rapidly changing composition of students entering academia.

Institutions committed to addressing the complex issues facing students in the new millennium should focus on how student development theories can be applied in practice to the increasingly diverse student population. The extensive literature on learning theory and learning styles is based on the assumption that students enter a learning situation with a variety of skills, preferences, and capacities that affect their learning, and that a learning environment that utilizes individual learners' strengths and is adapted to their preferences should facilitate learning for that student. Another student, with different strengths and different preferences, will do better in a different environment. Based on the results of the present study and the literature review, I have demonstrated, not only that individuals have a preference for a variety of learning environments, but also that these preferences may vary by culture. As a result of overlapping and interactive variables, such as race and cultural experiences, a distinct worldview is produced that ultimately impacts meaning-making. Many African American students in this study evidenced dispositions for learning orientations based upon a culturally determined worldview.

The recommended integration of student development theory, person-environment interaction theory and learning theory, would assist university faculty and administrators in developing a sensitivity toward the various learners found in the university community and the need for individualistic,

multicultural instruction and programming. This model provides all students an opportunity to succeed based on their cognitive dispositions. Once an instructor recognizes that students have different learning styles the instructor can purposefully vary instruction to draw upon students' strengths and challenge students' weaknesses in ways that reflect intentionally. Instruction at all levels should use various formats and modalities. When instructional methods are varied during the course of a semester all students have the opportunities for success.

Recommendations for Practice

According to Hettich (1997) both Perry (1970) and Belenky et.al (1997) place differences in students' assumptions about knowing on a continuum where reliance on authority, certainty of knowledge, and individual agency are the key variables for development. Based on Hettich's assumption and the current research findings of this study, university faculty and administrators must be challenged to recognize individual student levels of knowing and perspective. I would also suggest several specific practices tailored to foster academic and cognitive development for all students, especially those of African American descent.

1. Orient faculty and staff to the needs and strengths of culturally diverse student populations. Faculty should be provided with a yearly demographic profile of the institution's student population. For example, what percentage of total enrollment represents first-generation students, students from working-class families? What are the unique needs and concerns of diverse students? What are cultural differences in style or manner of personal presentation and communication?
2. Rethink the traditional model of teaching and learning. New strategies for teaching and learning would include: (a) allowing students to have public voices and share their ideas openly; (b) employing faculty with active learning techniques such as collaborative learning, demonstrations, simulations, field trips, and the like; (c) encouraging faculty to draw upon students' pasts as a source of strength and knowledge; (d) reinforcing faculty in a recognition of the importance of experience as a base of knowledge and fostering the notion that out-of-class learning is equally powerful; (e) strengthening leadership that ensures that the core curriculum is inclusive of the contributions of women and minorities; and (f) nurturing a view of learning that allows for reflection, multiperspectives, and imperfection.

Key to the full development of today's college student is a college culture that promotes healthy relationships among students, faculty, and staff, fosters cultural pride, and recognizes the potential of all students to attain success. The realization of this goal can be obtained if student affairs professionals work collaboratively with faculty, drawing on each other's strengths.

This study has presented findings from research in the area of the intellectual development of African American students on a predominantly White campus and discusses several potential themes or variables that may be associated with intellectual development. These research findings suggest that factors associated with students' perceptions of the learning environment and culturally induced learning orientations may affect and interact with cognitive development. This study is one attempt to improve our understanding of how such factors affect student learning and development.

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Appendix A

Sample of the Learning Environment Preferences Instrument

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 scale below (left column). 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 (right column). 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.

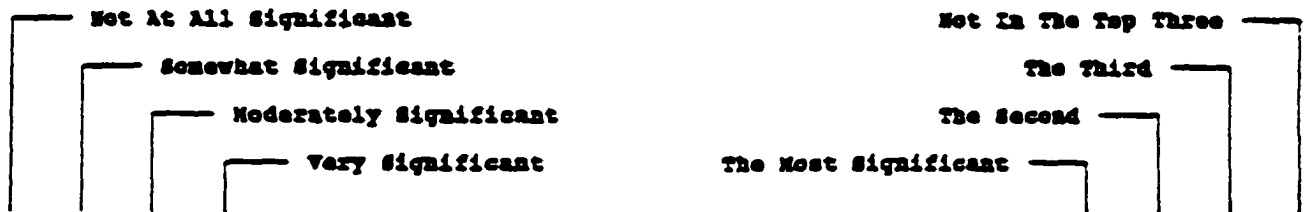
Please mark your answers on the blue computer answer sheet provided; be sure to indicate both your ratings of individual items (left column) and your ranking of the top 3 in each section (right column).

Before you begin, we ask that you provide us with the background information requested on the left side of the blue answer sheet. This information will be used to examine group differences; your name or social security number may be used at some point in the future if a follow-up survey is required. **AT NO TIME WILL THIS INFORMATION BE USED TO REPORT YOUR INDIVIDUAL RESPONSES TO ANYONE BUT YOU; ALL SURVEYS WILL BE KEPT CONFIDENTIAL.** Again, thank you very much for sharing with us your ideas about learning.

EXAMPLE

FIRST, please rate each individual item on the blue answer sheet in spaces I - IV according to the rating scale in the left column.

SECOND, please review the items and choose the Most Significant (A), Second Most Significant (B), Third Most Significant (C), and the remaining items which are Not in The Top Three (D) according to the rating scale in the right column.



MY REASONS FOR CHOOSING TO ATTEND THIS UNIVERSITY:

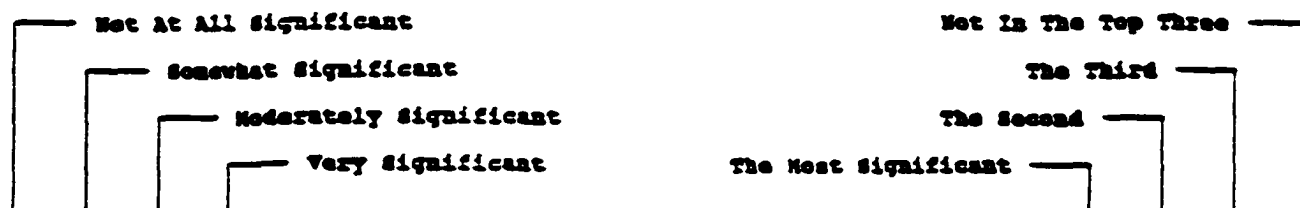
A	B	<input checked="" type="radio"/>	D	I.	Good academic reputation.	VIII.A	B	<input checked="" type="radio"/>	D	
A	B	C	<input checked="" type="radio"/>	II.	Good faculty in my major.	IX.	A	<input checked="" type="radio"/>	C	D
A	<input checked="" type="radio"/>	C	D	III.	Good social reputation.	X.	A	B	C	<input checked="" type="radio"/>
<input checked="" type="radio"/>	B	C	D	IV.	I wanted to live near home and commute to college.	XI.	A	B	C	<input checked="" type="radio"/>
A	B	C	<input checked="" type="radio"/>	V.	Availability of my chosen major.	XII.	<input checked="" type="radio"/>	B	C	D
A	<input checked="" type="radio"/>	C	D	VI.	Cost of Attending.	XIII.A	B	C	<input checked="" type="radio"/>	
<input checked="" type="radio"/>	B	C	D	VII.	I was not accepted by my higher choice.	XIV.	A	B	C	<input checked="" type="radio"/>

PLEASE CHECK TO MAKE SURE THAT YOU HAVE MARKED ONE AND ONLY ONE MOST SIGNIFICANT (A), SECOND MOST SIGNIFICANT (B), AND THIRD MOST SIGNIFICANT (C) RESPONSE TO ITEMS VIII - XIV.

COURSE CONTENT / VIEW OF LEARNING

FIRST, please rate each individual item on the blue answer sheet in spaces 1 - 13 according to the rating scale in the left column.

second, please review the items and choose the Most Significant (A), Second Most Significant (B), Third Most Significant (C), and the remaining items which are Not in The Top Three (D) and mark items 14 - 26 according to the rating scale in the right column.

**MY IDEAL LEARNING ENVIRONMENT WOULD:**

- | | | | | | | | | | | |
|---|---|---|---|-----|---|-----|---|---|---|---|
| A | B | C | D | 1. | Emphasize basic facts and definitions. | 14. | A | B | C | D |
| A | B | C | D | 2. | Focus more on having the right answers than on discussing methods or how to solve problems. | 15. | A | B | C | D |
| A | B | C | D | 3. | Insure that I get all the course knowledge from the professor. | 16. | A | B | C | D |
| A | B | C | D | 4. | Provide me with an opportunity to learn methods and solve problems. | 17. | A | B | C | D |
| A | B | C | D | 5. | Allow me a chance to think and reason, applying facts to support my opinions. | 18. | A | B | C | D |
| A | B | C | D | 6. | Emphasize learning simply for the sake of learning or gaining new expertise. | 19. | A | B | C | D |
| A | B | C | D | 7. | Let me decide for myself whether issues discussed in class are right or wrong, based on my own interpretations and ideas. | 20. | A | B | C | D |
| A | B | C | D | 8. | Stress the practical applications of the material. | 21. | A | B | C | D |
| A | B | C | D | 9. | Focus on the socio-psycho, cultural and historical implications and ramifications of the subject matter. | 22. | A | B | C | D |
| A | B | C | D | 10. | Serve primarily as a catalyst for research and learning on my own, integrating the knowledge gained into my thinking. | 23. | A | B | C | D |
| A | B | C | D | 11. | Stress learning and thinking on my own, not being spoonfed learning by the instructor. | 24. | A | B | C | D |
| A | B | C | D | 12. | Provide me with appropriate learning situations for thinking about and seeking personal truths. | 25. | A | B | C | D |
| A | B | C | D | 13. | Emphasize a good positive relationship among the students and between the students and teacher. | 26. | A | B | C | D |

PLEASE CHECK TO MAKE SURE THAT YOU HAVE MARKED ONE AND ONLY ONE MOST SIGNIFICANT (A), SECOND MOST SIGNIFICANT (B), AND THIRD MOST SIGNIFICANT (C) RESPONSE TO ITEMS 14 - 26.

Appendix B

Sample of the Biographical Questionnaire

While you answered many biographical questions on your application to Old Dominion University, there is some additional information which will be needed for the Assessment of Academic Achievement Project in which you are participating. All of this information will be kept confidential. Data will only be presented as group data used to explain some of the results of the Assessment of Academic Achievement Project. No individual students will be identified.

It should take you only 5 - 10 minutes to complete this Biographical Questionnaire. Please complete it now while you are waiting for everyone to arrive for testing.

Please begin by completing the information requested on the green answer sheet, including your name, sex, birth date, ID (Social Security) number in columns A - I, and a special code which the administrator will give to you in columns K - P. For international students, if your University ID number begins with a 'D', leave column A blank and put in the remaining 8 numbers beginning with the first 0 of your social security number in column B. Please answer items 1 - 34 on the answer sheet.

1. What are your current living arrangements for this semester?

- A. I am living on campus in university housing.
- B. I am living either alone or with friends (not with relatives) less than 1 mile from campus.
- C. I am living either alone or with friends (not with relatives) more than 1 mile from campus.
- D. I am living at home with parents.
- E. I am living at home with my spouse.
- F. I am living with other adult relatives.

2. What size town is your home town?

- A. Rural farm
- B. Small town (10,000 or fewer persons) more than thirty miles from a city of 100,000 or more people
- C. Small town (10,000 or fewer persons) less than thirty miles from a city of 100,000 or more people
- D. Middle-sized city (10,000 to 100,000 persons)
- E. Large city (100,000 or more persons)

29. To the best of your knowledge, are you the first one in your family to attend college. (Do not include brothers or sisters.)
- A. Yes
 - B. No
30. What is your best estimate of the combined total income of the adult or adults with whom you lived during the past year for the most recent tax year?
- A. Less than \$10,000
 - B. \$10,000 to \$14,999
 - C. \$15,000 to \$19,999
 - D. \$20,000 to \$29,999
 - E. \$30,000 to \$39,999
 - F. \$40,000 to \$49,999
 - G. \$50,000 to \$99,999
 - H. Greater than \$100,000

Appendix C

LEP INTERVIEW QUESTIONS

(Interviewer Script)

Greetings, I would like to thank you for agreeing to participant in my study. As I indicated in my correspondence, I would like to request your permission to record the session beginning now?

— Thank you for agreeing to participate. I acknowledge that the tape recorder may make you self-conscious, but try to pretend that we are just talking. Let's begin....

1. In your ideal learning environment, what would the role of the student be? And Why?
Any examples come to mind?

2. In your ideal learning environment, what kinds of classroom activities would be most appropriate? and Why?

3. In your ideal learning environment, what would be the role of the instructor? and Why? Do some specific incidents come to mind?

4. In your ideal learning environment, what specific criteria should be used to evaluate/grade course work?

That concludes my questions, if you would like information on results you can contact me in December for final results etc. Thank you again

Adapted from (Davis, 1993)

Appendix D

Selected Interview Responses

Question 1. In your ideal learning environment, what would the role of the student be and Why? Any examples come to mind?

#0 The student should always be in the driver's seat. This way you can learn what learning style he/she is and plan lessons accordingly.

#2

S: Learner, students have questions... Student's need to come to class prepared.

#8 to participate, understand class and ask questions, be involved in learning process

#10

S: to...can I describe the scenario? be in a circular motion, circular classroom w/ the teacher like at the front of the circle, or in the middle of the class. talking to the class in a open forum. It wouldn't be like your traditional setting. It would be like.. we were exchanging ideas and the teacher is not necessarily right and understands that he's not always right or wrong, or that he doesn't have all the answers...and he is like soliciting information from us as to help him achieve the answers. Of course he is an expert or more of an expert than us, but it is incorporating us in the learning experience.

I: And Why?

Because I think you get more interaction between students and students and teacher. It fosters a really good environment for learning, for me.

I: Do any examples come to mind?

S: It has occurred um...only once in a class that I had, the teacher had little sessions. He would teach the method or lesson for the day. But it wasn't in a traditional sense. He didn't have a setting arrangement or were all in rows. He kinda made us make a half circle and got at the front of the circle and sat on one of the chairs and talked to us, like he was our equal and didn't make us feel he was really superior, you know what I mean?

#8 Active role, for example practicum experiences

#9 input in class. Students should have outside responsibilities. Curriculum should be open for discussion. Older professors see students as traditional student based on their own experiences.

#13 do stuff.. learn from his experiences ... stress deadlines more

#11 Active participation, lecture not effective

#12

S: We should have a lot of input, professors don't recognize outside things going on...family, work. Things like that and you are expected to be in class everyday. When,

I'm sure everyone knows that it isn't the case....things that come up. I believe all the students need a lot of input.. the curriculum most of all. If you are not interested you are not going to learn. It should be real open for discussion.

I: Ok, Why?

S: I don't think... older professor don't realize that we have a lot more going on... work and things like that.. A lot of people went to school before and they didn't work also. I think that has a big influence on how you do in school, if whether the professor is sympathetic to your other needs. ummm... I had a really good history professor last semester, who was very good about that, she.. it was a night class, and she understood that most of us were working, she made allowances for leaving early.. and things like that.. to catch the bus, and she was willing to come in to talk with you anytime. We could call an make an appointment. She could be at school within 15 min... It was that soon. We could talk about the class, and what we didn't understand, what we needed, what we thought needed to be changed.

#23 to learn

#14 Contribute to class their knowledge, understanding in group discussions, take from class etc.. example freshmen history class

#15 quit.. need to concentrate to learn.. I want to be motivated to learn... participation of other students motivates me.

#16 obtain information, help develop, role plays

#17 participation in class, interact and make doing fun. If I am involved then I want to learn more...interested

#18 to work together with other students... see others perspectives

#22 motivated and willing to learn....must go to class and relate information.

#28 The student would be an active seeker of knowledge, not only answering questions presented to them but also posing them as well. I think that learning is more engaging and fulfilling when it is pursued instead of handed out.

Question 2. In your ideal learning environment, what kinds of classroom activities would be most appropriate? and Why?

#0 Hands on, this gives real life experience and the students aren't confined to one general area(their desk) it allows them to move around.

#1I feel that group work is important in that it develops many social attributes of individuals. I also believe in hands on applications which relate the material to real life.(For example in math, many things seem abstract, but can be brought down to an everyday level of learning) I think that this is important in that when students realize the relevance of materials to their life, they want to understand it more.

#2

S: %50 lecture . role plays in situation you are learning about, and have alot of student peer involvement.

#5 Lectures, speakers. role plays and papers

#6 Classroom activities that would incorporate me. I feel as though. I learn better through involvement, hands on.. it's fine to hear it conceptionally and hear whatever the theory is, but when you have hands on, it really.. with the theories and concepts it really drives it home.

#8 alot of group work, hands on in the field

#9 Discussion groups.. 2 lectures going on

#10 Discussion, shown. Students need to interact , ask questions

#11 Films and visual aids, in math more quizzes ...Chapters should be broken down

#12 Definitely, Classroom activities such as discuss. discussion groups. I think discussion groups are usually really important. If you were to have three lectures a week. I think it would be more beneficial to have two lecture classes and one discuss a week so everyone could feel out the idea we were talking about. so we were all sure we understood what was going on.

#13 hands on, remember more and more interesting, relevant to lecture

#16 Group discussions force listen to other ideals and see other opinions

#19 teachers involves us in skits, never just lecture. Activities should be fun making learning fun

#21 lecture and discussion, conversations with professor

#24 Research projects, reading and then writing it down.. to get different prospective

#26 Discussion

#28 Work in groups of 2-3, study guides for quizzes... knowing expectations of teacher is important

Question 3 In your ideal learning environment, what would be the role of the instructor? and Why? Do some specific incidents come to mind?

#0 she/he is there for advice, suggestions and to keep the lessons on target and moving.

#1 I think the instructor should be there to guide the students, but not to dictate. They should encourage the students to learn for themselves and help push them when they need it.

#2

S: Instructor should be a floater.. In the sciences.. the instructor should give alot of facts. Other wise the instructor should review different opinions and make a summary.

#5

S: Participation and direct control ...very focused

#6 for me in my ideal is not to come off as if he is the only one authority or on that he was the expert, but a sharing or information or exchange. he obviously would be more knowledgeable about a particular area but would not.. in our discussion as things come up.. that he wasn't as well versed on, he would admit that and say, "let's talk about this or analyze this or discuss, and see if we could come to an answer together.

I: Why?

S: Because that just makes you realize that your professors are human and that he doesn't know everything and kinda brings him down to eye level.

#8 Assist student.. see new ways to teach and give own experiences and examples, like real life stories.

#9 Leading discussions. keep class on track in general ed. classes. They shouldn't run or control class but help the class stay focused. Philosophy classes should be all logical expressions of idea's.

#10 Coach. point students in right direction... to show and help . He should act as resource not enforcer..

#11 Can talk with and should be friendly. When we communicate they should get to know you

#12

Leading discussion, whatever we were talking about, so we don't end up getting off track..cuz that's real easy to do, especially philosophy and history classes. It's Easy to get off on a tangent. The professor should definitely be leader in the class. He doesn't necessarily have to run the entire class and be in control all the time, but definitely help us focus on the subject.

Examples.. trying to think. Most teachers are usually not like that... they usually was should be able to evaluate themselves in addition to the evaluation from the teacher sometimes grades don't reflect effort and this can be compensated for in self-evaluation.

#2

S: Objective. specific in the beginning to learn then move to a pass/fail set up.. it would allow students not to focus on grades.

#5

S: Test, participation should be a major part... interaction with other class members should be important.

Ummm... I like weekly quizzes., I think that a really good way to get an idea where the student stands in the class, and it also helps us. You know if you do all the reading, you get a good grade and that's how it should be anyway... Definitely, three or four test each semester, along with the final is always good, ummm...

Usually if you cover to much work on a test, it 's hard to get a good grade on something

you studied two months, ahead of time. But, weekly quizzes, cuz they make you keep up the reading and regular exams.

#6

Well..you have some type of measurement of, am I really understanding the material that is being taught? So, I guess there are different ways...and I guess it would all depend on your...as a professor you would have to recognize the different learning styles of your students, that would be important. If you have a lot of audio people you wouldn't want to give a visual exam, but as a teacher each class would be different, but it would be as to what learning styles the majority of the class would be more respective. And then impart that knowledge in that way.

I: ever happen?

S: no, I can't say that I have. No, that's more like my ideal situation. I don't know...teachers are pretty much...they give their tests, their essays or multiple choice and that's it. I don't think the really look at what's the most effective learning style of the class.

I: conclusion

S: request copy of the results, etc...

#8 Test.. should evaluate attitude and participation. Activities should also be included

#9 Weekly quizzes which force you to keep up with class reading. If you do the reading you should get a good grade and maybe 3-4 test with a finalnot to much.

#10 Certain classes are subjective... should be graded subjectively. Based on how well student grasp key concepts as defined by professor... The professor should explain criteria in advance.

#11 participation in projects should provide grades

#12 No specific criteria, instructors should use individualized assessment

#13 The teachers grading procedures. Students should demonstrate understanding of material by writing or orally, test, homework, papers etc.

#14 Testing, multiple methods....essay is better or even orally

#15 Test, participation, attendance, and homework

#16

I: What is the role of the student?

S: Do you mean college or teaching? I would hope that a student not only obtains the information they are supposed to get but also help the teacher identify whatever he or she is doing wrong and help them in progressing in their own field. I also think students should play an important role in university policy and things like that.

I: any examples come to mind?

S: well, student government...OK

I: Why play a role in politics as well as obtain information from the teacher as well as help to develop. Why do you think that is important?

S: Often times, everything that happens in the university in terms of policy what a

student can do is decided by faculty and no...faculty. I guess its important for the student to define what they want.

I: classroom?

S: in terms of a university setting, I think lecture and discussion is probably the best...learning device. I think it is important for a student to be able to sit down and listen to the information that they are getting, not only read it in a book. It helps you to retain it better, but it is also important for the student to have conversations with the teacher and make sure they are clarifying what they understand.

I: and why?

S: because... a lot of times professors use abstract ways of teaching and it kinda tends to confuse things. I like kinda straight forward lecture speak about it and go on.

I: role of instructor?

S: instructor is to there to teach information, you are there to learn, but also be kinda a sounding board for you to run your ideas by---they're educated...see what their opinions are on your ideas...kind of a clarification thing.

I: criteria?

S: class participation is very important, obviously testing...I would like to say that research paper are necessary for every single class that you take at a university. It seems rather monotonous and senseless after a while

I: examples come to mind?

S: ummm...let's see...writing papers, short essays, testing. I think pop quizzes are a real good way to evaluate a student is keeping up with his work or not...and ummm...and I guess that's it...and classroom discussion

I: any questions?

S: going to be a game show host now

#26

I: What is the role of the student?

S: role of the student is to participate in the classroom...and more interaction between the student and the teacher. Help make decisions on what you should study, be a good idea?

I: why?

S: Cuz, it would give us a greater sense of purpose, the more involvement it seems like it would help us want to learn more if we were more involved.

I: do any examples come to mind?

S: say like if you were n a history class you could...studying US History in general, if the students could have a list to choose from what they would like to study or interest them. Or if the teacher would pass out a survey at the beginning of the semester and say "what are your particular interests in history?"

I: classroom activities?

S: while you're in or out of class? I think a research project has helped me the most to learn

I: why?

S: just from reading and writing. Having to get a few other sources and get different prospective on... get a broader scope of what you are actually studying instead of a narrow...just one text book, that tells you just how things are. One text book, I don't think is good

I: role of instructor?

S: ...like him to have more of a personal interest in each student. Be more. be very accessible. Be more of a mentor and teacher.

I: incidents?

S: at ODU more so than high school or elementary school. In high school, I had a swim coach that was very great, took a good interest in everybody in his classes and things. Here at ODU, I have had a few professors that have really taken good interest...you know...call me at home...things like that...come to my office if you want more information about this or if you are interested in this

I: criteria?

S: I think weekly tests, research projects, final exams. cumulative types. Pop quizzes are good...cuz you can test them right on the spot ..not much cheating-- they can get away with...some projects people cheat a lot...I think things like that

I: what do you mean cheat?

S: especially, on research projects...I've seen a lot of students get papers from other people and all they do is retype the title page and

name. Tests and

s and things that are unannounced, things people can't get from circulation

I: conclusion

#18

I: What is the role of the student?

repeat

S: in classroom situations with only ourselves. the students ourselves working together

I: and why?

S: I feel that when you get a lot of students together talking about a situation, it helps open your eyes. as far as, seeing it the way other people see, or maybe helps you see it in a way that you would not have seen it.

I: has that occurred in any recent...does anything come to mind?

S: not no not. in the last couple of semesters, but it has happened.

I: Tell me about it?

S: in a marketing class, and a few of us were having problems. I don't know if it was because the way the teacher was teaching it or the book. so we decided to get together and start looking at things from other peoples points of views and getting other students inputs and it actually helped me pass the class.

inputs and it actually helped me pass the class.

I: classroom activities?

S: I guess the main one is discussion. I feel when students write thing on paper they don't, they might not necessarily put their feelings down, but if you talk about it and something I say may hit your nerve, then you might really tell me, how you feel about a situation. I think that part is better

I: discussion...any other kinds of activities?

S: ...silence

I: OK. role of instructor and why?

S: probably just supervise the students talking...not necessarily giving any input himself, but just to make sure that if someone steps on someones toes that there isn't a problem that does arise, and if it does, he or she is there to take care of it?

S: in a marketing class, and a few of us were having problems. I don't know if it was because the way the teacher was teaching it or the book, so we decided to get together and start looking at things from other peoples points of views and getting other students inputs and it actually helped me pass the class.

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I: discussion...any other kinds of activities?

S: ...silence

I: OK. role of instructor and why?

S: probably just supervise the students talking...not necessarily giving any input himself, but just to make sure that if someone steps on someones toes that there isn't a problem hat does arise, and if it does, he or she is there to take care of it

I: examples

S: no that seems like what would be ideal for me, as far as my preference

I: ok, criteria

S: ask me that one more time please...

I: repeat question...work be graded?

S: ...hummm! Or?Not sure

I: Should your work be evaluated?

S: it think it should be evaluated. I mean...in certain setting you should have someone there...like a professor that can step in and help you, if the help is needed, but as far as certain criteria...I'm not sure.

I: Alright, conclusion.

#19 Role of Instructor

S: I like it when they bring in examples of where we can find different information if we want to know more about the subject that they are speaking on. And...like for instructors to offer assistance not during class time, but...letting us know what time their office hours are. Let us know that we are welcome to come in speak on issues that we are having concerns with.

I: incidents come to mind?

S: Well, I just talked to Dr. Gable. I wanted to turn my paper in late, cuz I was in a group activity and for some reason, me and the other person couldn't get our hours together. He's going to let me turn it in late...

I: Criteria?

S: I think what they are doing now is fine as far as, you take the test and they grade it. I would like to have the results quicker, you have to wait 3 weeks. You turn in a final.

I: any other ways?

S: oral exams would be nice, but I guess there are too many people in the class for that

I: why do you think that

S: well, not necessarily oral, like one on one, but like a group discussion. I guess that would be like class participation. They should let you know if you are doing the work in the time frame supposed to be doing

I: conclusion

Appendix E

Cover Letter

April 15, 1995

Dear _____ :

Greetings, I would like to thank you for speaking with me regarding your participation in my present doctoral research. My dissertation, entitled "A Comparison of Cognitive Development Between African Americans and Whites Based on William Perry's Scheme of Intellectual and Ethical Development," will aid in the partial fulfillment of my doctoral degree in Urban Services, Old Dominion University. The purpose of this study is to determine the learning environment preferences of students defined by William Perry and measured with the Learning Environment Preference instrument. The Perry scheme addresses the interface between student intellect, the way they understand the world, the nature of knowledge, their identity and then summarizes that interface into categories by various learning environments. It is hoped that the results of this study will provide information to enable faculty and administration the ability to effectively serve the educational needs of college students in the 21st century.

You can contribute to this endeavor by participating in a brief interview. I would like to arrange a 30 minute individual interview to be held at your convenience during the week of Monday, April 24 - April 31, 1995. You will be responding to 4 brief questions that will be recorded with your permission. I will call to schedule an appoint the week of April 17th, 1995 at which time we can determine a location for the interview. Thank You, and I look forward to meeting.

Joan Johnson, Ph.D. candidate

Appendix F

Participant Letter of Consent

4/95

I _____, agree to participate in a study which will examine differences in preferred learning environments between African American and White students at Old Dominion University. I understand that I will complete a 30 minute interview to be conducted and recorded by Ms. Johnson. I further understand that my Learning Environment Preference (LEP) scores taken previously during University Assessment will be utilized as part of the present study. I am assured that any information obtained in this study will be recorded with a code number that will allow only the investigator, Ms. Johnson, to determine my identity. With the understanding that no information will be released that will in anyway identify me, I agree that any information obtained from this research may be used in any way thought best for publication or education.

Further, I understand that the entire interview will involve me for 30 minutes and that there is no personal risk or discomfort involved in this research. If I have any questions or problems that arise in connection with my participation in this study, I should contact Ms. Johnson, the investigator at 683-3296 (work) and or Dr. Dana Burnett (Faculty Advisor and Chair of dissertation) at 683-3442.

Appendix G

Data Coding Themes

Dualism: The understanding of the relative world as defined by binary functions, e.g. absolute right/wrong, good/bad, or superior/inferior qualities of a proposition in a specified context as defined by Perry (1970).

Family: A group of persons dedicated to one another by ancestry or personal commitment.

Authority: An aspect of social organization and interaction in a relative world, with much differentiation. One appealed to as an expert. According to Perry (1970) authority represents the "possessors of the right answer in the Absolute, or the mediators of same; or the false or unfair pretenders of the right answers in the Absolute" (p. 259).

Integration verses dualistic: Integration is characterized by the ability to integrate the individual role in a pluralistic world containing both affect and cognition. In contrast, the opposite perspective would be considered a dualist or separatist approach. The dualist or separatist approach would be characterized by a black and white reality, for example, superior or inferior, emotional or logical thought.

Perception of stimulus: Method through which an individual gathers and translates information from the environment. Shade (1984) stated that perception is heavily influenced by one's socialization and past experiences.

Intuitive vs. Inductive: Intuitive thinking is the power or faculty of knowing things without conscious reasoning, reliance on internal cues. An individual would use "intuition" as means of problem solving. In contrast, inductive reasoning involves the employment of reasoning or logic in problem solvin

Appendix H

Summary of Theme Responses

	<u>Freshmen</u>	<u>White</u>	<u>Senior</u>
Dualism:	Student's have different opinions yet, certain things are facts. Professors should just tell us the answers to prevent cheating.		Student's have different ways of learning and thinking. Outside research papers and speakers expose you to a variety of ideas. (Unable to draw conclusions from data)
Family:	Families are more important than class attendance, sometimes. I can't learn by talking with family members. I am unable to study in my home environment.		
Authority:	Professors are old, and out of touch; they should tell us their expectations.		Students should be involved in policy making.
Integration:	(Unable to draw conclusions from data)		Research papers are not useful.
Perception of Stimulus:	I enjoy learning from films and TV.		Students learn more from discussion of ideas. Group projects are fun. I enjoy discussion and hands-on.
Intuitive vs. Inductive:	(Unable to draw conclusions from data)		I dislike term papers. Outside ideas are important.

Appendix I

Summary of Theme Responses African-American

	<u>Freshmen</u>	<u>Senior</u>
Dualism:	Students do what students do.	Expressed concern for others learning
Family:	Friendship with professors is important. Students express need for outside assistance	Ideal learning environment is home with family
Authority:	Student input is important. The professor is keeper of knowledge. Outside research is important to learning.	Student views professor as facilitator of learning. Friendship with instructor is important for doing well in class.
Integration:	Hands-on learning is important. Enjoy circle of desks for class design. Application is important for comprehension.	Enjoy hands- on learning...exercises and case studies. I learned alot in math when it was broken down into sections.
Perception of stimulus:	Active participation is important in learning. Learn from visual films, etc. To see it, helps!	Visual presentations make it easier to understand. Learn better when I am moving and involved, not just sitting
Intuitive vs. Inductive:	Professors just assign grades based on how they feel.	

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Bachelor of Science, James Madison University,
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