Factors that Effect the Course/Subject Selection Process of High School Students of African Descent

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FACTORS THAT EFFECT
THE COURSE/SUBJECT SELECTION PROCESS
OF HIGH SCHOOL
STUDENTS OF AFRICAN DESCENT

A dissertation submitted to the College of Graduate Studies
of Lynn University
Boca Raton, Florida
in partial fulfillment of the requirements
for the Degree of Doctor of Philosophy

in

EDUCATIONAL LEADERSHIP WITH A GLOBAL PERSPECTIVE

by

Denise-Bonnette Jones

July, 2001
FACTORS THAT EFFECT THE COURSE/SUBJECT SELECTION PROCESS OF HIGH SCHOOL STUDENTS OF AFRICAN DESCENT

Jones, Denise-Bonnette, Ph. D.

Lynn University, 2001

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U.M.I
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ABSTRACT OF THE DISSERTATION

FACTORS THAT EFFECT THE SUBJECT/COURSE SELECTION OF STUDENTS OF AFRICAN DESCENT

by

Denise-Bonnette Jones

Lynn University, 2001

Advanced societies require technologically literate citizens who can solve problems, manage complexities, find and use resources, and learn and apply evolving technologies (Owen, 1997). Today’s rapidly changing economy is defined by constantly evolving technologies and falling behind is a recipe for disaster (Augustine, 1997). At the forefront is a reality that for most people, particularly the youth, the period during and beyond high school is marked by important career decision-making tasks. Determining what to do next in their lives remains an important but arduous developmental task for the youth leaving secondary school. As the world of work becomes more complex and technologically dynamic, the career decision-making the youth undergo also becomes more complex (Ireh, 1999, p.1).

Historically and presently, African Americans, as a group, continue to pursue low skilled and social type professional occupations, while the demand for math, science, and technically related workers steadily rise (Paul, 1998, p.1). In an increasingly technological society, under-representation of Blacks in math, science, and technical courses and occupations warrants serious attention (Gainor, 1997, p. 1). If this trend
continues, the employment opportunities will likely become increasingly limited for the Black and female populations (Paul, 1998).

The purpose of this study was to identify the factors that influence the subject/course selection of students of African descent who chose to take business and/or computer technology courses in high school. This study also investigated the relationships between dependent variable, the total number of business and/or computer technology courses taken, and the independent variables: gender, culture, parent occupation, source of school funding, neighborhood setting, level of perceived barriers, level of commitment, and level of academic work ethic. The sample population consisted of 117 students who are majoring in business or computer technology at Florida Memorial College.

Two separate analyses were conducted to examine the impact select variables had on subject selection process of students of African descent. Analysis 1, Multiple Regression, used all independent variables, whereas Analysis 2, t-test, was restricted to two independent variables: total number of perceived barriers and culture. A crosstabulation and a correlation analysis were also conducted. For the most part, the results of the Multiple Regression Analysis did not show strong results or statistical significance. Sub-null hypothesis $H_{01G}$ regarding commitment was found to have statistical significance and therefore rejected.
DEDICATION

I dedicate this dissertation to
my loving Heavenly Father, my mother,
Eliza Jane Jones, and my father,
Reginald Augustus Jones,
who have bestowed upon me unconditional love,
carried me through many obstacles,
and have sustained my mental, emotional, and physical health
throughout this endeavor.

Furthermore, I extend to you both warm message of gratitude
from the depths of my heart,
and I say THANK YOU
for your unwavering support while I spent many hours in study.

Your efforts were appreciated much more than you will ever know.
ACKNOWLEDGEMENTS

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CHAPTER I
Introduction

Overview: Trends Related to the Problem

Since the advent of the personal computer in the 1970's, the computer industry has skyrocketed. Demand for highly trained and skilled workers- to design, develop, program, and integrate computer systems- is also growing rapidly (Bachler, 1998). Not only will the number of computer service jobs increase, accordingly, occupations in this area are certain to become more specialized (Cassell et al., 1998). Furthermore, with computer use prevalent in virtually all sectors of the home and business, the demand for skilled computer training, repair, and maintenance personnel will continue to increase. Systems analysts who possess world-class competencies will be needed to help businesses develop new computer systems and integrate new technologies into existing computer and manual systems.

The United States, a world leader in technology, is seriously short of information technology (IT) professionals. Studies have shown that the demand for skilled workers in today's economy is greater than the number of students currently enrolled in vocational-technology and post-secondary educational programs (Smith, 1998). A January 2001 survey authored by The Information Technology Association of America (ITAA) indicated a current shortage of 346,000 IT specialists, and the probability that the shortfall will rise to a frightful deficit of 1.6 million IT workers by the year 2005. "The shortage is across the board," says Harris Miller, president of the Arlington,
Virginia-based trade association. "On top of that, the Bureau of Labor Statistics estimates that 1.3 million new IT opportunities will be created over the next 10 years" (Bachler, 1998).

Skinner and Cartwright (1998) asserted that the entire IT industry—software producers, network providers, and telecommunications firms—is struggling with a "shortage" of skilled employees. The author further states that to some, the shortage of computer science and other IT-related graduates is seen as another piece of evidence that national educational systems have not been as responsive to societal and workforce needs. For others, the lack of preparation and readiness of graduates to enter the IT industry is viewed as a sign of misalignment between what educational systems teach, what students learn, and what the industry needs to be competitive in a fierce global economy. This concern has some very real and important implications for various levels of education.

With the internationalization of business and the trans-border movement of technology, there is no doubt that we are living in the computer age. Access to information is essential for efficient business operations (Madden, Savage, & Simpson, 1997). The transition to a more technological work environment obviously calls for a massive re-education of the existing workforce, as well as preparation for new occupations (Philip, 1999). Technology is a fundamental competitive advantage for today’s firms (Grosse, 1996). Technology is also an important base for national economic growth and development (Cavusgil & Yavas, 1984; Erdilek, 1984; Medina, 1996; Samli, 1985). Though a consensus has yet to emerge, there is some agreement that technology typically has three dimensions: product, process, and people (Chiou,
Lee, Calantone, 1996). The product-embodied technology relates to the knowledge needed to produce a product. The process-embodied technology concerns blueprints, manuals, patent rights of production processes, and engineering details. And the people-embodied technology relates to the knowledge, skills, and know-how used in operating an organization. In the context of the people-embodied dimension of technology, many observers consider managerial know-how complementary to technical know-how and view development of a managerial core as indispensable for industrialization and economic growth (Bakr, 1985; Cousins, 1984; Yavas & Cavusgil, 1989).

The role of an educated and trained workforce for the economic well-being of individual organizations and the country as a whole has received much attention over the past 15 years. Beginning with reports of declining high school students’ scores on standardized tests in the mid 1980s (e.g., National Commission on Excellence in Education, 1984), many recent educational reforms have focused on providing students and employees with the skills, knowledge, and attitudes required to perform in a fast-paced, rapidly changing technological and economic environment (Kuchinke, Brown, & Anderson, 1998). The term “technology for business growth” (Kirk & Winsley, 1995)- the call for the integration of information technology into economic and business studies at all educational levels (Davies, 1995)- has extended new life and meaning to the role business technology education plays in the grand scheme of career preparedness (Business Education Forum, 1993). Consequently, career analysts predict that the ideal educational background for future employees will be a bachelor’s degree in business, with a concentration in computer information systems (O’Keefe, 1996; Yavas, 1998; Duffy, 1999; Sormunen, 1992; Massetti et al. 1996).
The global workforce is in need of business graduates with specializations in business administration, accounting, economics, finance, and computer technology (Delaney, 1995; Palmo, 1990). According to Smith (1999), when one considers life in the United States and the countries of major U.S. competitors, global competition has radically altered the way people work, the nature of people’s relationships on the job, and what schools need to teach. A recent survey by the American Bankers Association, found that 84 percent of banks are gearing up to process customers online instead of in person. As financial institutions move toward serving clients by modem, they must first bring outdated computer systems into the interactive age (Turk, 1996). Well-rounded systems analysts- part strategic planners, part technicians-, who work with managers and computer vendors to arrive at the most suitable hardware combos, will be indispensable. The dynamic nature of the marriage between business and technology (Lambrecht, 1999) has revolutionized economic and educational arenas. In response to the present demands, national and international educational systems have come under fierce pressure to effectively design, administer, assess, and improve their business/technology programs (Delaney, 1995; Palmo, 1990).

Reports, such as America’s Choice: High Skill or Low Wages (The National Center on Education and the Economy), The Forgotten Half (William T. Grant Foundation on Work, Family and Citizenship), The Hudson Institute’s Workforce 2000, and the Secretary’s Commission on Achieving Necessary Skills (SCANS) Report (1991, 1992) all discuss the challenges of our nation’s future workforce, and the growing demand for new, more sophisticated occupational competencies. The National Commission on Excellence in Education describes the current educational dilemma in
this manner: “More and more young people emerge from high school ready neither for college nor for the workforce. This predicament becomes more acute as the knowledge base continues its rapid expansion, leading to a decline in traditional jobs, and an increase in the demand for greater levels of occupational sophistication and preparation” (Florida Tech Prep, 1995). Advancing technology demands workers who are equipped with the higher-order cognitive skills of analysis and problem solving. Opportunities for upward mobility are increasingly reserved for those who possess the ability to master pedagogy: to learn how to learn. Studies have shown, however, many of our students do not master higher-order skills, and they graduate unprepared to meet the challenges of the changing workplace (Gentile, 1992).

Given their low status with respect to educational attainment, occupational prestige, unemployment rates, rates of underemployment, earning ratios, delinquency and more, the quality of life for many African Americans warrants continued attention and vigorous intervention (Walsh et al., 2001 & Brown, 1995). Likewise, African Americans, as a group, continue to pursue low skilled and social type professional occupations, while the demand for math, science, and technical related workers steadily rises (Gainor, 1997). Recently, national attention has focused on the availability of educational opportunities and training programs in order to assist low skilled individuals who are hurt the most by recent increases in inequality (Black, 1997).

In the United States, African Americans and women are underrepresented in engineering programs at all levels in comparison to their representation in the population (Laughlin, 1993). Laughlin states that engineering enrollments for women and minorities peaked in the mid-1980s and have since declined. While universities have
instituted recruitment programs designed to increase the participation rates of women and minorities, enrollments continue to decline (Laughlin, 1993). If this trend continues, the employment opportunities will likely become increasingly limited for this population (Paul, 1998).

Background of the Problem

Continuing effective production with a workforce that lives in fear of being laid off is one of many ongoing challenges for the management of large corporations. Besides the threat of a new round of cost cutting, many other factors and trends, such as globalization, downsizing, and sophisticated technological inventions, are reshaping the recruitment, retention, and development of the present workforce. The significance of these factors and trends translate into a multitude of implications for human resource strategies, and what it might mean for a person’s choice of job or career. Because the health and effectiveness of the educational system determine the quality and capabilities of future entry-level workers, some of the most important trends for the United States workforce are in education (London, 1995).

London (1995) hypothesized that the U.S. is in its second generation of a decline in the quality of public education. No longer relegated to short-changing poor, rural, and minority children, the decay in academic performance is hitting the middle-class society. By any measure, literacy, understanding the written word, numeracy, social science, historic, and geographic knowledge show a continuing decline (London, 1995). A majority of noncollege-bound students begin high school in a college preparatory program and are “screened out” by their junior year due to merit-based systems, which
encourage students to accept their limitations (Hoyt, 1986). Hoyt expresses the concern that no longer valued as learners and given little direction, many students “float” through the final two years of high school without connecting school to future learning or preparation for work. Thus, the proportion of young people coming out of the educational system with above-average skills and knowledge is narrowing, thus reducing the potential labor pool (London, 1995). These sentiments confirmed by business and industry representatives call for school reform to meet industry changes and demands. Students must be better prepared to become contributing members of a future world-class workforce required to keep America globally competitive (Ferguson, 1997). Consequently, current educational systems have delivered a generation of poorly educated adults to a workforce that urgently needs more education and skills.

The recent call for academic accountability is born out of a growing movement to make America’s schools more accountable for achieving standards. This reform agenda largely assumes that the programmatic and organizational structures, put in place a century ago, are still appropriate today. Furthermore, a number of “today’s reforms are about having schools do a better job at the same things they’ve always done” (Spady, 1999, p. 4). However, present global demands now call for the past to meet the present; creating a marriage of sound educational fundamentals with new, applicable standards that fit the twenty-first century’s definition of schooling.

In this era of educational reform, new challenges have been created. One such challenge is balancing and maintaining the priority of improving school performance and standards, while simultaneously addressing the programmatic shortcomings of many educational institutions. By determining enrollment patterns and funding levels,
political and market structures define the educational experiences and opportunities of students (Arum, 1996). Arum reports that separate enrollment and funding decisions at the state and federal levels interact to determine ultimate levels of resources invested per individual student. Additionally, these “Standards” and policies define challenging expectations for students (Gallagher, 1999, p. 1). Several historical events and government mandates have heightened the public’s demand for academic excellence and accountability: The 1957 Soviet Sputnik Crisis, 1958 Nation At Risk/ National Commission of Excellence in Education Report, 1992 Secretary’s Commission On Achieving Necessary Skills Report (SCANS), 1993 National Education Standards Act, 1996 Contract with America Advancement Act, Sunshine State Standards and Goals 2000 Amendment, the Personal Responsibility and Work Opportunity Act, and the Florida Comprehensive Assessment Test are all examples of historic and contemporary public policies, which have heightened the public’s demand for academic excellence and accountability. Furthermore, major actions taken by the 104th U.S. Congress, the fifty state legislations, and the District of Columbia have impacted various academic and vocational components in grades K–12 and post-secondary educational levels.

Significance of the Problem

For more than a decade, since the report A Nation at Risk (1984/1994) warned of “a rising tide of mediocrity” in our public schools, members of the U.S. business community have been actively engaged in multiple efforts to improve public education. The dilemma is that most U.S. schools are not performing up to standard in their attempt to prepare students for the new challenges that await them when they graduate from high
school, leading to a lack of preparedness. Unfortunately, many of those who do graduate from high school arrive at the doors of industry unable to write a proper business letter, fill out simple forms, read instruction manuals, do essential mathematical calculations, and understand basic scientific concepts (Augustine, 1997). Conversely, advanced societies require technologically literate citizens who can solve problems, manage complexity, find and use resources, and learn and apply evolving technologies (Owen, 1997). Given that today's rapidly changing economy is defined by constantly evolving technologies, falling behind is a recipe for disaster. Furthermore, countries that do not lead technologically will be more than economically disadvantaged; they will be economically irrelevant, just as many underdeveloped countries are today (Augustine, 1997).

These changes in computer information technologies (IT), and their uses, create and place different demands on the responsibilities of business and information systems (IS) professionals; and new expectations about the roles of these professionals within organizations (e.g., Keen, 1988b). Business executives and educators have voiced their concerns regarding the knowledge and skills that are required for business and IS professionals to function effectively in this continuously evolving technological and business environment. Equally important, educational curriculums must be revised to provide occupational, vocational, technical, and career education, designed to train for immediate employment and career retention. Additionally, these curriculums must promote the upgrading of skills to meet the changing needs of the consumer, community, and the profession (e.g., Nelson, 1991; Niederman, et al., 1991; Weiss, 1987; Yaffee, 1989). Although traditional vocational education attempts to prepare
students for the adult roles in the world of work—involving students in chosen work experiences with teacher guidance (Smith, 1981)—, high school shops are devoid of the vitality of real-world experiences. These experiences provide young people with opportunities to develop values and skills through meaningful activities in youth internship or apprenticeship programs (Gentile, 1992). Thus, high schools must value and empower their college and noncollege-bound students by changing the negative attitudes of teachers, adding intellectual content to all courses, personalizing school through teacher-advisor programs, and forgoing more viable arrangements with vocational high schools (Hoyt, 1986).

The Hudson Institute (1987), in an analysis of workforce requirements for the twenty-first century, projected that 90 percent of workers will require as a minimum a high school education that ensures student technological literacy. Subsequently, some educational reform proposals call for increasing the technological literacy of students graduating from high school (i.e., Educating Americans for the 21st Century, High School, Time for Results: The Governors’ 1991 Report on Education, and Investing in People: A Strategy to Address America’s Workforce Crisis) so that students will be better prepared for life and work (Ritz, 1999).

At the forefront of the above demands, is the reality that for most people, particularly the youth, the period during and beyond high school is marked by important career decision-making that is usually not irrevocable. In most cases such decisions are accompanied by pressure generated by expectations and by peer group anxieties tied to an “unfortunate lack of reality” (Noeth, Engen, & Noeth, 1984, p. 240). While some battle with choosing an occupation and finding their first full-time job, others are faced
with choosing a college and a course of study that will lead to a satisfying career. As the youth of today strive to find places for themselves in the world of work, they are faced with considering not only the kind of job they will pursue, but also the kind of work environment, which will provide them with personal satisfaction and growth. Determining what to do next in their lives remains an important but arduous developmental task for the youth leaving secondary school. Equally important, as the world of work becomes more complex and technologically dynamic (Ireh, 1999, p.1), career decision-making the youth undergo has also become more complex.

Historically, and presently, African Americans, as a group, continue to pursue low skilled and social type professional occupations, while the demand for math, science, and technically related workers steadily rise (Paul, 1998, p.1). In an increasingly technological society, mastery of math and science becomes essential for accessing a wide range of desirable career options. Since math-related course enrollment patterns help to determine the range of one’s career options, the continued under representation of Blacks in math and science courses and occupations warrants serious attention (Gainor, 1997, p. 1). While universities have instituted recruitment programs designed to increase the participation rates of women and minorities, enrollment continues to decline (Laughlin, 1993). If this trend continues, the employment opportunities will likely become increasingly limited for the Black and female populations (Paul, 1998).

Purpose of the Research

The purpose of this proposed research is to identify the relevant factors, which influence the high school subject selection of Black students who chose to take business
and/or computer technology courses in high school. This study will investigate the relationships between the number of business and/or computer technology courses and the factors that affect those choices. The information obtained in this study will be used to further identify, understand, and address the relevant issues, which should be considered during the career decision-making process, and their relative importance to the articulation process between high school and college.

Null Hypotheses

The purpose and focus of this study will be to test the following two null hypotheses and eight null sub-hypotheses:

\( H_{01} \): There is no relationship between the number of business and/or computer technology courses taken in high school and the following factors that affect that decision: gender, culture, primary parent salary, source of school funding, residential neighborhood setting, level of perceived barriers, commitment, and academic work ethic.

\( H_{01A} \): There is no relationship between the number of business and/or computer technology courses taken in high school and gender.

\( H_{01B} \): There is no relationship between the number of business and/or computer technology courses taken in high school and culture.

\( H_{01C} \): There is no relationship between the number of business and/or computer technology courses taken in high school and primary parent salary.

\( H_{01D} \): There is no relationship between the number of business and/or computer technology courses taken in high school and source of school funding.
H₀₁𝐸: There is no relationship between the number of business and/or computer technology courses taken in high school and residential neighborhood setting.

H₀₁𝐹: There is no relationship between the number of business and/or computer technology courses taken in high school and the level of perceived barriers.

H₀₁𝐺: There is no relationship between the number of business and/or computer technology courses taken in high school and the level of commitment to career.

H₀₁𝐻: There is no relationship between the number of business and/or computer technology courses taken in high school and the level of academic work ethic.

H₀₂: There is no relationship between the total number of perceived barriers and culture.

Conceptual Framework

Researchers and theorists in the area of career development have indicated that there is a specific set of career development skills and attitudes, which should be fostered during the elementary school years (Super, 1957; Ginzberg et al., 1951). Such theorists describe three major developmental tasks of childhood which are critical to the career development process: (1) the development of a sense of selfhood and competence: self-efficacy; (2) the development of basic work habits and attitudes; and (3) the acquisition of knowledge about the world of work and the meanings people derive from participation in that world. Choice and Career development theories serve as a guide for career counseling.

As scholars in vocational psychology and adolescent development have observed, one of the major development tasks of late adolescence and early adulthood is the
commitment to career choices process (Erickson, 1968; Harren, 1979; Jepsen, 1984; Super, 1957). This process, entailing the development and specification of vocational options, generally culminates in a strong attachment or commitment to one's career choices (Gottfredson, 1981; Harren, 1979; Jordaan & Heyde, 1979; Super, 1957; Tiedeman & O'Hara, 1963). Interest in the nature of the commitment to the career choice process has led to numerous research projects designed to explain how individuals develop occupational preferences and decide upon a given vocational choice (Jepsen, 1984; Slaney, 1988). Despite much research on career indecision, investigators have generally not devoted their attention to understanding the phase beyond vocational decidedness in which individuals develop a strong level of commitment to their career choices (Blustein, 1989).

While many vocational theorists and researchers have addressed the way in which individuals approach career decisions, as exemplified by research on decision-making styles (e.g., Harren, 1979), little is known about the means or methods by which individuals commit to career choices. Given the importance of commitment in career development theory, Blustein, Ellis, and Devenis (1989) initiated a series of studies to define, assess, and explore both the sequence and the means by which individuals commit to career choices. Consequently, by tying together research about choice theory, career choices, and career commitment, career development and commitment theories provide a conceptual framework within which to review the type of career-related issues that emerge during high school and college (Brown & Brooks, 1996; McDaniels & Gysbers, 1992; Sharf, 1992).
A cluster sampling technique was used in which all members belonging to an existing group were subjects in this study. The sample population consisted of traditional students who are majoring in business or computer technology at Florida Memorial College. Subjects were derived from the business and computer departments at Florida Memorial College. A total of 117 or more college students of African descent participated in this study. The study population was recruited from students currently enrolled in summer school business or computer technology courses such as Introduction to Programming, Systems Analysis and Design, Principles of Management, Personnel Management, and Principles of Insurance.

This study investigated the relationships between the total number of business and/or computer technology courses taken in high school during ninth thru twelfth grades by the participants and the factors that affect that choice. The following model is a symbolic representation of the relationship between the dependent and independent variables: \( Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8) \). The dependent variable \( Y \) represents the total number of business and/or computer technology courses taken. The dependent variable “Total number of business and/or computer technology courses taken” by the participants, was measured by the Business/Computer Technology Majors College Student Survey, a self-report survey. The dependent variable was measured as a continuous variable ranging from 0 (no classes taken) to 14 classes taken. These results were used to identify the level of career exploration participants engaged in within their high school career, ninth thru twelfth grades. The independent variables “gender” \( (x_1) \), “culture” \( (x_2) \), “primary parent salary” \( (x_3) \), “source of school funding” \( (x_4) \), “residential neighborhood setting” \( (x_5) \), “level of perceived barriers” \( (x_6) \), “level of
commitment to career” (x7), and “level of academic work ethic” (x8) were measured through self-report utilizing the Business/Computer Technology Majors College Study Survey. These variables are operationally defined in a later section.

The data was analyzed using the appropriate Statistical Package for the Social Sciences (SPSS) 10.0 procedures to test the hypotheses and examine each problem according to gender, culture, source of funding, level of perceived barriers, level of commitment, level of academic work ethic. Statistics, such as means, standard deviations, ranges, frequencies, t, p, and F statistics, were produced to help analyze the data. The .05 alpha level was set as the level of statistical significance for all analyses. Additionally, the null hypothesis was rejected at this level.

Definition of terms

A descendant of Africa is defined in this study as a person of African and Negroid descent who was not born on the African continent.

Career Decidedness is defined in this study as the phase in the decision-making process at which an individual decides upon an occupational preference (Blustein et al., 1989).

Commitment to career is defined in this study as a strong and pervasive sense of attachment to a set of beliefs, ideas, and future directions (Kroll et. al., 1970) towards a career.

Gender is defined as the biological condition of being a male or a female human being.
Culture is defined as the body of customary beliefs, social forms, and material traits constituting a distinct complex of tradition of a racial, religious, or social group.

Salary is defined as the wage of the parent who is the principle wage earner of the household.

School’s source of funding is defined as the inclusive or exclusive status of the entity, which generates and allocates the revenue used to support the academic curriculum.

Residential neighborhood setting is defined as the geographical area type in which a school is located.

Level of perceived barriers is defined as anything which confines, limits or, hinders access to the student’s choice of career.

Level of commitment to career is defined as a strong and pervasive sense of attachment to a career.

Academic work ethic is defined as the manner, style, quality, and rate in which a student exerts mental and physical energy towards his/her academic work.
Overview: Theoretical Underpinnings

Theory is justified by its ability to suggest useful practice (Law, 1999). However, mainstream career theory has taken a limited view of the environment of careers. Rather than taking in its broad sweep, theory has particularly addressed intra-individual and job characteristics, in addition to the process of matching them. This limited focus has been criticized as a major weakness of career theories (e.g. Collin & Young, 1986; Roberts, 1981). Since mainstream career theories have been criticized for their scanty conceptualization of the environment that influences individual’s careers (Collin, 1997), there are few foundations upon which to build an appropriate conceptualization of the dramatically changing environment of careers today. If theory’s diagnoses of specific and broad needs are recognizable to practitioners, then theory is a tool for developing their work. Theoretical explanations of how the idea of a career works can help practitioners understand how to intervene in a more effective manner (Law, 1999).

There is a vast selection of Choice Theories of which to consider. In order to deliver improved interventions, the vocational counseling field is continuously developing models to further the understanding of the decision-making process. Consequently, much of the career decision-making literature is theoretical in nature, (Kriestok, 1998). Parsons’ (1909), classic model for occupational decision-making and assessment is a useful heuristic device for framing the present inquiry. Its primary
contribution is to provide a rationale for a more systematic method of vocational assessment and choice. Parsons offered his famous dictum:

In a wise choice of vocation, there are three broad factors: (1) a clear understanding of yourself, aptitude, interests, ambitions, resources, limitations, and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; and (3) true reasoning on the relations of these two groups of facts. [p. 5]

Equally important, the work of Binet, Otis, and Terman on the assessment of intelligence is often cited as critical beginnings. Likewise, in the vocational domain, the work of Patterson, Patrick, & Parker (2000) stands out as the major effort in developing assessment methods that would supply the data for a logical, empirical analysis. These methods exist as a basis for responding to the search for a ‘wise choice/good fit,’ and the question, “How wise is this choice?” (Walsh & Osipow, 1988, p. 2).

Career decisions are among the most important decisions an individual must make. For most people, particularly the youth, the period during and beyond high school is marked by important career decision-making that is, like most in life, not irrevocable (Ireh, 1999). In most cases such decisions are accompanied by pressure generated by expectations and by peer group anxieties tied to an “unfortunate lack of reality testing” (Noeth, Engen, & Noeth, 1984, p. 240). While some of them battle with choosing an occupation and finding their first full-time job, others are faced with choosing a college and a course of study that will lead to a satisfying career.
As the youth of today strive to find places for themselves in the world of work, they are faced with considering not only the kind of job they will hold, but also the kind of work environment that will provide a sense of personal satisfaction and growth. Also, as the world of work becomes more complex and technologically dynamic, the career decision-making processes the youth undergo will also become much more complex. For youth leaving secondary school, determining what to do next in their lives remains an important but arduous developmental task for youth leaving secondary school (Ireh, 1999). Consequently, because economic growth is paramount to the overall success of a nation, successful occupational choices are significant for both the individual and society as a whole (Gati, 1998).

The discussion of the career-guidance theories during the period from 1850 to 1940 includes the following events: (1) the Industrial Revolution, (2) the study of individual differences, (3) World War I, (4) the National Conference on Vocational Guidance, (5) the assessment and measurement movement, and (6) significant federal acts. Individuals who made significant contributions during this period include: Francis Galton, Wilhelm Wundt, James Cattell, Alfred Binet, Frank Parson, Robert Yerkes, and E. K. Strong. Significant events covered during the period from 1940 to the present are as follows: (1) the appearance of major counseling publications; (2) World War II; (3) significant federal programs; (4) the formulation of theories of career development; (5) the development of career education; (6) the professionalism movement; and (7) the advances of technology. Theorists who made significant contributions to the career-guidance movement during this period are E.G. Williamson, Carl Rogers, Eli Ginzberg,
Anne Roe, Donald Super, John Holland, David Tiedeman, and H. B. Gelatt (Zunker, 1994).

Krieshok (1998) chronicled 50 years of empirical literature on career decision-making, summarizing 10 beliefs, which are commonly held in the related fields:

1. Counselors can assess decidedness, career decision-making skills and efficacy, and vocational identity.
2. Individuals vary in degree of decidedness.
3. Career decidedness develops over time.
4. Educational attainment, ethnicity, gender, and socioeconomic status affect career decisions.
5. Individuals having the most difficulty with decision making often have many other difficulties.
6. Indecision does not always disappear once a decision is made.
7. Interventions increase decidedness.
8. The decision-making process is complex, not simple.
9. As information processors, humans err.
10. Decision makers have difficulty reporting their preferences, but they still do.

The author argued that these views represent vitally important lines of inquiry, although they have yet to yield propositions known “for sure” regarding career decision-making.

Posner and Snyder (1975) were among the first social psychologists to argue the assumption that “much of human behavior is controlled by mental processes outside conscious awareness.” Epstein (1994) offered a view of such processing that includes what he terms the ‘cognitive unconscious’. This is a storehouse of learning connections that allow many of the tasks involved in day-to-day existence to happen outside of the conscious stream of awareness.

Similarly, there are several theoretical underpinnings, which frame the career selection and development processes. Ann Roe and John Holland represent the Needs Theorist view, Donald Super and Eli Ginzberg delineate the Developmental position and
O'Hara and David Tideman depict the Decision-making view (Walsh & Osipow, 1988). Incorporating a personal-psychological approach, Ann Roe’s approach to career development stems from Maslow’s (1964) Hierarchy of Human Needs: survival, security, social, love/ego, and self-actualization. This approach is based on the satisfaction of personal and childhood needs, taking into consideration genetic factors and life experiences, and resting upon an innate predisposition factor, which when combined with childhood exposure, socioeconomic status, and culture, helps to dictate career choices. Additionally, three parenting styles, which affect the career choices and development of workers have been explored: (1) overprotective style, (2) avoidant style, and (3) accepting/loving style (Roe & Lunneborg, 1990; Roehling, Koelbel, & Rutgers, 1996).

John Holland (1985, 1990) bases his seven occupational choice postulates on seven assumptions. Holland’s first theorization rests on the assumption that there are six vocational/occupational personality traits, which he coined: (1) Realistic, (2) Investigative, (3) Artistic, (4) Social, (5) Enterprising, and (6) Conventional (RIASEC). Second, Holland affirmed that workers look for environments, which allow them to express their abilities, attitudes, skills, and values. Third, he presented the position that personality and environment equal behavior. Fourth, Holland hypothesized that his Hexagonal Model can estimate the degree of congruence between a person and his/her occupation (environment). Additionally, Holland hypothesizes that his Hexagonal Model can identify the degree of differentiation between the environment and personality. Holland’s last postulate concludes with the assumption that the degree to which these factors differ, determine a person’s career choice.
Ginzberg et al. (1951) and Super (1957) delineated two similar but distinct psychological/developmental theories. For those who seek major satisfaction from their work, Ginzberg’s theory stresses individual variation and rests on the construct that occupational choice is a lifelong process of decision-making. Occupational choice is an irreversible development process and occurs in three clearly marked periods in life: (1) the Fantasy stage, (2) the Tentative stage, and (3) the Realistic stage. These marked periods are characterized by a series of compromises between what a person wants and what the possibilities are. This leads them to reassess repeatedly how they can improve the fit between their changing career goals and the realities of the world of work (Ginzberg, 1987). Super theorized that individuals select careers by way of a life long developmental process involving career self-concept. According to Super (1957) all individuals transcend through five identifiable stages: (1) Growth, (2) Exploratory, (3) Establishment, (4) Maintenance, and (5) Decline.

The key concept of Tiedeman and O’Hara’s (1963) approach to career development is self-development in the broadest sense. The total cognitive development of the individual and the subsequent process of decision making are their main focus. According to Tiedeman (1963), career development unfolds within the general process of cognitive development as one resolves ego-relevant crises. The author believes that the evolving ego identity is of central importance to the career-development process. Tiedeman’s theory includes two phases, (1) Anticipation/Preoccupation (Exploration, Crystallization, Choice and Clarification), and (2) Accommodation (Introduction, Reformation and Integration). Tiedeman and O’Hara (1963) postulate that society and the individual continuously strive toward a common goal: to establish what meaning
each has for the other. In essence, the individual is striving to integrate within society; more specifically, within a career searching for acceptance by members of a career field yet retaining some individuality.

While the initial systematic efforts associated with the problem of vocational decision-making and choice were primarily those of identifying individual and occupational differences, a movement away from the concern about the content of choice and toward the process of choosing was evident as early as 1919 (Walsh & Osipow, 1988). In the years prior to Super's (1953) introduction of “vocational development” as a concept, several trends in the psychological and sociological literature can be identified as influential in introducing questions related to time, evolution, and change in relation to conceptions of vocational behavior (Walsh & Osipow, 1988). Observing that occupational choice actually appears to be a series of decisions, Ginzberg, Ginsburg, Axelrod, and Herma (1951) sought to address the question “How do individuals make decisions about their occupations?”

Drawing on Lazarsfeld’s (1931) suggestion that it was possible to examine how the person came to make the series of decisions that led to a particular choice, Ginzberg et al. (1951) identified the progressive development of factors involved in vocational choices. The product of their efforts was the delineation of three predictable stages: (1) Fantasy stage, in which the process of choosing is conducted without attention to rational considerations; (2) the Tentative stage, characterized by advances in self-knowledge, time perspective, and reality orientation; and (3) the Realistic stage, in which both subjective considerations and a greater awareness of external reality serve as the basis of choice. As a result, Ginzberg et al. provided a clearly articulated view of
acceptable developmental changes in vocational decision-making (Walsh & Osipow, 1988).

Super (1953) criticized the Ginzberg model for its failure to build on previous literature, its focus on preferences rather than actual choice, the arbitrary distinction between choice and adjustment, and its failure to articulate the nature of the process of compromise between self and reality. Super (1963) viewed a career as a “developmental process” from childhood to retirement characterized by different life stages in implementing a self-concept. Each vocational life stage is characterized by certain tasks which individuals encounter and must cope with. Super (1963) identified two main vocational developmental tasks for adolescents, namely, (1) career exploration and (2) crystallization of a career preference. Consequently, there are few foundations upon which to build an appropriate conceptualization of the dramatically changing environment of careers today.

Nevertheless, the context-sensitive research of Lent, Hackett, and Brown (2000) takes an epistemological position, which differs fundamentally from the orthodox Western view of knowledge that has until recently been taken for granted in career theories. Collin (1997) hypothesizes that contextualism offers an understanding of the world that is different; giving rise to a very different way of looking at the environment of careers and at careers themselves, and having significant implications for career theory, research, and practice. Unlike the analytical scientific approach, contextualism does not conceive of the event fragmented into its constituent parts (Collin, 1997; Lent, Hackett, & Brown, 2000).
According to Pepper’s (1942) contextualist world hypothesis, “any event is a rich concrete occurrence once, in which features interpenetrate” (p. 233). Thereafter, its details are merged “in the quality of the whole” (p. 243). “The interwoven strands that comprise the texture of the event continue out into its wider context, and there is no clear dividing line between stands and context, because it is the connections of the stands which determine the context” (p. 246). Moreover, because context is a complex whole of interwoven parts, discrete units within it cannot be isolated for examination, but the multiplicity of possible connections and interrelationships between events must be recognized (Lent, Hackett, & Brown, 2000). This makes interpretation open-mined, fluid, and tentative (Collin, 1997).

Jepsen (1984) identified two fundamentally different approaches to the investigation of vocational behavior, (1) the structural perspective (2) and the developmental perspective. The major distinction lies mainly between the former approach which emphasizes that development results in the establishment of stable qualities, such as interests, abilities, and personality traits (Gottfredson, 1981; Holland, 1966), versus the latter approach which emphasizes the development of qualities that undergo orderly changes over time, such as the conceptualization of the self as a worker and the capacity to work (Crites, 1969; Super, 1980). Contrary to Super’s developmental approach, Holland postulated that through his Self Directed Search workers are categorized as predominantly one of six RIASEC personality types. Holland believes that each type is a product of a characteristic interaction, among a variety of cultural and personal forces including peers, biological heredity, parents,
social class, culture, and the physical environment. Consequently, a person’s interests and competencies create a particular disposition or personality type (Holland, 1985).

Contrary to some research, Clement (1987) maintains that self-efficacy is involved in the decision-making process. Vanzant (2000) contends that in far too many situations, children are given inaccurate information about themselves and the world. This information becomes the looking glass in which they see themselves. Long after they discover that the information they have received is inaccurate— even when they have concrete evidence to disprove or contradict what they have previously thought— they remain loyal to that information and the people who gave it to them. In effect, many people struggle their entire lives trying not to contradict what they were told about themselves as children. This results in “self-sabotage”.

In 1977, Albert Bandura published the seminal work on self-efficacy. Bandura (1986) defines coping efficacy as a cognitive estimate of one’s perceived ability to cognitively control and manage environmental threats. Coping efficacy affects emotional reactions as well as behavioral, especially related to anxiety and stress reactions to unfamiliar or potentially aversive situations. The theory states that psychological procedures, whatever their form, alter the level and strength of efficacy. Perceived coping efficacy can lower arousal before, during, and after a difficult experience. Bandura (1977) hypothesized that expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences. The author contrasted behavioral expectancy with efficacy expectations. While the first is a person’s estimate that a given behavior will lead to certain outcomes, the second refers
to the convictions that one could successfully execute the behavior required to produce
the outcomes. Related to vocational behavior, Hackett and Betz (1989) found that
perceived self-inefficacy, which influences coping efficacy, predicted avoidance of
academic activities. Hackett and Byars (1996) emphasized the potential value of
developing effective strategies to cope with discrimination and social barriers that may
limit the career behavior of African Americans.

Giles and Rea (1999) explored the role played by self-efficacy in the career
decision-making process. In their attempt to predict and increase the understanding of
human behavior, the authors employed the Theory of Planned Behavior, which
incorporates a measure of self-efficacy together with measures of attitude and subjective
norm (Ajzen, 1985). The authors found that since “consideration of” and “intention to
pursue” are two distinct variables, the latter may be considered to be a more realistic
measure of occupational preference. In this respect, Lent & Hackett (1987) stated that
assessment of self-efficacy, with respect to career exploration or decision-making
behaviors per se (e.g. behavioral intentions), might provide a fairer test of the
relationship of self-efficacy to exploration or decisional behavior.

Lent, Brown, and Hackett (1994) explored the contextual aspects of Social
Cognitive Career Theory (SCCT), which emphasizes cognitive persons variables that
enable people to influence their own career development, as well as extra-person
variables that enhance or constrain personal agency. SCCT represents a relatively new
effort to understand the processes through which people form interests, make choices,
and achieve varying levels of success in educational and occupational pursuits (Lent,
Brown, & Hackett, 1994). Anchored in Bandura’s (1986) general social cognitive
theory, SCCT focuses on several cognitive-person variables (e.g. self-efficacy, outcome expectations, and goals). Furthermore, the theory focuses on how the above variables interact with other aspects of the person and his or her environment (e.g. gender, ethnicity, social supports, and barriers), to help shape the course of career development. Social construction posits that individuals actively construct the meaning of their perception and experience, subsequently defining their own realities. According to social constructionism, there are multiple truths and realities that have been developed from people’s belief systems, cultural group memberships, and previous experiences (Walsh, et al. 2001). Furthermore, Social Cognitive Career Theory is presented as a potential model for understanding African American women’s experiences and cultural history and their consequential impact on career choice (Walsh, Bingham, Brown, & Ward, 2001).

A social cognitive approach has been advocated as a means of increasing career-related expectations (Brown, 1995; Hackett & Byars, 1995; Lent et al., 1994). Utilizing such an approach, the expectations of African Americans can be modified by broadening their learning opportunities relevant to career-related experiences, teaching them how to effectively handle “isms,” increasing the availability and accessibility of certain types of mentor messages about success, providing more encouraging and empowering messages about success possibilities across the whole range of media, and reducing anxieties associated with succeeding in various social and behavioral contexts (Bowman, 1995; Hackett& Byars, 1996; Lent et al., 1994). The above is critical especially with respect to math and science activities (Betz, 1990; Fouad & Bingham, 1995; Hall & Post-Kammer, 1987; Murry & Mosidi, 1993). Although this theory has stimulated much
research and practical activity (Brown & Lent, 1996; Lent, Brown, & Hackett, 1996; Swanson & Gore, in press), most of this work has focused on SCCT’s cognitive-person variables alone, in isolation from important environmental factors assumed to influence both the cognitive-person variables and other aspects of career behavior.

The unique elements of the environment or setting in which students pursue their educational endeavors has been accredited with having significant implications on their overall educational outcomes. In a study highlighting a private school in a rural setting, Marshall (1980) found that the unique nature of the rural environment influences the development of a child and helps to determine the opportunities a learner has for a quality education. Evidence of recurring characteristics of rural settings such as major curriculum issues centered on quality and access to diverse curriculums and technologies were identified. The data in this study revealed the following external needs, which had local significance to Peacham School and appeared most critical: (1) to acquire basic skills in reading, writing, critical thinking, and computation with special attention to communication skills in reading, writing, oral interpretation, and social development of rural children; (2) to articulate, assess, and experiment with vocational goals; and (3) to link students to the world beyond the community (Marshall, 1980). It was also suggested that rural schools pay close attention to the recurring themes of physical and social isolation, a dearth of role models, economic deprivation, out-migration, low cultural refinement, depressed educational and occupational aspirations, and low self-concept (Marshall, 1980). Thus, even though students, particularly those who reside in rural areas, are interested in industrial related programs (due to the knowledge that enables them to qualify for occupations other than agriculture), rural
high schools often lack the tangible resources necessary to conduct successful programs (Chotisukan, 1994).

Another study explored the perception of career education among Seventh-day Adventist (SDA) educators and students residing in a rural setting to determine the extent to which SDA private schools have incorporated vocational programs into their educational system (Anderson, 1981). A summary of the major findings generated from this study were: (1) SDA educational leadership shows a lack of awareness as to how career education, vocational education, and occupational education are different and how they are alike; (2) SDA educators indicated that career placement was not a responsibility of the academy, but the majority stated that academy programs are instrumental in helping students decide upon a career; (3) Students did not know if they were provided with ample occupational information for career planning; (4) Students agreed that career information should be provided to all, regardless of career goals; and (5) The majority of students indicated that the academy was doing an adequate job of helping them understand careers.

In a study which compared and contrasted rural, urban, and suburban schools' vocational programs Elliot (1988) identified that: (1) students enrolled in vocational education courses at home comprehensive schools felt a sense of belonging; (2) Rural individuals who completed high proportions of vocational education were more likely to score lower on achievement tests and be from lower socioeconomic families than those graduates who completed lower proportions of vocational education; (3) Job preparation ranked as the number one reason (58%) why Ohio rural students enrolled in vocational education courses; and (4) Enjoyment of vocational subject matter and the environment
in which the vocational education courses were taught ranked second. A study conducted by Nations-Miller (1992) found that the vocational group located in a suburban high school showed a preference for noise, light, mobility, and learning in the late morning. Conversely, the gifted group had a preference for being motivated by parents and learning through the kinesthetic mode.

In a study in which urban and rural vocational high school programs were compared, Goza (1994) reported that students who attended rural schools were more likely to plan to attend technical/vocational schools and community colleges than urban students. Additionally, the researcher found that female students had more positive attitudes toward vocational education than their male counterparts. On the contrary, Hwang (1994) found that at a public urban high school the academic-personal group was more likely than the vocational-social group to be females enrolled in college preparatory programs. In another study which compared males and females enrolled in a public urban vocational program, Zachary (1984) found that females in vocational programs encountered significantly more difficulty than males. Finally, Vos (1980) found that even though all participating youth in his study were found to have a positive attitude toward vocational education, non-disadvantaged youth at a public urban high school in New Jersey had a more favorable attitude than disadvantaged youth. This preference may be attributed to the students’ perception and understanding how decisions are made to place certain groups of students into low ability groups, tracking their educational pursuits, and preparing certain classes of students for “their place” in society (Wood, 1999).
Reviews of this literature have examined the conceptual aspects and measurement status of the barriers construct, and have discussed ways in which SCCT can be used as a framework for studying and modifying barrier effects (Albert & Luzzo, 1999; Swanson, Daniels, & Tokar, 1996; Swanson & Woitke, 1997). Lent, Hackett, and Brown (2000) considered SCCT’s account of environmental effects in light of research on career barriers, the interplay among environmental and personal variables in the career choice process, and attempt to build stronger linkages between these two areas of inquiry. It may be obvious that implementation of the social cognitive approach may require important changes in society such that race and sex discrimination are eliminated (or at least reduced) and the structure of opportunity modified so as to be more equitable. Furthermore, media images of African Americans need changes, and educational systems need significant alterations (Bowen, 1995; Dunn & Veltman, 1989; Hackett & Byars, 1995).

In light of today’s complex, interrelated, and dynamic changes- in labor markets and organizations (Jackson et al., 1996)- coupled with the potential massive impact upon careers of widespread economic, social, technological, and cultural changes, career theorists and practitioners (in counseling and management) are having their attention drawn to the “environment” of careers (Collin, 1997). Mainstream career theories have been criticized for their scanty conceptualization of the environment that influences individuals’ careers. Rather than taking in a broad sweep, traditional theories have particularly addressed intra-individual and job characteristics, and the process of matching them; a focus, which has been criticized as a major weakness of career theories (Collin & Young, 1986; Roberts, 1981).
Krieshok presented a brief outline of what might be termed as an anti-introspectivist (AI) view of career decision-making. The AI view is based mostly on cognitive and experimental social psychology. Several writers in the career domain have argued that the literature deserves consideration by career counselors (Fitzgerald & Rounds, 1989; Heppner & Frazier, 1992). In short, AI proponents hold that most processing performed by the human mind for decision-making and behavior initiation is not performed at a conscious level, and that reflection on those decision-making processes is not only futile but possibly confusing and detrimental to good decisions (Krieshok, 1998). To the extent that the AI argument is true, it has implications for career theory, but even greater implications for the way vocational interventions are administered.

Osipow (1999) discusses Holland's work toward the understanding and measurement of career indecision that has grown out of his long-term theoretical and empirical efforts. The author affirms that career indecision has been a major concern of career psychologists for many years. Originally focused on the problems of career decision making of students, Osipow maintains that this issue now encompasses a broad life spectrum. The above remains true because of the increased frequency of events that require people to revise their career decisions over their life span. Prior to the 1960s, little effort was made to differentiate between indecision and indecisiveness. However, Osipow defines indecision as a developmental phase through which individuals may pass on their way to reaching a decision. The problems individuals have in dealing with decisions concerning a range of major life issues, including but not limited to career issues. Conversely, Osipow describes indecisiveness as a different process. Whereas
indecision is a state that is normal in human development, indecisiveness is not an ordinary part of human growth and development, but is, instead, a personality trait, which generalizes across situations demanding decision. Moreover, an indecisive person would most likely display undecided behavior at many decision points during life.

Career counseling for indecision is usually a cognitive based approach in which logical processes are employed in collecting, sifting, and evaluating relevant career and personal information. To better assess counseling outcomes, reduction of indecision became an important issue. In the 1950s, John Holland became concerned with the measurement of indecision. In an early study dealing with career indecision, Holland and Holland (1977) proposed that indecision is the result of difficulties in personal and vocational identity. This study led to a more elaborate formulation of an approach to measuring career indecision as reflected in an instrument known as My Vocational Situation (MVS) (Holland, Daiger, & Power, 1980; Holland, Gottfredson, & Power, 1980). The scale attempts to diagnose the difficulties people have in vocational decision-making. According to Holland, Daiger, and Power (1980) such difficulties result from issues related to vocational identity, occupational information, and career barriers.

The notion of career-related aspects is presented by Gati (1998) as a potential framework for career decision-making and for assessing the “person-environment fit”. This aspects-based approach to person-environment-fit and career decision offered an alternative to traditional approaches. The features of the aspects-based approach are described with reference to the two main stages of career decision-making: (1)
prescreening and (2) in-depth exploration. Gati (1986) discussed the distinction between the relative importance of aspects and the within-aspects preferences, the explication of career compromises, and the role of core aspects. Through the employment of a multi-attribute compensatory model the author explored relationships between various aspects, interests, and needs (Brown, 1990; Gati, 1986; Katz, 1993). This model takes into account the importance attributed by the individual to the various aspects of career exploration. Individuals’ career-related preferences included many additional aspects, which may also be used to characterize occupations and thus can be used to help deliberating individuals locate promising careers during the prescreening.

For more than 20 years, both career education and guidance professionals have drawn much of their rationale from the DOTS analysis, which analyzes “practice” for coverage of decision learning (D), opportunity awareness (O), transition learning (T), and self awareness (S) (Law, 1999). Its assumptions are rooted in theory, unifying the aims of careers education and career guidance as enabling choice. Similarly, Law (1996) documents five major groups of relevant theories: (1) Trait-and-factor theories, (2) Self-concept theories, (3) Opportunity-structure theories, (4) Community-interaction theories, and (5) Career-learning theories. More recently, theory and practice engage a wider range of thinking. They acknowledge the complexity of contemporary career planning, and accommodate interactions, which occur in the social and community life of the “choosing person.” The practical implications for more progressive career learning is to create conditions which enable “due process”, to establish viable bases for both the initial choice and change of mind. This thinking more sharply differentiates careers education from guidance, setting out a strong rationale for the former. It does
not replace DOTS, but extends it into a new-DOTS re-conceptualization termed “career-learning space.” The effectiveness of career learning is determined by its transferable outcomes. New-DOTS thinking resonates with the conditions for transferable learning. There are possibilities here for building a strong consensus between practice, theory and policy (Law, 1999).

Until recently, theories of occupational choices and career development were largely driven by the assumption of rationality in behavior at work (Myrick, 1993). However, in several areas of career theory it is possible to detect moves toward an acknowledgment of the powerful role of emotional experience and expression in career development (Kidd, 1998). Kidd reviewed recent United Kingdom literature on careers and career interventions with arguments for greater attention to be given to the role of emotion in career development. The author argued that ideas from the literature on emotional and contextual changes, when employed to elaborate current notions of career management, account for many of the feelings and emotions underlying career transitions. Furthermore, the literature on general emotions, and specifically on “emotional labor,” has potential in understanding the dynamics of career counseling and in developing narrative approaches to counseling (Kidd, 1998). This means attending to and exploring new ways of understanding emotional, expression, and communication in career development; a more holistic and dynamic approach. Conceptual frameworks of emotion as interpersonal phenomena are in line with the view in that emotion is viewed as a social process rather than an individual attribute. The idea of emotion having communicative purposes has considerable potential in further understanding the dynamics of the career counseling process.
Gottfredson (1981) traced the development of occupational stereotypes, the sex-role appropriateness of occupations, prestige strivings, and vocational interests from age 3 to adult, and developed the Circumscription-Comprise theory. In circumscription, individuals first eliminate occupations that are unacceptable to them on the basis of occupational sextype and prestige. The result would be a zone of acceptable alternatives (ZOAA), within which people explore occupations of acceptable sextype and prestige, and specify the most “job-self compatible options” to be their occupational aspirations. These range from their ideal (most desired job), to the realistic (expected job), to what is just acceptable (tolerable job). The range of occupational aspirations depends on reality factors that may require individuals to adjust their aspirations, resulting in some kind of compromise (Tan, 1998).

Yaniv and Schul (2000) contrasted two seemingly complementary (mirror-image) decision strategies: (1) acceptance and (2) elimination. These Israeli authors used realistic career decision-making scenarios and presented sets of alternatives to respondents that varied in their pre-experimental strength values. Their dual-criterion framework- the acceptance elimination discrepancy- requires the reduction of a large set of alternatives to a smaller one. The rationale for this perspective relies on three basic assumptions. The first assumption, a common one in normative theories of choice, is that an options’ attractiveness can be represented in a single value. Second, an option’s overall evaluation is made independent of context. Third, it is assumed that the value of an option is compared with some cutoff point to determine whether or not it is good enough to be retained in the final selection: strong, middling, and weak alternatives (Luce & Raiffa, 1957/1988). The second theoretical perspective is based on previous
findings in the area of behavioral decision making showing that seemingly irrelevant alterations in the response mode could have a profound impact on the decision process, resulting in incoherent choices and reversals of preference (Hsee, 1996; Payne, Bettman, & Johnson, 1993; Slovic, Fischhoff, & Lichtenstein, 1982; Shafir, 1993). Consequently, utilizing t-and F- tests, choice sets created by the acceptance and elimination process were found to have a tendency to promote status-quo maintenance (inaction); the “in list” and the “out list”. The results illustrate that middling alternatives yield the greatest discrepancy between acceptance and elimination.

Farh, Leong, and Law (1998) investigated the cross-cultural validity of Holland’s model of the six RIASEC interest/personality types in Hong Kong. One general hypothesis is that the generalizability of Holland’s theory to a non-US cultural context depends on the similarity of that culture to the United States. A primary focus of this aspect of the study is how Hong Kong fits into Holland’s theoretical framework. Generally, the greater the similarity of a foreign culture to the US culture, the greater the likelihood that Holland’s theory will transfer. Results indicated that: (a) Holland’s model as operationalized by Unisex edition of the ACT Interest Inventory (UNIACT) has considerable external validity; (b) The internal structure of the UNIACT was generally consistent with the formulations by Holland; and (c) The cultural value of traditionality affected the fit between Holland’s model and the student data. The results revealed that Hong Kong students who hold stronger traditional values tended to behave less consistently with Holland’s model than those who hold weaker traditional Chinese values.
According to Leong (1990), cultural validity is concerned with the accuracy and utility of a test or model when applied to a population which is culturally different from the one on which the test or model was developed. Leong (1990) contends that a primary goal of cross-cultural psychology is to evaluate the validity of theories across different cultures and to assess the generalizability of a theory of human behavior developed in the United States. The present evaluation of the cross-cultural validity of Holland’s theory of career choice, as measured by the Vocational Preference Inventory, produced some mixed results. When transported to India, the VPI exhibited evidence of support, when considered solely. The internal consistency reliability estimates of the Holland scales indicated that the RIASEC are all homogenous representations of those interest clusters hypothesized by Holland (Gati, 1985).

With regard to external validity, the data from Leong, Austin, Sekaran, & Komarraju’s 1998 study was less encouraging on several fronts. One method of approaching this issue is to use Gottfredson & Holland’s (1990) constructs of congruence, consistency, and differentiation as predictors of job satisfaction. Holland’s theory maintains that these three constructs should be positive predictors of job satisfaction among workers. Yet the present results indicated that none of the three constructs was a significant predictor of job satisfaction individually or in combination. Leong, Austin, Sekaran, & Komarraju (1998) point to problems in the external validity of Holland’s model and identify that the current case may be a function of the unique characteristics of the occupational structure within India, namely the differential opportunity and availability of different types of occupations. A country with a skewed distribution of occupations as classified by Holland’s model could account for the failure
of congruence, consistency, and differentiation in predicting individuals’ occupational choices (Leong, Austin, Sekaran, & Komarraju, 1998).

Alternatively, the problem may not lie within the Indian occupational structure, but instead within Holland’s model and/or the ability of the specific measures to predict occupational choices of Indian workers. Slaney (1980) and Slaney and Brown (1983) found that cross-cultural occupational differences seem to be a function of both socioeconomic and cultural differences. Therefore, the lack of predictive validity of the VPI suggests that there may be important cultural differences in vocational behavior among Indian workers. At the very least, the lack of external validity for the VPI may reflect important differences in vocational behavior between the United States and India, and suggests that there may be major limitations in the application of Holland’s theory to other cultures such as India (Pandey, 1988).

Hesketh (1998) provided a broad outline of career services in Australia, highlighting distinctive issues relevant to indigenous people, the multicultural context of Australia, and the industrial relations climate. Holland’s (1985) ideas, first introduced to Australia by Lokan and Taylor (1986), have been accepted and used widely. Naylor (1993) has continued to promulgate the ideas and compare Australian and United States responses to various measures such as the Strong Interest Inventory (Hansen & Campbell, 1985), the Career Beliefs Inventory (Naylor & Krumboltz, 1994), and the Career Assessment Inventory (Naylor & Kidd, 1991). Mainstream career research has been conducted by Smart (1998), testing a component of Super’s Theory. However, the indigenous people- the Aborigines, Australia’s most disadvantaged and underrepresented citizen group- have been historically left out of career research.
(Hesketh, 1998). The author further described the context of careers in Australia in general terms and then outlines research investigating the tertiary education decision processes of 12th grade students in the State of New South Wales. What follows is a broad picture of the range and type of career advice available at the high school level, in tertiary institutions, and in society at large.

According to Hesketh (1998), Australia’s school-based career advisers help students manage the process of applying for tertiary education. They also assist in managing work experience programs, internships, the school-to-work transition, and entry into the various courses offered through the non-university-based Tertiary and Further Education systems. Changes in Australia in relation to increased privatization of career services, growth of consultancies, and increased use of the Internet have all influenced the future directions of career guidance in Australia. One disadvantage identified by Hesketh (1998) is that most Australian states and territories allow high schools to appoint career advisers whose background is in teaching rather than counseling or psychology. As few career advisers have a background in psychology, comparatively little testing is undertaken in the schools, although Holland’s (1985) “person-fit” framework is widely known and used. In addition, the states vary in terms of the extent to which government departments and career associations provide training for the school career advisers.

South African career research has largely been dependent on the career theories and research emanating from the United States (Stead & Watson, 1998). The use of the Western heritage of White South Africans would justify the use of theories, constructs, and instruments derived from European and American contexts (Nel, 1987). The
critique of career research in South Africa suggests that there is little framework or clarity of what ought to be the major career research directions in South Africa. On one hand, the current loose framework has converged on Western theoretical constructs and measures. On the other hand, it has diverged within such a framework, seemingly adapting to whatever is topical and current in Western career research. Referring to South African psychology in general, Holdstock (1981) expresses the belief that “our greatest irrelevance undoubtedly relates to the fact that we adhere to an exclusively western approach to psychology” (p.124). Such an adherence is understandable given the presence of strong Western psychological traditions in South Africa, but it is not always conducive to examining career problems that need to be addressed and that are pertinent to the majority of its peoples.

Stead and Watson (1998) examined four aspects of career research in South Africa from 1980 to 1997. The author’s review focused mainly on career issues among adolescents and young adults and not on organizational behavior. Research measurements such as the Career Decision-Making System (Harrington & O’Shea, 1989), Work Role Salience Scale (Greenhaus, 1973), Super’s Life Role Inventory (Langley, 1990a), Osipow’s Career Decision Scale (Osipow, Carney, Winer, Yanico, & Koschier, 1976), and a factor analysis of the Commitment to Career Choice Scale (Blustein, Ellis, Devenis, 1989), among others tools, were employed to measure the responses of South African Black twelfth grade students. A brief overview of the South African context was provided as a backdrop to some of the issues confronting Black South African psychologists, namely theory, theoretical constructs, career counseling and education, and career assessment.
With regard to Super's (1990) theory, Van Niekerk and Van Daalen (1991) have questioned its relevance among Black South Africans, suggesting that Super's developmental stages do not adequately reflect the career paths of Black youth in South Africa who seldom have the opportunities to explore and commit themselves to long-term careers. Stead and Watson, (1998) suggested that the developmental stages- self-concept, career maturity, and decision-making aspects of Super's theory- need to be reexamined or even redefined if they are to become more meaningful constructs in the South African context. Likewise, most researchers in the field have responded to the call for relevancy by increasing the diversity of their samples (Kim & Berry, 1993). Yet simply testing more Black respondents does not necessarily address the cultural context and the economic realities within which they live. Kim and Berry (1993) suggests that South African career researchers and career psychologists seriously consider employing an indigenous approach as a way of understanding career psychology within the South African context. Consequently, Stead (1998) has suggested that the developmental-contextual approach of Vondracek, Lerner, and Schulenberg (1986) is a useful framework for explaining the career development of Black adolescents during both the pre- and post-apartheid years, as this approach focuses on the dynamic interplay between individual and contextual factors.

Tan (1998) traces the development of vocational psychology in the Republic of Singapore from 1985 to 1997. The author reviewed research studies on career development, interests, sex-stereotyping in career choice, work values, and job satisfaction. Based on empirical data, the article examines the influences of home and school on the career development of adolescents, and reviews experimental studies on
various career guidance practices. The finding revealed that as many as 95% of the students surveyed had not received any form of career guidance. Only 40% indicated that they had given some thought to their future careers, but few knew what was involved in preparing for a career. More than 60% of the students expressed an urgent need for career guidance (Khor, 1994). Study limitations clearly showed that most of the research studies reported were concerned with the student population and were conducted within educational circles. There is still a lack of information on the vocational behavior of the work force. In recruitment procedures, company personnel still rely a great deal on the interview method. Where aptitude tests and inventories were used to screen and select applicants, usually only foreign, American instruments are used. The results revealed a need to validate these instruments and to develop relevant indigenous tools.

Santos and Ferreira (1998) present an overview of the political and cultural context of vocational psychology and career counseling in Portugal. Given the importance of social and political factors that are apparent in an analysis of the Portugal climate within career development, the authors propose that vocational behavior and intervention, based on a "person-environment fit" model, must try to enhance strategies for the development of persons in a contextual and broader sense. Furthermore, career counseling and vocational psychology, embedded in the lifelong education and training context, must prepare people to deal with different authority relationships, organizational structures, kinds of emotional environments, group and personal relationships, conflicts, organizational and political strategies and work settings, as well as prepare them to express themselves vocationally within this labyrinth (Dalton, 1989;
Nystrom & McArthur, 1989). Santos and Ferreira (1998) argue that career counseling should be provided not only at critical decision points, but throughout the life-span of an individual, and should not focus merely on occupational details, but on all matters of the development of the person as a whole.

Claes and Ruiz-Quintanilla (1998) examined the effects of early career experiences, occupational group membership, and national culture on proactive career behaviors, including career planning, skill development, consultation, and networking. The study analyzed data from a longitudinal cross-national study on young workers from two occupational panels. The results confirmed the cultural dependence of proactive behaviors. Moreover, employment-related early career experiences showed a positive effect on proactive skill development and consultation behaviors.

In the last decade, a series of related studies have investigated the relationship between family of origin dynamics and the career-decision-making process of young adults (Bratcher, 1982; Eigen, Hartman, & Hartman, 1987; Kinnier, Brigman, & Noble, 1990; Lopez & Andrews, 1987; Penick & Jepsen, 1992; Zingaro, 1983). A family systems perspective of career decision making emphasizes the importance of considering family members' interactional patterns and emotional interdependencies in understanding young adults' career decision problems (Lopez & Andrews, 1987). Larson and Wilson (1998) tested the ability of Bowenian family systems theory to explain career decision problems in young adults. Bowenian theory asserts that anxiety is the mediator of dysfunctional family dynamics and career decision problems. A sample of 1,006 young adults completed self-report measures of fusion, triangulation, intimidation, trait anxiety, and career decision problems. A Path analysis was used to
test a model wherein anxiety mediated the effects of dysfunctional family patterns on career decision-making problems. Analyses supported the mediating role of anxiety for fusion and intimidation. However, the results showed that triangulation was not related to career decision problems.

Giles and Rea (1999) employed the theory of planned behavior to investigate whether men are generally less willing to pursue sex-atypical careers than women, and if so, to determine what factors help to explain their reluctance. An Ajzen and Fishbein (1980) survey regarding sex-atypical careers was administered to 212 fifth-form students, randomly selected from secondary schools in Ireland. Strong evidence was provided to suggest that males are much less willing than females to adopt egalitarian roles. Moreover, the present findings clearly demonstrated the importance of self-efficacy theory in the career decision-making process.

Given the results of this study, it would seem that a change in the historical focus of much research is necessary. Due to the fact that women have been shown generally to have lower self-efficacy expectations than men, with regard to traditionally male occupations (Betz & Hackett, 1981; Wheeler, 1983), a number of studies have demonstrated that women's lower self-efficacy does not necessarily deter them from considering traditionally masculine-type professions (Clement, 1987). In fact, in many studies, it is men who are less willing to consider sex-atypical careers. The results of this study indicate that not only are men significantly less confident about their ability to pursue sex-atypical careers, but more importantly they are also significantly less likely to have intentions of pursuing sex-atypical careers than women. Consequently, to achieve
equality, it may be more appropriate if, in the future, female behavior is taken as the norm and the behavior of men is measured against it (Jome & Tokar, 1998).

In recent years, growing concern regarding women’s low level of career achievement and changing life styles has resulted in the proliferation of research and some theoretical formulations designed to examine the social/psychological factors affecting their career choices (Walsh, Bingham, Brown, & Ward, 2001). Interest in the effect of gender on career choice and decision-making is a comparatively recent development in the field of vocational psychology. Likewise, until fairly recently, major theories of career development assumed that the career development process of women followed a career path similar to that described for men (Wright, 1981). As interest and societal trends regarding women’s participation in the labor force have changed, the need to understand how women’s career behaviors are similar to or different from those of men has increased (Hammon, 1989). Hammon’s study suggests some change in gender differences related to career aspiration that may reflect on current social trends. Landro (1982) found that while girls scored higher on the Vocational Maturity scales, a stepwise multiple regression analysis suggested that sex differences were due to higher academic achievement in high school by females. Girls were found to have higher mean grade point averages, yet boys aspired to higher educational levels. Johnston’s 1981 study, addressing factors associated with choice of nontraditional careers by high school girls, found that the factors associated with girls choosing nontraditional careers were higher I.Q. and grade point average, higher level of father’s employment, higher level of mother and father’s education, and being of the Anglo or White race.
Historically, vocational interest instruments have been viewed as a useful but crude and a partial method of identifying individual occupational preferences (Gati, 1998). However, recently second and third generation approaches to the measurement of career indecision have been appearing. Notable among these measures are the Career Factors Inventory (Chartrand, Robbins, Morrill, & Boggs, 1990) and Career Decision Profile (Jones, 1989). These instruments approach career indecision with the view that it is multidimensional. Such an approach allows for a more precise “diagnosis” of the causes of career indecision than do the earlier measures, and as a result, may be more effective in leading to more efficient counseling interventions. Other measurement tools include the Career Decision Difficulties Survey (Gati, Krausz & Osipow’s, 1996), the Multi-Domain Decisiveness Scale (Haraburda’s, 1998), the Taxonomy of Adult Career Development Problems Scale (Campbell & Cellini’s 1981), and the Career Decision-making Self-efficacy Scale (CAMSE) (Tayler & Betz’s, 1983).

The Vocational Identity scale measures the clarity of an individual’s goals, interests, and talents as they relate to vocational decisions (Krieshok, 1998). The Occupational Information scale allows the counselor to determine where, if anywhere, the client’s career knowledge is deficient (Osipow, 1999). The Barriers scale provides a list of those obstacles that clients feel may impede their career decision-making (Osipow, 199). The Career Decision Scale (CDS) identifies the reasons people offer to explain the sources of their career indecision (Osipow, Winer, Koschier, & Yanico, 1975). Another approach to the measurement of career indeciseness, developed in the 1970s, was Harren’s (1976) Assessment of Career Decision-making. This measure
approached the issue of career indecision using Tiedman and O’Hara’s (1963) framework to career development.

Furthermore, there has been an increased focus on the ways in which certain types of self-efficacy and causal attributions can over time influence an individual’s disposition, related to a given series of events and outcomes, and the instruments utilized to measure these effects (Jenkins-Smith, 1998). Most of the research on the affects of attributions on the career decision-making process is at risk for negative future expectations and weaker performance than individuals with an “optimistic” attribution style (Abramson, Seligman & Teasdale, 1978; Spector, 1988; Weiner, 1985). The general attributional approach to motivation developed by Weiner (1979, 1985, 1986) asserts that the causal beliefs people hold about their successes and failures have important consequences for their feelings, expectancies, and behavior.

Luzzo and Jenkins-Smith (1998) evaluated the reliability and validity of the Assessment of Attributions for Career Decision Making (AACDM), a measure that evaluates an individual’s attributional or explanatory style associated with making career decisions. Results from the studies provide a clear support of the reliability and validity of the AACDM among college student populations. Adequate internal consistency reliability coefficients and 4-week test-retest reliabilities were revealed for each of the three AACDM factors (controllability, causality, and stability) and the AACDM composite scale. Construct validity of the AACDM was demonstrated by a factor analysis that supports a three-factor structure consistent with attribution theory. The AACDM’s criterion-related validity was supported by a significant relationship between scores on the controllability dimension of the AACDM and scores on the Career Locus
Control Scale (Trice et al., 1989). Additionally, results revealed scores on the control
scale of the CBI and the locus of causality dimension of the AACDM, and evidence that
the AACDM is a valid predictor of both career indecision and engagement in career
exploration behavior. Results of these studies also revealed that AACMD scores do not
appear to discriminate between sexes or among racial/ethnic groups (Luzzo & Jenkins-
Smith, 1998).

Bikos, Kriestok, and O’Brien (1998) evaluated the Missouri Occupational Card
Sort (MOCS; Hansen & Johnston, 1989) with 298 college students and 97 Upward
Bound students. Participants attended career planning workshops in which the MOCS,
the Self-Directed Search (SDS), a demographic survey, and satisfaction measures were
completed. The MOCS demonstrated adequate estimates of internal consistency for the
RIASEC scales and adequate temporal stability of the MOCS-generated Holland Codes,
along with the ranking of the top ten MOCS occupations. Regarding the credibility of
the MOCS Holland Code, results indicated that Holland’s RIASEC model is an
inadequate factor structure for MOCS items and that MOCS and SDS Holland Codes are
moderately dissimilar.

Carson (1998) correlated scales from the Self-Directed Search (SDS) with those
of the Ball Aptitude Battery (BAB) from a sample of 198 high school students. The
purpose of the study was to determine if the self-reports of competencies and abilities in
the SDS (Holland, Fritzsche, & Powell, 1994) were correlated with the broad range of
vocational aptitude measures found in the BAB (Ball Foundation, 1995). At the heart of
Carson’s inquiry was the relative degree to which self-reported abilities accurately
assess general cognitive ability (g), and specific ability (g-free). First, the results
indicated that investigative scales related more closely to g than any g-free aptitude scales. Contrary to Kelso, Holland, and Gottfredson’s 1997 study, larger canonical correlations between the SDS and aptitude measures were found: g related more closely and positively to the Investigative scales than to other SDS scales. Similarly, investigative interest and activity scales had the largest number of significant correlations with aptitudes. Third, much of the aggregate relationship observed between BAB scales and either SDS self-ratings of abilities or interests is associated with g. Fourth, the variance in common between BAB scales and either SDS interests or self-rated abilities is small. Finally, BAB objective ability test scales correlated more highly with SDS competency and ability self-ratings scales than with the activity and competency scales.

“The relationship between [sex], ethnic identity, and power has important consequences in a modern world that is changing rapidly through global trends” (Zou & Trueba, 1998, p. 1). “The “cultural war” that perpetuates a climate of racism and xenophobia in American and other Western societies is intended to kill any hope for empowerment among the oppressed” (Zou & Trueba, 1998, p.2). Nevertheless, traditional vocational interest tools fail to incorporate this reality into their assessment process (Walsh, Bingham, Brown, & Ward, 2001).

“Virtually every writer addressing the career development and counseling of African Americans has pointed to the need to deal with racism and sexism” (Walsh, 2001, p. 9). Race or sex, however perceived, are important elements of stratification and differential treatment, with which many people of African descent must contend. Equally important, both real and perceived forms of race and sex discrimination affect
the lives of many people of African descent, in regards to issues of identity and coping, with likely career counseling and development implications (Walsh, 2001, p. 9).

Although the salience of race (and probably sex) varies from person to person (Helms & Piper, 1994), research has shown that counselors who address the possible role of race in counseling are viewed as more culturally competent and credible (Atkinson & Lowe, 1995).

Feich (1993) found that self-concept and career maturity may not influence the choices of the students, but they may help indicate characteristics that influence career choices. Schoenmakers’ (1998) study, addressing gender and college-bound adolescent career-field choices, found that there is a strong relationship between students’ feelings of math competence and their tendency to select math and or science career-fields. Additionally, Jones (1997) found that African American male students preferred careers in computer science, engineering and mathematics for all investigative periods: 1975, 1985, and 1995. African American females preferred careers in the health professions for all three-time periods. Conversely, among business fields studied, gender was somewhat less predictive of general field choice, while family background factors, notably father’s level of education and family income, assumed relatively higher levels of discriminatory power (Schoenmakers, 1988).

It is known that educational achievement is closely related to socioeconomic status (SES) (O’Sullivan, 1984). In Pelham’s 1979 study addressing racial differences and attributes of career choice unrealism, a significant difference was found between the SES levels of the Black and White students, with Black students coming from a lower SES than the White students. However SES did not have a significant effect on rates of
unrealism. Kapral (1980) found that a number of socioeconomic factors were observed to be related to student aspirations and expectations, namely: sex, college grades, home residence, farm experience, size of home community, father's education level, father's occupational status, influence on decision to study agriculture, and whether career interest tests were taken. Epps (1988) investigated some of the psychological variables related to nontraditional occupational choices among Black women. Epps found that while the male-female earning differential cannot be explained entirely by the concentration of women in female-dominated occupations, literature suggested that occupations with higher percentages of females are less well paid and are less prestigious than those occupations with higher percentages of men.

Since college curriculum choice is a critical decision facing many African American high school students (Lasker, 1994), the need to address issues affecting the career choices of Black undergraduate students in the American society is evident. Prior research has failed to address the multivariate factors that influence Blacks’ career decisions (Duncan, 1986). Historically, and presently, African Americans, as a group, continue to pursue low skilled and social type professional occupations, while the demand for math, science, and technical related workers steadily rise (Paul, 1998). “In an increasingly technological society, mastery of math and science becomes essential for accessing a wide range of desirable career options” (Paul, 1998, p.1). Some of the factors that may affect the selection of occupations regarding Black students are: lack of interest in science, poor academic preparation, high interest in social-oriented careers, poor educational and career planning, unfavorable images of scientists, impoverished family backgrounds, and lack of confidence in ability (Lewis, 1997). This plethora of
factors indicates that there is yet equivocation in literature as to the causes of this underrepresentation. “Since mathematics-related course enrollment patterns help to determine the range of one’s career options, the continued under representation of Blacks in math and science courses and occupations warrants serious attention” (Gainor, 1997, p. 1). While universities have instituted recruitment programs designed to increase the participation rates of women and minorities, enrollments continue to decline (Laughlin, 1993). If this trend continues, the employment opportunities will likely become increasingly limited for this population (Paul, 1998).

Again, it is known that educational achievement is closely related to socioeconomic status. Proctor (1970) expressed the belief that “education is the corridor through which America’s minorities move from rejection, deprivation, and isolation to acceptance, economic sufficiency, and inclusion.” Therefore no attempt to advance the career development of African Americans can be completely successful without attention being directed towards their educational achievement (Walsh, et al, 2001). The significance of schooling for African American clients must be examined and discussed within the context of their aspirations and expectations. Systematic interventions need to be directed toward improving the quality of educational experiences for African American children (Walsh, et. al, 2001), to give underserved African American students the educational and experimental foundation they need to take advantage of the high-tech job opportunities currently available in the region (Kelly & Folds, 1998). Equally important, efforts need to be made to increase the real and perceived meaning and relevance of schooling among some African Americans (Ogbu, 1991).
Members of the academic and policy-making community have argued that advancement through education is an especially relevant strategy for minority group members (Jeffries, 1987). Recent trends in the American economy have prompted many to suggest that occupation-specific training at the postsecondary level may very well be “the corridor” through which minorities must venture if their employment prospects are to be improved. The distribution of vocational courses taken by Black American students should not only coincide with developing jobs in the local and state labor markets but should also contribute to tangible gains for Black Americans as a whole and an equitable share of better occupations in the workforce (Armstrong, 1981). Therefore, Black American students should be made completely aware of the entire range of educational choices at each stage of their educational career and should be able to select any program for which they feel qualified.

Present research indicates that the African Americans’ place in the social structure of this country reflects the complexity of a people caught between two worlds. Recently, national attention has focused on the availability of educational opportunities and training programs in order to assist low skilled individuals who are hurt the most by recent increases in inequality of education, housing patterns, and political influences (Black, 1997). However, despite numerous employment, training, and educational incentives programs, African Americans are still over-represented in low-pay and/or low-prestige occupations and are underrepresented in higher education, as well as in technological, professional, managerial, and other more prestigious jobs (Peeler, 1995). Very few African Americans pursue, enter, and remain in science, mathematics, engineering, and technological fields (Betz, 1990; Hall & Post-Kammer, 1987).
Whether these choices are based on occupational stereotyping or perceptions of the structure of opportunity; occupational choices are influenced by social images that depict White males in high prestige positions and African Americans and European American women in lower prestige positions (Pelham, 1979). For example, in Jefferies’ (1987) study regarding choices of postsecondary noncollegiate education, empirical evidence was presented which suggested that, relative to other race/gender groups, younger, more educated Black males are especially sensitive to the environment in which an occupation is situated.

Some career development theories have hypothesized that personality development and vocational awareness combine to result in occupational choice (Walsh & Osipow, 1988). For African Americans and other ethnic minorities the variable of occupational socialization is more complex and include factors such as occupational segregation, stereotyping, discrimination, prestige, and mobility, that are often circumscribed by the dominant culture (Walsh, Gingham, Brown, & Ward, 2001). “The unique occupational socialization experiences of African Americans indicate a need to include culturally specific variables that account for within group variance and help dispel the stereotype that all African Americans are the same” (Peeler, 1995, p. 2).

Any approach to the career counseling of African Americans must incorporate support of nontraditional career orientations, with respect to career choice and career adjustment (Walsh, 2001). Among the career choice and decision-making issues associated with nontraditional career trajectories are poor education and training (in terms of type, amount, and quality) and poor socialization to nontraditional educational and work fields (messages, experiences, mentors, and role models) (Bowman, 1995:
Likewise, a number of factors are viewed as affecting the career adjustment of African Americans in nontraditional fields such as biased hiring and promotion practices, tokenism; isolation and/or estrangement, and the stresses associated with being nontraditional (Walsh, 2001).

Summary

A close examination of the literature suggests that “there have been few systematic studies of career development counseling with African Americans” (Brown & Pinterits, 2001, p. vii), let alone African Caribbeans. Existing theories, models, and research in the area of career development have not adequately addressed the factors and circumstances surrounding the career choices of workers of African descent (Paul, 1998). Therefore, the larger multicultural counseling literature is drawn upon because very little appears in the empirical literature regarding multicultural issues of career development (Walsh, et al., p. 12). Furthermore, most of what is known is based on research whose participants were college-age students from relatively high economic status. Thus, there is very limited knowledge pertaining to factors affecting the career paths of African American youths from lower socioeconomic statuses (SES).
CHAPTER III
Description of Research Methodology

Overview: Conceptual Framework

Researchers and theorists in the area of career development have indicated that there is a specific set of career development skills and attitudes, which should be fostered during the elementary school years (Super, 1957; Ginzberg 1951). Theorists describe three major developmental tasks of childhood which are critical to the career development process: (1) the development of a sense of selfhood and competence, (2) the development of basic work habits and attitudes, and (3) the acquisition of knowledge about the world of work and the meanings people derive from participation in that world. Choice and career development theories serve as a guide for career counseling. As scholars in vocational psychology and adolescent development have observed, one of the major development tasks of late adolescence and early adulthood is the commitment to a career choice process (Erickson, 1968; Harren, 1979; Jepsen, 1984; Super, 1957).

This process, entailing the development and specification of vocational options, generally culminates in a strong attachment or commitment to one’s career choices (Gottfredson, 1981; Harren, 1979; Jordan & Heyde, 1979; Super, 1957; Tiedeman & O’Hara, 1963). Interest in the nature of the commitment to the career choice process has led to numerous research projects designed to investigate how individuals develop occupational preferences and decide upon a given vocational choice (Jepsen, 1984; and Slaney, 1988, for review). Despite much research on career indecision, investigators have generally not devoted their attention to understanding the phase beyond vocational
decidedness in which individuals develop a strong level of commitment to their career choices (Bluestein, 1989).

Furthermore, while many research studies have addressed the way in which individuals approach career decisions, as exemplified by research on decision-making styles, little is known about the means or methods by which individuals commit to career choices (Harren, 1979). Given the importance of commitment in career development theory, Blustein, Ellis, and Devenis (1989) initiated a series of studies to define, assess, and explore both the sequence and the means by which individuals commit to career choices. Consequently, by tying together research regarding choice theory and career choice, career development theories provide a conceptual framework within which to review the type of career-related issues that emerge during high school (Brown & Brooks, 1996; McDaniels & Gysbers, 1992; Sharf, 1992).

Purpose of the Research

The purpose of this study was to identify the factors that influence the subject/course selection of Black students who chose to take business and/or computer technology courses in high school. This study investigated the relationships between the number of business and/or computer technology courses taken and the factors that affected the choice. The dependent variable for the study was total number of business and/or computer technology courses taken within the high school curriculum. The following factors were independent variables in the study: gender, culture, parent occupation, source of school funding, neighborhood setting, level of perceived barriers, level of commitment, and level of academic work ethic. These variables are discussed
in a detailed manner in the Research Design section. The information obtained in this study will be used to further identify, understand, and address the relevant contextual issues, which should be considered during the career decision-making process.

Null Hypotheses

The purpose and focus of this study was to test the following two null hypotheses and eight sub-null hypotheses:

\( H_01 \): There is no relationship between the number of business and/or Computer technology courses taken in high school and the following factors that affect that decision: gender, culture, primary parent salary, source of school funding, residential neighborhood setting, level of perceived barriers, commitment, and academic work ethic.

\( H_{01A} \): There is no relationship between the number of courses business and/or computer technology courses taken in high school and gender.

\( H_{01B} \): There is no relationship between the number of business and/or computer technology courses taken in high school and culture.

\( H_{01C} \): There is no relationship between the number of courses business and/or computer technology courses taken in high school and primary parent salary.

\( H_{01D} \): There is no relationship between the number of courses business and/or computer technology courses taken in high school and source of school funding.

\( H_{01E} \): There is no relationship between the number of courses business and/or computer technology courses taken in high school and residential neighborhood setting.
\( H_{01F} \): There is no relationship between the number of business and/or computer technology courses taken in high school and the level of perceived barriers.

\( H_{01G} \): There is no relationship between the number of business and/or computer technology courses taken in high school and the level of commitment to career.

\( H_{01H} \): There is no relationship between the number of business and/or computer technology courses taken in high school and the level of academic work ethic.

\( H_{02} \): There is no relationship between the total number of perceived barriers and culture.

**Research Design**

The purpose of this study was to identify the factors, which influence the subject selection of students who chose to take business and/or computer technology courses in high school. This study investigated the relationships between the total number of business and/or computer technology courses taken in high school during ninth thru twelfth grades by the participants and the factors that affect that choice. The following model is a symbolic representation of the relationship between the dependent and independent variables: \( Y = f (x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8) \).

The dependent variable (\( Y \)) represented the total number of business and/or computer technology courses taken. The dependent variable in this study was operationally defined as the total number of business and computer technology courses taken in ninth thru twelfth grades, and ranged from an expected low of 0 to an expected high of 14 courses. The dependent variable was collected utilizing the researcher developed self-report Business/Computer Technology Majors College Student Survey.
The variable was measured as a continuous variable ranging from 0 (no classes taken) to 14 classes taken. These results were used to identify the level of career exploration participants engaged in within their high school career: ninth thru twelfth grades.

The independent variables were gender, culture, primary parent salary, source of school funding, residential neighborhood setting, level of perceived barriers, commitment, and academic work ethic. Data regarding all of the variables were collected utilizing the self-report Business/Computer Technology Majors College Student Survey.

Gender (x1) was operationally defined as the biological condition of being a male or female human being. In the data analysis, one dummy variable was constructed. This dichotomous variable was coded as a 1 for female and 0 for male. These results were used to identify differences between the perceptions of the two sexes regarding the subject/course selection process.

Culture (x2) was operationally defined as the body of customary beliefs, social forms, and material traits constituting a distinct complex of tradition of a racial, religious, or social group. In the data analysis, two dummy variables were constructed. The dichotomous results were recoded into dummy variables where African American was coded as 1, African Caribbean was coded as 1, and other cultures were coded as 0 for both. These variables were used to identify differences between the perceptions of African American and African Caribbean students regarding the subject/course selection process.

Salary (x3) was operationally defined as the average wage applied to the occupation of the parent who is the principle wage earner of the household. Utilizing
the U.S. Department of Labor Bureau of Labor Statistics' Occupational Outlook Handbook: 2000-01 Edition, the reported occupation of the parent was used to determine the salary level. This resulted in a measure of the average salary figure that corresponds with the occupation of the primary wage earner. This was a continuous variable. Consequently, these results were used to identify the differences among the salaries regarding the course subject/selection process.

Source of school funding (x4) was operationally defined as the inclusive (funds paid by tax payers) or exclusive (funds paid above and beyond taxes) nature of the entity, which generates and allocates the revenue used to support the academic curriculum. In the data analysis, a dichotomous variable was constructed where public funding was coded as 1 and private funding was coded as 0. These results were used to identify differences between private and public school funding regarding the subject/selection process.

Residential neighborhood setting (x5) was operationally defined as the geographical area in which a school is located. In the data analysis, two dummy variables were constructed. The data was recoded as follows: urban was coded as 1, suburban was coded as 1; otherwise the data was recoded as 0. These results were used to identify the differences between urban, suburban, and rural geographical locations regarding the course subject/selection process.

Level of perceived barriers (x6) was operationally defined as anything which confines, limits or hinders access to the student’s choice of career. The continuous results were measured utilizing a series of Likert Scales ranging from 0 (not an issue) to 10 (an important issue), and the responses to all eleven scales were summed, resulting in
an index ranging from 0 to 110. This index was a continuous variable. The results were used to identify the impediments, which affect the course selection process.

Level of commitment to career (x7) was operationally defined as a strong and pervasive sense of attachment to a set beliefs, ideas, and future directions. The results were measured utilizing a Likert Scale ranging from 0 (not an issue) to 10 (an important issue). This was a continuous variable. These results were used to identify the level of the respondents’ commitment related to the subject/selection process.

Level of academic work ethic (x8) was operationally defined as the manner, style, quality, and rate in which a student exerts mental and physical energy towards his/her academic work. The results were measured utilizing a Likert Scale ranging from 0 (not an issue) to 10 (an important issue). These results were used to identify the level of the respondents’ scholastic focus and responsibility related to the subject/selection process.

Instrumentation

The researcher developed an instrument: The Business/Computer Technology Majors College Student Survey (Appendix B). This nine-question survey consisted of five demographic questions and four Likert Scale questions as described above. Appendix A contains a copy of the consent form. The survey instrument was field-tested first through a pilot study. This trial test was conducted to yield a limited number of participants’ feedback concerning the instrument’s construct validity-appropriateness, meaningfulness, and usefulness- and deficiencies as well as solicit suggestions for improvement. First, the researcher administered the Survey to one class of students who possessed similar sample characteristics of those of the general sample
population. Second, the researcher reviewed the responses of the entire class. Third, in an attempt to identify deficiencies and to ensure that the responses were valid, the researcher evaluated the responses of a sub-sample of five students, discussing the content of the Survey. The administration of the pilot test yielded a few questions regarding the differentiation of the two stated cultures, a more specific definition of the primary earner’s occupation, and the specific method of scaling regarding the individual perceived barriers. The researcher addressed all of the participants’ inquiries. Constructive feedback was offered concerning the differences between the level of barriers African Americans and African Caribbeans perceive respectively. Finally, based on the results of the pre-test, the researcher made the necessary changes to ensure that the instrument represented the conceptual domain and content validity necessary to render valid results.

Sample

A cluster sampling technique was used in which all members of the sample belonged to an existing population consisting of students who are majoring in business or computer technology at Florida Memorial College. Subjects were selected from the business and computer departments at Florida Memorial College. A total of 117 college students of African descent participated in this study. This population was selected for the following three reasons: (1) the subjects were of African American and African Caribbean descent, (2) the subjects were all high school graduates, and (3) the subjects were all currently enrolled in college. The subjects were recruited from students currently enrolled in summer school business or computer technology courses such as
Introduction to Programming, Systems Analysis and Design, Principles of Management, Personnel Management, and Principles of Insurance. The instrument described above was administered.

Initially, a meeting was held to discuss the nature of the research and to request permission to conduct this research on Florida Memorial College’s campus, utilizing students from the schools of business administration and computer sciences. After clearance was granted, the researcher met with the designated business and computer technology professors whose classes were surveyed to discuss the nature of the research, the survey, and the consent forms. The researcher visited various business administration and computer science summer classes to inform the study participants of the purpose, importance, and significance of the study and deliver a general overview of the research topic and to administer-explain, distribute, and collect- the Student/Subject Consent Forms (See Appendix A) and the College Students Business/Computer Technology Major Survey (Appendix B). Each group of subjects was assured that all responses would be kept strictly confidential. In addition, study participants were asked to answer any questions honestly and to direct all questions to the researcher. Thereafter, the surveys were administered during one session within a classroom environment by the designated professors and the researcher. The researcher personally collected the completed Surveys from the participants in an attempt to elevate the response rate and control the attrition rate. The researcher extended the invitation to share the results of the study when completed.
Data Analysis

The data collected by use of the survey was analyzed using the Statistical Package for the Social Sciences (SPSS) 10.0 procedures to test the hypotheses and examine each null hypothesis according to gender, culture, source of funding, level of perceived barriers, level commitment, level of academic, and level of work ethic. The discrete variables in this study were gender, culture, source of funding, and residential neighborhood setting. Dummy variables were used to test for the unique effect of discrete variables as appropriate. The continuous variables in this study were the average salary applied to the occupation of the parent who is the principle wage earner of the household, the level of perceived barriers, the total number of business and/or computer technology courses taken, the level of commitment, and the level of academic work ethic.

Multiple regression analysis was used to test null hypothesis one and a t-test was used to test null hypothesis two. Initially, the data obtained in this study was analyzed using descriptive statistics such as frequencies of discrete variables and measures of central tendency for continuous variables. A frequency distribution for each variable was constructed to show how many subjects have each score. For continuous variables, the mean was calculated to report the arithmetic average of the independent variables. The median was calculated to report the mid-point score within a distribution of data in a sequence. The mode was reported to document the most frequently occurring score(s) within a distribution of data. The standard deviation was calculated to measure the variance of the scores around the mean. The range was calculated to identify the difference between the highest score and the lowest score. Pearson product-moment
correlation (r), which indicates the positive or negative relationship of the variables, was derived to explore the relationships between the variables. The data was then analyzed through the use of Multiple Regression Analysis. This method of analysis identified the relationship among the independent variables and the dependent variables.

The $R^2$ (coefficient of determination) was calculated to express the total amount of variance of the dependent variable, explained by the set of the independent variables. The F statistic was also calculated. This statistic indicates the level of statistical significance of the relationship between the set of independent variables and the dependent variable. The statistical analysis also produced the standardized coefficient of determination (B- Beta weight), which identified the strength, direction, and statistical significance of the relationships between the dependent variables and the unique contribution of each of the independent variables. This statistic demonstrates to the researcher how much of the variance of the dependent variable was accounted for uniquely by each of the independent variables. Beta weights were also used to render the absolute value of the magnitude and strength of each independent variable. The ‘t’ statistic was calculated for each independent variable. The level of significance of each independent/dependent variable relationship was calculated. The $p = .05$ alpha level was set for all analyses. The null hypotheses were rejected at this level. Visual aides such as tables were utilized to display the results of the data analysis.

The researcher believes that the results of this study will expand the existing knowledge base of career/vocational advisement through its interjection of ethnographic variables, which historically, have been ignored. The researcher also believes that practitioners will be able to take this information and apply it to existing research in an
attempt to better understand the conceptual view of this dilemma. Additionally, policy makers will be able to utilize this information to further construct relevant, suitable, and constructive curriculums, which are culturally based.
CHAPTER IV
Results of the Study

Introduction

In this chapter, the descriptive statistics of the sample, the statistical analyses, and the research findings of this study are discussed. Two general null hypotheses and eight null sub-hypotheses were examined and analyzed using frequency distributions, descriptive statistics, correlation analyses, Pearson product-moment correlations, a cross tabulation, multiple regression analysis, and a t-test.

This study examined the factors that affect the selection process of the total number of business and/or computer technology courses taken. The factors that may affect this choice include gender, culture, primary parent salary, source of school funding, residential neighborhood setting, perceived barriers, career commitment, and academic work ethic. The sample consisted of 117 African American and African Caribbean students. College students at Florida Memorial College in Miami, Florida were surveyed utilizing the Business/Computer Technology Majors College Student Survey. The data was collected during the 2001 summer semester.

The data from the respondents was tabulated using Microsoft Excel and analyzed using SPSS in order to provide a complete picture of each null hypothesis and null sub-hypotheses and to highlight any differences and similarities between and within ethnic groups. Additional information regarding the description of each cultural group was gathered through a cross-tabulation with selected demographic variables. The ethnic subgroups were further analyzed in the study to determine whether there were any
differences between each group in how they responded to the questions regarding the perceptions of barriers.

Restatement of the Purpose of Study

The purpose of this research was to identify the factors, which influence the high school subject selection of students of African descent who chose to take business and/or computer technology courses in high school. This study describes the survey responses with regard to the influence of gender, culture, salary, source of school funding, residential neighborhood setting, perceived barriers, career commitment, and academic work ethic. The information obtained in this study will be used to further identify, understand, and address the relevant issues, which should be considered during the career decision-making process, and their relative importance to the articulation process between high school and college.

The empirical focus of this study was to test the following two null hypotheses and eight sub-null hypotheses:

\( H_{01} \): There is no relationship between the number of business and/or Computer technology courses taken in high school and the following factors that affect that decision: gender, culture, primary parent salary, source of school funding, residential neighborhood setting, level of perceived barriers, commitment, and academic work ethic.

\( H_{01A} \): There is no relationship between the number of courses business and/or computer technology courses taken in high school and gender.
$H_{01B}$: There is no relationship between the number of business and/or computer technology courses taken in high school and culture.

$H_{01C}$: There is no relationship between the number of business and/or computer technology courses taken in high school and primary parent salary.

$H_{01D}$: There is no relationship between the number of business and/or computer technology courses taken in high school and source of school funding.

$H_{01E}$: There is no relationship between the number of business and/or computer technology taken in high school courses and residential neighborhood setting.

$H_{01F}$: There is no relationship between the number of business and/or computer technology taken in high school courses and the level of perceived barriers.

$H_{01G}$: There is no relationship between the number of business and/or computer technology courses taken in high school and level of commitment to career.

$H_{01H}$: There is no relationship between the number of business and/or computer technology courses taken in high school and level of academic work ethic.

$H_{02}$: There is no relationship between the total number of perceived barriers and culture.

Data Analysis

Frequency Distribution and Descriptive Statistics

Responses to the Business/Computer Technology Majors College Student Survey were analyzed using descriptive and multivariate statistics. The following descriptive statistics were reported for each independent variable: mean, standard deviation, minimum, maximum, skewness, and kurtosis.
A total of 117 students participated in this study (see Table 1). Of the 117
subjects, 70.9% (n=83) were women and 29.1% (n=34) were men. Those of African
American heritage accounted for 49.6% (n= 58) of the sampled population and those of
African Caribbean heritage accounted for 50.4% (n=59) of the sampled population. In
high school, 90.6% (n=106) of the subjects attended publicly funded educational
institutions and 9.4% (n=11) attended privately funded schools. In high schools, 70.01%
(n=82) of the subjects attended school in an urban environment, 10.3% (n=12) attended
school in a rural environment, and 19.69% (n=23) attended school in a suburban
environment.

The frequency analysis of the independent variable culture, yielded the following
results, 49.6% (n=58) of the total population of this study was of African American
heritage and 50.4% (n=59) were of African Caribbean heritage (see Table 1).

The frequency analysis of the independent variable source of funding, yielded the
following results, in high school, 90.6% (n=106) of the subjects attended publicly
funded educational institutions and 9.4% (n=11) attended privately funded schools (see
Table 1).

The frequency analysis of the independent variable residential setting, yielded the
following results: in high schools, 70.01% (n=82) of the subjects attended school in an
urban environment, 10.3% (n=12) attended school in a rural environment, and 19.69%
(n=23) attended school in a suburban environment (see Table 1).

The frequency analysis of the discrete variables yielded fairly even numbers
regarding the two cultures. On the contrary, the frequency analyses of the discrete
variables revealed that most of the subjects surveyed resided in an urban residential environment and attended public schools.

The frequency analysis of null hypothesis $H_{01}$, dependent variable total number of total number of business/computer technology courses taken- yielded the following results. This dependent variable ranged from a minimum of 0 to a maximum of 14 with a mean of 4.11, standard deviation of 3.04, skewness of 1.504, and a kurtosis of 2.459. The mean score for African American subjects regarding the variable total number of total number of business/computer technology courses taken was 4.07 with a standard deviation of 3.03 (see Table 3). The mean score for African Caribbean subjects regarding the variable total number of business/computer technology courses taken was 4.15 with a standard deviation of 3.08.

The frequency analysis of null sub-hypothesis $H_{01C}$, the independent variable primary parent salary, yielded the following results. The variable total annual average primary parent salary of the subjects ranged from a minimum of $13,248 to a maximum of $95,100. The mean score of this variable was $38,086.61 with a standard deviation of $21,389.04, a skewness of 1.369, and a kurtosis of 1.172. The variable average primary parent salary of the African American subjects was $36,039.25 while the average salary of the African Caribbean subjects was $40,252.08.
### Table 1

**Frequency Distribution: Discrete Variables**  \( N = 117 \)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>58</td>
<td>49.6%</td>
</tr>
<tr>
<td>African Caribbean</td>
<td>59</td>
<td>50.4%</td>
</tr>
<tr>
<td>Source of Funding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publicly Funded</td>
<td>106</td>
<td>90.6%</td>
</tr>
<tr>
<td>Private Funded</td>
<td>11</td>
<td>9.4%</td>
</tr>
<tr>
<td>Environmental Setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Setting</td>
<td>82</td>
<td>70.01%</td>
</tr>
<tr>
<td>Rural Setting</td>
<td>12</td>
<td>10.3%</td>
</tr>
<tr>
<td>Suburban Setting</td>
<td>23</td>
<td>19.69%</td>
</tr>
</tbody>
</table>

\( n = \) number in subsample
The frequency analysis of the null sub-hypothesis $H_{01G}$, the independent variable level of commitment to career, yielded the following results. The variable level of commitment to career ranged from a minimum of 0 to a maximum of 10. The overall mean score of career commitment was 6.64 with a standard deviation of 3.07, skewness of -.835, and a kurtosis of -.272. The mean score of African American subjects regarding career commitment level was 6.79 with a standard deviation of 3.04. The mean score of African Caribbean subjects regarding career commitment was 6.49 with a standard deviation of 3.11.

The frequency analysis of the null hypothesis $H_{01H}$, the independent variable level of academic work ethic, yielded the following results. The variable level of academic work ethic ranged from a minimum of 0 to a maximum of 10. The overall mean score for the variable academic work ethic was 7.33 with a standard deviation of 2.03, a skewness of -1.217, and a kurtosis of 2.205. The mean score for African American subjects regarding academic work ethic was 7.38 with a standard deviation of 1.83. The mean score for African Caribbean subjects regarding academic work ethic was 7.28 with a standard deviation of 2.22.
Table 2

Descriptive Statistics: Total Continuous Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B&amp;T Courses</td>
<td>0</td>
<td>14</td>
<td>4.11</td>
<td>3.04</td>
<td>1.504</td>
<td>2.459</td>
</tr>
<tr>
<td>Salary</td>
<td>$13,248</td>
<td>$95,100</td>
<td>$38,086</td>
<td>$21,389</td>
<td>1.369</td>
<td>1.172</td>
</tr>
<tr>
<td>Barriers</td>
<td>0</td>
<td>108</td>
<td>45.09</td>
<td>26.93</td>
<td>-.051</td>
<td>-.871</td>
</tr>
<tr>
<td>Commitment</td>
<td>0</td>
<td>10</td>
<td>6.64</td>
<td>3.07</td>
<td>-.835</td>
<td>-.272</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>0</td>
<td>10</td>
<td>7.33</td>
<td>2.03</td>
<td>-1.217</td>
<td>2.205</td>
</tr>
</tbody>
</table>

Min. = minimum number of the range
Max. = maximum number of the range
M = arithmetic average
SD = standard deviation
B & T = business & computer technology courses taken
Table 3

Culturally Based Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>African American</th>
<th>African Caribbean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Salary</td>
<td>$36,039$</td>
<td>$19,995$</td>
</tr>
<tr>
<td>Commitment</td>
<td>6.79</td>
<td>3.04</td>
</tr>
<tr>
<td>Work Ethic</td>
<td>7.38</td>
<td>1.83</td>
</tr>
</tbody>
</table>

$M$ = arithmetic average  
$SD$ = standard deviation  
$M$ diff. = mean difference between African American and African Caribbean subjects
Individual analysis of the independent variable, the total number of perceived barriers, rendered the following results (see Table 4). All of the perceived barriers ranged from 0 to 10. The mean score of the variable sexism for the entire population was 3.18 with a standard deviation of 3.52, a skewness of .673, and a kurtosis of -.951. The mean score of the African American subjects for this variable was 3.3 with a standard deviation of 3.66. The mean score and standard deviation of African Caribbean subjects regarding sexism was 3.03 with a standard deviation of 3.41. The mean score of the variable tokenism for the entire population was 2.54 with a standard deviation of 3.17, a skewness of .894, and a kurtosis of -.491 (see Table 4). The mean score of tokenism for African American subjects was 2.59 with a standard deviation of 3.23. The mean score of African Caribbean subjects for tokenism was 2.49 with a standard deviation of 3.13 (see Table 5).

The mean score of the variable racism for the entire population was 4.08 with a standard deviation of 3.78, a skewness of .296, and a kurtosis of -1.388. The mean score of racism for African American subjects was 4.78 with a standard deviation of 3.94. The mean score of racism for African Caribbean subjects was 3.39 with a standard deviation of 3.52. The mean score of the variable lack of fellow representation was 4.03 with a standard deviation of 3.66, a skewness of .237, and a kurtosis of -1.428. The mean score of lack of fellow representation of African American subjects was 4.62 and with a standard deviation of 3.7. The mean score of lack of fellow representation of African Caribbean subjects was 3.44 with a standard deviation of 3.56. The mean score of the variable acculturation was 3.28 with a standard deviation of 3.37, a skewness of .484, and a kurtosis of -1.194 (see Table 4). The mean score of acculturation for African
American subjects was 3.52 with a standard deviation of 3.49. The mean score of acculturation for African Caribbean subjects was 3.05 with a standard deviation of 3.26 (see Table 5).

The mean score of socialization for the entire population was 5.15 with a standard deviation of 3.65, a skewness of -.112, and kurtosis of -1.362. The mean score of socialization for African American subjects was 5.62 with a standard deviation of 3.79. The mean score of socialization for African Caribbean subjects was 4.68 with a standard deviation of 3.47. The mean score of the variable inclusion was 4.27 with a standard deviation of 3.56, a skewness of .141, and a kurtosis of -1.373. The mean score of inclusion for African American subjects was 4.57 with a standard deviation of 3.69. The mean score of inclusion for African Caribbean subjects was 3.98 with a standard deviation of 3.43. The mean score of the variable exclusion was 3.93 with a standard deviation of 3.56, a skewness of .334, and a kurtosis of -1.258 (see Table 4). The mean score of exclusion for African American subjects was 4.33 with a standard deviation of 3.62. The mean score of exclusion for African Caribbean subjects was 3.54 with a standard deviation of 3.48 (see Table 5).

The mean score of the variable access to information for the entire population was 5.34 with a standard deviation of 3.92, a skewness of -.208, and a kurtosis of -1.515. The mean score of access to information for African Americans was 6.16 with a standard deviation of 3.88. The mean score of access to information for African Caribbean subjects was 4.54 with a standard deviation of 3.82. The mean score of the variable access to mentors was 4.78 with a standard deviation of 3.79, a skewness of -.024, and a kurtosis of -1.471. The mean score of access to mentors for African American subjects was 5.16 with a standard deviation of 3.94. The mean score of access to mentors for African Caribbean subjects was 4.39 with a standard deviation of 3.82.
American subjects was 5.26 with a standard deviation of 3.85. The mean score of access to mentors for African Caribbean subjects was 4.31 with a standard deviation of 3.70. The mean score of the variable glass ceiling effect for the entire population was 4.52 with a standard deviation of 3.78, a skewness of .073, and a kurtosis of -1.463 (see Table 4). The mean score of glass ceiling effect for African American subjects was 4.95 with a standard deviation of 3.80. The mean score of glass ceiling effect for African Caribbean subjects was 4.10 with a standard deviation of 3.74 (see Table 5).

In summary, the statistics above yielded scores, which revealed important elements of stratification and differential treatment, with which many people of African descent must contend within and out of the workforce. Furthermore, Walsh (2001) states that race and sex stratification along with various other occupational barriers often affect identity and coping, with likely career counseling and development implications. Feich (1993) recognized that self-concept and career maturity may not influence the choices of the students, but they may help indicate characteristics that influence career choice.

In addition, relative differences between African American and African Caribbean subjects were identified regarding individual barriers. An analysis of descriptive statistics yielded the following results (see Table 5). The reported means and standard deviations of the variable racism for African American ($M = 4.78$, $SD = 3.94$) and African Caribbean ($M = 3.39$, $SD = 3.52$) subjects yielded a relative difference of $M = 1.19$ and $SD = .42$. The reported means and standard deviations of the variable lack of fellow representation for African American ($M = 4.62$, $SD = 3.70$) and African Caribbean
Table 4

Total Individual Perceived Barriers Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min.</th>
<th>Max.</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexism</td>
<td>0</td>
<td>10</td>
<td>3.18</td>
<td>3.52</td>
<td>.673</td>
<td>.951</td>
</tr>
<tr>
<td>Tokenism</td>
<td>0</td>
<td>10</td>
<td>2.54</td>
<td>3.17</td>
<td>.894</td>
<td>-.491</td>
</tr>
<tr>
<td>Racism</td>
<td>0</td>
<td>10</td>
<td>4.08</td>
<td>3.78</td>
<td>.296</td>
<td>1.388</td>
</tr>
<tr>
<td>Representation</td>
<td>0</td>
<td>10</td>
<td>4.03</td>
<td>3.66</td>
<td>.237</td>
<td>-1.428</td>
</tr>
<tr>
<td>Acculturation</td>
<td>0</td>
<td>10</td>
<td>3.52</td>
<td>3.49</td>
<td>.484</td>
<td>-1.194</td>
</tr>
<tr>
<td>Socialization</td>
<td>0</td>
<td>10</td>
<td>5.62</td>
<td>3.79</td>
<td>-.112</td>
<td>-1.362</td>
</tr>
<tr>
<td>Inclusion</td>
<td>0</td>
<td>10</td>
<td>4.27</td>
<td>3.56</td>
<td>.141</td>
<td>-1.373</td>
</tr>
<tr>
<td>Exclusion</td>
<td>0</td>
<td>10</td>
<td>3.93</td>
<td>3.56</td>
<td>.334</td>
<td>-1.258</td>
</tr>
<tr>
<td>Access I</td>
<td>0</td>
<td>10</td>
<td>5.34</td>
<td>3.92</td>
<td>-.208</td>
<td>-1.515</td>
</tr>
<tr>
<td>Access M</td>
<td>0</td>
<td>10</td>
<td>4.78</td>
<td>3.79</td>
<td>-.024</td>
<td>-1.471</td>
</tr>
<tr>
<td>Glass Ceiling E</td>
<td>0</td>
<td>10</td>
<td>4.52</td>
<td>3.78</td>
<td>.073</td>
<td>-1.463</td>
</tr>
</tbody>
</table>

Min. = minimum number of the range
Max. = maximum number of the range
M = arithmetic average
SD = standard deviation
(M = 3.44, SD = 3.56) subjects rendered a relative difference of M = 1.18 and SD = .14 (see Table 5).

The reported means and standard deviations of the variable socialization for African American (M = 5.62, SD = 3.79) and African Caribbean (M = 4.68, SD = 3.47) subjects yielded a relative difference of M = .94 and SD = .32. The reported means and standard deviations of the variable accessibility to information for African American (M = 6.16, SD = 3.88) and African Caribbean (M = 4.54, SD = 3.82) subjects rendered a relative difference of M = 1.62 and SD = .06. The reported means and standard deviations of the variable access to mentors for African American (M = 5.26, SD = 3.85) and African Caribbean (M = 4.31, SD = 3.70) subjects yielded a relative difference of M = .95 and SD = .15 (see Table 5).

The results above yield scores, which indicate relative differences in the perception of African American and African Caribbean participants regarding this specific group of occupational barriers. Moreover, African American subjects attribute higher levels of occupational threat to racism, lack of representation, accessibility to information, and access to mentors. “This may be attributed to the “cultural war” that perpetuates a climate of racism and xenophobia in American and other Western societies which is intended to kill any hope for empowerment among the historically oppressed” (Zou & Trueba, 1998, p.2).
### Table 5
Descriptive Statistics: Culturally Based Individual Perceived Barriers

<table>
<thead>
<tr>
<th>Variable</th>
<th>African American</th>
<th></th>
<th>African Caribbean</th>
<th></th>
<th>M diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Sexism</td>
<td>3.33</td>
<td>3.66</td>
<td>3.03</td>
<td>3.41</td>
<td>.30</td>
</tr>
<tr>
<td>Tokenism</td>
<td>2.59</td>
<td>3.23</td>
<td>2.49</td>
<td>3.13</td>
<td>.10</td>
</tr>
<tr>
<td>Racism</td>
<td>4.78</td>
<td>3.94</td>
<td>3.39</td>
<td>3.52</td>
<td>1.39</td>
</tr>
<tr>
<td>Lack of Rep.</td>
<td>4.62</td>
<td>3.70</td>
<td>3.44</td>
<td>3.56</td>
<td>1.18</td>
</tr>
<tr>
<td>Acculturation</td>
<td>3.52</td>
<td>3.49</td>
<td>3.05</td>
<td>3.26</td>
<td>.47</td>
</tr>
<tr>
<td>Socialization</td>
<td>5.62</td>
<td>3.79</td>
<td>4.68</td>
<td>3.47</td>
<td>.94</td>
</tr>
<tr>
<td>Inclusion</td>
<td>4.57</td>
<td>3.69</td>
<td>3.98</td>
<td>3.43</td>
<td>.59</td>
</tr>
<tr>
<td>Exclusion</td>
<td>4.33</td>
<td>3.62</td>
<td>3.54</td>
<td>3.48</td>
<td>.79</td>
</tr>
<tr>
<td>Access I</td>
<td>6.16</td>
<td>3.88</td>
<td>4.54</td>
<td>3.82</td>
<td>1.62</td>
</tr>
<tr>
<td>Access M</td>
<td>5.26</td>
<td>3.85</td>
<td>4.31</td>
<td>3.70</td>
<td>.95</td>
</tr>
<tr>
<td>Glass Ceiling</td>
<td>4.95</td>
<td>3.80</td>
<td>4.10</td>
<td>3.74</td>
<td>.85</td>
</tr>
</tbody>
</table>

**M** = arithmetic average  
**SD** = standard deviation  
**M diff.** = mean difference between African American and African Caribbean subjects
Crosstabulation of Variables

One cross-tabulation analysis was conducted using two independent variables: sex and culture (see Table 6). The results of this cross-tabulation identified the following. There were a total of 117 subjects: 34 (29.1%) were male and 83 (70.9%) were female. Of the 34 males, 20 (58.8%) were African American and 14 (41.2%) were African Caribbean. Of the 83 females, 38 (45.8%) were African American and 45 (54.2%) were African Caribbean.
Table 6

Sex/Culture Crosstabulation

<table>
<thead>
<tr>
<th>Culture/Male</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American Men</td>
<td>20</td>
<td>58.8%</td>
</tr>
<tr>
<td>African Caribbean Men</td>
<td>14</td>
<td>41.2%</td>
</tr>
<tr>
<td>Total Men</td>
<td>34</td>
<td>29.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Culture/Female</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American Women</td>
<td>38</td>
<td>45.8%</td>
</tr>
<tr>
<td>African Caribbean Women</td>
<td>45</td>
<td>54.2%</td>
</tr>
<tr>
<td>Total Women</td>
<td>83</td>
<td>70.9%</td>
</tr>
</tbody>
</table>

Total number of subjects (N) 117 100%

* p < .01
** p < .05

n = number in a subsample
Correlations of Variables

A Pearson product moment correlation coefficient analysis was conducted to identify any empirical relationships between the continuous variables (see Table 7). At the .01 significance level, the analysis rendered a positive statistically significant correlation score of .311* for the variables total number of business/computer technology courses taken and level of commitment to career. The positive statistically significant effect of the dependent variable total number of business/computer technology courses taken on the independent variable level of commitment to career revealed the prediction that as the total number of business/computer technology courses taken increase, the level of career commitment also increases (see Table 7).

At the .01 significance level, the analysis rendered a positive statistical correlation score of .313* for the variables total number of barriers and level of level of commitment to career. The positive statistically significant effect of the independent variable total number of perceived barriers on the independent variable level of commitment to career revealed the predication that as total number of perceived barriers increases, the level of career commitment also increases (see Table 7).

At the .01 significance level, the analysis rendered a positive statistical correlation score of .276* regarding the independent variables level of commitment to career and academic work ethic. The positive statistically significant effect of the independent variables level of commitment to career and academic work ethic revealed the predication that as the level of career commitment increases, the level of work ethic also increases (see Table 7).
Table 7

Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total #</th>
<th>Average Salary</th>
<th>Total Barriers</th>
<th>Commitment</th>
<th>Work Ethic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total #</td>
<td>1.000</td>
<td>-.013</td>
<td>.124</td>
<td>.311**</td>
<td>.113</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.994</td>
<td>.181</td>
<td>.001</td>
<td>.226</td>
</tr>
<tr>
<td>Average Salary</td>
<td>-.013</td>
<td>1.000</td>
<td>-.127</td>
<td>-.141</td>
<td>-.140</td>
</tr>
<tr>
<td></td>
<td>.994</td>
<td>.191</td>
<td>.149</td>
<td>.151</td>
<td></td>
</tr>
<tr>
<td>Total Barriers</td>
<td>.124</td>
<td>-.127</td>
<td>1.000</td>
<td>.313**</td>
<td>-.023</td>
</tr>
<tr>
<td></td>
<td>.181</td>
<td>.191</td>
<td>.001</td>
<td>.085</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>.311**</td>
<td>-.141</td>
<td>.313**</td>
<td>1.000</td>
<td>.276**</td>
</tr>
<tr>
<td></td>
<td>.001</td>
<td>.149</td>
<td>.001</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>Work Ethic</td>
<td>.113</td>
<td>-.140</td>
<td>-.023</td>
<td>-.276**</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>.226</td>
<td>.151</td>
<td>.805</td>
<td>.003</td>
<td></td>
</tr>
</tbody>
</table>

* p < .01
** p < .05
Multiple Regression Analysis

A Multiple Regression Analysis was conducted. The regression analysis investigated the relationship between the dependent variable, number of Business and/or Computer technology courses taken, and the following set of independent variables which affect that decision: gender, culture, parent occupation, source of school funding, residential neighborhood setting, level of perceived barriers, commitment, and academic work ethic.

The overall results of the first multiple regression analysis for null hypothesis $H_0$ yielded a $R^2$ (coefficient of determination) of .119 indicating that this set of independent variables accounted for 11.9% of the variance of the dependent variable, leaving over 87.1% of the variance unaccounted for. The analysis also yielded an F statistic of 1.461, which indicated no statistical significance regarding the relationship between the dependent variable and the set of independent variables (see Table 8).

The results of the first multiple regression analysis were also analyzed to determine the unique effect of each independent variable on the dependent variable. The data collected from the subjects indicated that the independent variable gender $H_{01A}$ had a small negative effect ($B = -.011$, $t = -.111$, $p = .912$) on the dependent variable. However, the variable gender was not found to be statistically significant (see Table 8).

The Multiple Regression Analysis of null sub-hypothesis $H_{01B}$ investigated the relationship between the dependent variable number of business and/or computer technology courses taken in high school and the independent variable culture. The data collected from the African Caribbean subjects indicated that the independent variable culture had a small positive effect ($B = .036$, $t = .364$, $p = .716$) on the dependent
variable. However, the variable culture was not found to be statistically significant (see Table 7).

The Multiple Regression Analysis of null sub-hypothesis $H_{01C}$ investigated the relationship between the dependent variable number of business and/or computer technology courses taken in high school and the independent variable primary parent salary. The data collected from the subjects indicated that the independent variable salary had a small positive effect ($B = .041, t = .418, p = .677$) on the dependent variable. However, the variable salary was not found to be statistically significant (see Table 7).

The Multiple Regression Analysis of null sub-hypothesis $H_{01D}$ investigated the relationship between the dependent variable number of business and/or computer technology courses taken in high school and the independent variable source of school funding. The data collected from the subjects indicated that the independent variable source of school funding had a small negative effect ($B = -.003, t = .031, p = .975$) on the dependent variable. However, the variable source of school funding was not found to be statistically significant (see Table 7).

The Multiple Regression Analysis of null sub-hypothesis $H_{01E}$ investigated the relationship between the dependent variable number of business and/or computer technology courses taken in high school and the independent variable residential neighborhood setting. The data collected from the subjects indicated that the independent variables urban ($B = .075, t = .612, p = .542$) and suburban ($B = .060, t = .509, p = .612$) had small positives effect on the dependent variable. However, the variables urban and suburban were not found to be statistically significant (see Table 7).
The Multiple Regression Analysis of null sub-hypothesis $H_{01F}$ investigated the relationship between the dependent variable, number of business and/or computer technology courses taken in high school, and the independent variable, total level of perceived barriers. The data collected from the subjects indicated that the independent variable total level of perceived barriers had a small positive effect ($B = .025$, $t = .231$, $p = .818$) on the dependent variable. However, the variable perceived barriers was not found to be statistically significant (see Table 7).

The Multiple Regression Analysis of null sub-hypothesis $H_{01G}$ investigated the relationship between the dependent variable, number of business and/or computer technology courses taken in high school and the independent variable level of commitment. The analysis of the data collected from the subjects indicated that the independent variable total level of perceived barriers had a small positive statistically significant effect ($B = .307$, $t = 2.837$, $p = .006$) on the dependent variable, indicating that as the number of business and/or computer technology classes increases, the level of career commitment also increases (see Table 7).

The Multiple Regression Analysis of null sub-hypothesis $H_{01H}$ investigated the relationship between the dependent variable, number of business and/or computer technology courses taken in high school and the independent variable level of academic work ethic. The data collected from the subjects indicated that the independent variable academic work ethic had a small positive effect ($B = .043$, $t = .421$, $p = .675$) on the dependent variable. However, the variable academic work ethic was not found to be statistically significant (see Table 7).
Consequently, the overall Multiple Regression Analysis indicated that Null hypothesis $H_{01}$, and $H_{02}$ must be accepted. Likewise, null sub-hypotheses $H_{01A}$, $H_{01B}$, $H_{01C}$, $H_{01D}$, $H_{01E}$, $H_{01F}$, and $H_{01H}$ must be accepted. Conversely, null sub-hypothesis $H_{01G}$ must be rejected.
Table 8

Multiple Regression Analysis College Subjects (N = 117)

\[ R^2 = .119 \]
\[ F = 1.461 \]
\[ p = .173 \]

<table>
<thead>
<tr>
<th>Individual Variables</th>
<th>Beta</th>
<th>t</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.011</td>
<td>-.111</td>
<td>.912</td>
</tr>
<tr>
<td>African Caribbean</td>
<td>.036</td>
<td>.364</td>
<td>.716</td>
</tr>
<tr>
<td>Average Salary</td>
<td>.041</td>
<td>.418</td>
<td>.677</td>
</tr>
<tr>
<td>Public/Private Funding</td>
<td>-.003</td>
<td>-.031</td>
<td>.975</td>
</tr>
<tr>
<td>Urban Setting</td>
<td>.075</td>
<td>.612</td>
<td>.542</td>
</tr>
<tr>
<td>Rural Setting</td>
<td>.060</td>
<td>.509</td>
<td>.612</td>
</tr>
<tr>
<td>Total Perceived Barriers</td>
<td>.025</td>
<td>.231</td>
<td>.818</td>
</tr>
<tr>
<td>Career Commitment Level</td>
<td>.037</td>
<td>2.837</td>
<td>.006**</td>
</tr>
<tr>
<td>Academic Work Ethic</td>
<td>.043</td>
<td>.421</td>
<td>.675</td>
</tr>
</tbody>
</table>

* p < .01
** p < .05
The results of the analysis of null hypothesis \( H_02 \) follows in this section (see Table 9). Null hypothesis \( H_02 \) states that there is no relationship between the total number of perceived barriers and culture. The significance of the difference between the means of these two independent variables was analyzed utilizing a two-tailed t-test. The t-test analysis yielded a mean score of 49.71 with a standard deviation of 26.71 for African American subjects, and a mean score of 40.56 and standard deviation of 26.59 for African Caribbean subjects. Additionally, the analysis yielded a t statistic of 1.856 with a .066 level of significance, which indicated no statistical significance regarding the difference between the groups. Individual analysis of descriptive statistics yielded the following differences. The t-test rendered a mean difference of 9.15 with a standard deviation of .12 between African American and African Caribbean subjects regarding reported perceived barriers, with African American subjects reporting higher levels of perceived barriers relating to their chosen career choice. Therefore, the t-test analysis indicated that Null hypothesis \( H_02 \) must be accepted.
Table 9

Culture-based Group t-Test

\[
\begin{array}{cccc}
\text{Variable} & n & M & SD \\
\text{African American} & 58 & 49.71 & 26.71 \\
\text{African Caribbean} & 59 & 40.56 & 26.59 \\
\end{array}
\]

* p < .01
** p < .05
Summary

Two separate analyses were conducted to examine the impact that selected variables had on the course selection process of students of African descent. The variables were: gender, culture, primary parent salary, source of funding, residential setting, perceived barriers, career commitment, and academic work ethic. Analysis 1, Multiple Regression, used all independent variables, whereas Analysis 2, t-test, was restricted to two independent variables: total number of perceived barriers and culture. A crosstabulation and a correlation analysis were also conducted.

Due to the absence of statistical significance, the following null and sub-null hypotheses were not disproved and therefore they must be accepted. Moreover, the results of Analysis 1 Multiple Regression Analysis indicated that Null hypothesis Ho and Ho2, and null sub-hypotheses H01A, H01B, H01C, H01D, H01E, H01F, and H01H were not statistically significant. The researcher did find evidence of relative differences regarding the means of the two cultures studied regarding individual perceived barriers (see Table 4). Null sub-hypothesis H01G was found to have statistical significance and therefore must be rejected. This result supports the belief that as the level of career commitment increases, total number of business/computer technology courses taken also increases.

The results of Analysis 2, the culture-based t-test rendered a mean difference of 9.15 with a standard deviation of .12 between African American and African Caribbean subjects regarding reported perceived barriers, with African American subjects reporting higher levels of perceived barriers relating to their chosen career choice. Therefore, the t-test analysis indicated that Null hypothesis Ho2 must be accepted. However, the
researcher did find evidence of relative differences regarding the means of the two cultures studied regarding individual perceived barriers (Table 9).

The results of the surveys indicated that there were some differences in perception between African American students and African Caribbean students with regard to average salary, total perceived barriers, and individual perceived barriers. The difference in perceived barriers may be attributed to the difference in the length of time the two groups have experienced the ramifications of slavery, apartheid, discrimination, and oppression. The research indicates that both groups felt that there are genuine barriers, which must be considered during the stages of career establishment and development.
CHAPTER V

Conclusions

Introduction

Statement of the Problem Situation

Historically and presently, "African Americans, as a group, continue to pursue low skilled and social type professional occupations, while the demand for math, science, and technically related workers steadily rises" (Paul, 1998, p.1). In an increasingly technological society, mastery of math and science has become essential for accessing a wide range of desirable career options. "Since math-related course enrollment patterns help to determine the range of one’s career options, the continued under-representation of Blacks in math, science, and technical courses and occupations warrants serious attention" (Gainor, 1997, p. 1). While universities have instituted recruitment programs designed to increase the participation rates of women and minorities, enrollment continues to decline (Laughlin, 1993). If this trend persists, the employment opportunities will likely become increasingly limited for the Black and female populations (Paul, 1998).

A close examination of the literature suggests that "there has been few systematic studies of career development counseling focused on African Americans" (Brown & Pinterits, 2001, p. vii), let alone African Caribbeans. Existing theories, models, and research in the area of career development have not adequately addressed the factors and circumstances surrounding the career choices of workers of African descent (Paul,
1998). Therefore, “the larger multicultural counseling literature is drawn upon because very little appears in the empirical literature regarding multicultural issues of career development” (Walsh, et al., p. 12).

The purpose of this proposed research was to identify the relevant factors which influence the high school subject selection of Black students who chose to take business and/or computer technology courses in high school. This study investigated the relationships between the number of business and/or computer technology courses and the factors that affect those choices. The information obtained in this study will be used to further identify, understand, and address the relevant issues, which should be considered during the career decision-making process, along with their relative importance to the articulation process between high school and college.

**Methodology**

This study investigated the relationships between the total number of business and/or computer technology courses taken in high school during ninth thru twelfth grades by the participants and the factors that affect that choice. The following model is a symbolic representation of the relationship between the dependent and independent variables: \( Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8) \). The dependent variable (\( Y \)) representing the total number of business and/or computer technology courses taken. The dependent variable, total number of business and/or computer technology courses taken by the participants, was measured by the Business/computer technology Majors College Student Survey. The dependent variable was measured as a continuous variable ranging from 0 (no classes taken) to 14 classes taken. These results were used to
identify the level of career exploration participants engaged in during their high school career. The independent variables gender, (x1), culture (x2), primary parent salary (x3), source of school funding (x4), residential neighborhood setting (x5), level of perceived barriers (x6), level of commitment to career (x7), and level of academic work ethic (x8) was measured through self-report utilizing the Business/Computer Technology Majors College Study Survey.

The data was analyzed using the appropriate Statistical Package for the Social Sciences (SPSS) 10.0 procedures to test the hypotheses and examine each problem according to gender, culture, source of funding, level of perceived barriers, level commitment, level of academic, and level of work ethic. Statistics, such as means, standard deviations, ranges, frequencies, t, p, and F statistics were used to analyze the data. The .05 alpha level was set for all analyses; likewise, the null hypothesis was rejected at this level.

Summary and Conclusion of Findings

The following section summarizes and discusses the significance of the empirical findings, identifies the limitations of the study, and explores implications for future research.

The primary objective of this study was to examine the relationship between a) the total number of business and technology courses taken and a set of independent variables: gender, culture, primary parent salary, source of school funding, residential neighborhood setting, perceived barriers, career commitment, and academic work ethic, and b) to examine the relationship between the total number of perceived barriers and
culture. The data was further analyzed to determine if there were any significant differences between the African American and African Caribbean subjects, with regard to the level of individual perceived barriers and commitment.

Two separate analyses were conducted to examine the impact of selected variables had on the subject selection process of students of African descent. The independent variables were: gender, culture, primary parent salary, source of funding, residential setting, perceived barriers, career commitment, and academic work ethic. Multiple Regression Analysis 1 used all independent variables, whereas the culture-based t-test Analysis 2 was restricted to two independent variables: the total number of perceived barriers and culture. A crosstabulation and a correlation analysis were also conducted. The results of this study are as follows.

As scholars in vocational psychology and adolescent development have observed, one of the major development tasks of late adolescence and early adulthood is the commitment to the career choices process (Erickson, 1968; Harren, 1979; Jepsen, 1984; Super, 1957). This process, entailing the development and specification of vocational options, generally culminates into a strong attachment or commitment to one’s career choices (Gottfredson, 1981; Harren, 1979; Jordan & Heyde, 1979; Super, 1957; Tiedeman & O’Hara, 1963). Discussions with various groups of study participants rendered support for the above statement. In summary, many of the participants in this study expressed a positive attitude toward career/vocational education. This group of surveyed college students reported taking an average of four or more business and/or computer technology courses in high school with a higher than average career commitment score of 6.0 out of a maximum of ten.
Results from the Correlation Analysis support the previously cited studies. The positive statistically significant effect of the dependent variable, total number of business/computer technology courses taken, on the independent variable level of commitment to career suggested the predication that as total number of business/computer technology courses taken increase, the level of career commitment also increases.

Investigation of the effect of gender on career choice and decision-making is a comparatively recent development in the field of vocational psychology. Walsh et al. (2001) asserted that in recent years there has been growing concern regarding women’s low level of career achievement and changing life styles. This concern has resulted in the proliferation of research and some theoretical formulations designed to examine the social/psychological factors affecting women and their career choices. As interest and societal trends regarding women’s participation in the labor force have changed, the need to understand how women’s career behaviors are similar to or different from those of men has increased (Hammon, 1989). Research regarding sex differences yield that women have been shown to have generally lower self-efficacy expectations than men with regard to traditionally male occupations (Betz & Hackett, 1981; Wheeler, 1983). A number of studies have demonstrated the fact that this fact does not necessarily deter them from considering traditionally masculine-type professions (Clement, 1987). This study supports these findings. Though not statistically significant, the data collected from the subjects in this study indicated that gender had a small negative effect on the dependent variable total number of business and/or computer courses taken. However, 70.9% of the respondents were female in pursuit of business or computer technology.
degrees. Fifty-eight point five percent of the female respondents were of African American descent and 54.2% percent of the female respondents were of African Caribbean descent. The data suggests that some changes in gender differences related to career aspiration that may reflect on current social trends.

The study did not find statistically significant factors that affect the choices of this sample of students with regard to business and/or computer technology course selection, except null hypothesis \( H_{01G} \) regarding commitment. The findings of this research study indicate that collectively and individually, there are no statistically significant relationships between the overall null hypothesis \( H_{01} \) and the following seven null sub-hypotheses: the number of business and/or computer technology courses taken and the following factors that affect that decision: gender \( (H_{01A}) \), culture \( (H_{01B}) \), primary parent salary \( (H_{01C}) \), source of school funding \( (H_{01D}) \), residential neighborhood setting \( (H_{01E}) \), level of perceived barriers \( (H_{01F}) \), and academic work ethic \( (H_{01H}) \). Similarly, there was no statistically significant relationship between null hypothesis \( H_{02} \), total number of perceived barriers, and culture.

Conversely, null sub-hypothesis \( H_{01G} \) was found to have statistical significance and therefore must be rejected. This result supports the belief that the positive statistically significant effect of the independent variable, level of commitment to career, on the dependent variable, total number of business/computer technology courses taken, revealed the predication that as the total number of business/computer technology courses taken increase, the level of career commitment also increases. Verbal feedback from the study participants and the statistically analyzed data from this study supports Elliot’s (1998) research regarding job preparation.
Although two of the null and seven of the null sub-hypotheses were not rejected, the results of the analyses and surveys indicated that there were some relative differences in perception between African American students and African Caribbean students with regard to average primary parent salary, total perceived barriers, and individual perceived barriers. These differences in perceived barriers may be attributed to the difference in the length of time the two groups have experienced the ramifications of slavery, apartheid, discrimination, and oppression. Both groups felt that there are genuine barriers, which must be considered during the stages of career establishment and development. The results of the Correlation Analysis yielded similar results. Furthermore, the positive statistically significant effect of the independent variables total number of perceived barriers on the independent variable level of commitment to career supported the predication that as total number of perceived barriers increase, the level of career commitment also increase.

The present research, which indicates that the African American’s place in the social structure of the country, and other descendants of African groups, reflects the complexity of a people caught between two worlds (Black, 1997). “Virtually every writer addressing the career development and counseling of African Americans has pointed to the need to deal with racism and sexism” (Walsh, 2001, p. 9). Race or sex, however perceived, are important elements of stratification and differential treatment with which many people of African descent must contend. Furthermore, “race and sex stratification has also been found to affect ones identity and methods of coping” (Walsh, 2001, p. 9).
Previous research has revealed that whether career choices are based on occupational stereotyping or perceptions of the structure of opportunity; occupational choices are influenced by social images that depict White males in high prestige positions and African Americans and European American women in lower prestige positions (Pelham, 1979). Though not statistically significant, the study results support previously cited research, rendering a higher average percentage for the barriers sexism (13.7%), tokenism (14%), racism (14.5%), and socialism (15.4%) among African Americans and African Caribbean subjects. Thus, a social cognitive approach has been advocated as a means of increasing career-related expectations (Brown, 1995; Hackett & Byars, 1995; Lent et al., 1994). Utilizing such an approach, the expectations of African Americans can be modified by broadening their learning opportunities relevant to career-related experiences, teaching them how to effectively handle “isms,” increasing the availability and accessibility of certain types of mentor messages about success, providing more encouraging and empowering messages about success possibilities across the whole range of media, and reducing anxieties associated with succeeding in various social and behavioral contexts (Bowman, 1995; Hackett & Byars, 1996; Lent et al., 1994).

Zou & Trueba (1998) contend that the relationship between ethnic identity and power has important consequences in a modern world that is changing rapidly through global trends. The authors contend that the “cultural war” that perpetuates a climate of racism and xenophobia in American and other Western societies is intended to kill any hope for empowerment among the oppressed (Zou & Trueba, 1998, p.2). Due to the fact that race and sex stratification have been found to affect the identity and coping of
the affected groups (Walsh et al., 2001), the data supports present research which indicates that the African Americans’ place in the social structure of this country reflects the complexity of a people caught between two worlds (Black, 1997). Though not statistically significant, evidence of the above conclusions was supported by statements, which were expressed by both African American and African Caribbean males and females regarding various perceived barriers such as sexism, tokenism, acculturation inclusion, exclusion, and a glass ceiling effect. Relative differences were found regarding five areas regarding the following racism, lack of fellow representation, socialization, access to information, and access to mentors.

The results of Analysis 2 indicated that the t-test rendered a mean difference of 9.15 with a standard deviation of .12 between African American and African Caribbean subjects regarding reported perceived barriers, with African American subjects reporting higher levels of perceived barriers relating to their chosen career choice. However, this difference was not statistically significant. Therefore, the t-test analysis indicated that Null hypothesis $H_{02}$ must be accepted. However, the researcher did find evidence of relative differences regarding the means of the two cultures studied regarding individual perceived barriers.

The results of the surveys indicated that there were some differences in perception between African American students and African Caribbean students with regard to average primary parent salary, total perceived barriers, and individual perceived barriers. The difference in perceived barriers may be attributed to the difference in the length of time the two groups have experienced the ramifications of slavery, apartheid,
discrimination, and oppression. Both groups felt that there were genuine barriers, which must be considered during the stages of career establishment and development.

The Correlational Analysis yielded a positive statistically significant relationship between the independent variables level of commitment to career and academic work ethic. This result supports the notion that as the level of career commitment increases, the level of work ethic also increases.

**Significance for Theory and Practice**

The researcher believes that the results of this study will expand existing knowledge concerning factors, which affect the career exploration and level of commitment of Black students during their high school tenure. The researcher believes that within reasonably managed, career education infusion programs- that possess the appropriate components which significantly increase career-related, job-search knowledge- practitioners will be able to take this information and further explore additional avenues of inquiry related to Black students and commitment to career. Likewise, policy makers will be able to take this information and design suitable and constructive curriculums, which are culturally based. Scholars will also be able to take this information and further construct relevant theories, which are sensitive to the needs of this population.

**Limitations of the Study**

The results of this study were affected by concerns of external validity. One limitation of this study was that the focus was on students of African descent only.
Further, the subjects were selected from a homogeneous (historically Black college campus) and multicultural (ample representatives of both African American and African Caribbean subjects) sample set, the selection of subjects had an effect on the results. This focus restricted the ability of this study to be generalized to other minority groups such as the Hispanic, Asian, and the gay/lesbian populations. Another limitation centers around the fact that while there is a large amount of theoretical literature on Eurocentric career theory, the empirical work addressing ethnographic data has been scarce (Benton, 1994; Black, 1997). Additionally, since South Florida is a region of multiple diversities, the geographical and demographical dynamics of the sample population may have had an effect on the results. Finally, internal analyses of groups of independent variables could have been conducted.

**Implications for Future Research**

The office of Technology Policy, U. S. Department of Commerce, has prepared a detailed analysis of the technology workforce problem. The publication, American’s New Deficit: The Shortage of Information Technology Workers, points out the gap between the increasing demands of IT workers and the apparent inability of high schools, colleges, and universities to meet the demand (Skinner, 1998). The challenge to high schools and colleges is to graduate students competent in the skills needed in today’s manufacturing and technological climate. Studies have shown that the demand for skilled workers in today’s economy is greater than the numbers of students currently enrolled in vocational technology schools or college prep courses (Smith, 1998). Because business partnerships are so concerned about the quality of their workers,
school-business partnerships improve career opportunities for students and provide capable, skilled workers to fill openings in the workforce (Business Education Forum, 1993). In an era of skilled labor shortages, companies are scouting high schools to find their future employees, according to a recent study conducted by an international outplacement firm based in Chicago (Challenger, Gray & Christmas, Inc., 1997). School-business partnerships will continue to increase in the future, leading to more and more specialized career training programs in high schools, colleges and universities (Smith, 1998).

Innovative schools, which exercise educational reform through the implementation of business partnerships and computer technology programs on an integrated school-wide basis, will begin to address the appropriate roles of business and high technology in education. These programs will afford students the opportunity to investigate concepts and technology across the entire curriculum, thus provide the application side of core programs and complementing courses such as art, drama, music, and physical education. Kenneth Gray (1991) validates this view of education. According to Gray (1991) "the primary goal of integrating academic and vocational education, more accessible to academic students, and the advanced academic courses more accessible to students concentrating on vocational education" (p.443). To better address the challenges of a postindustrial society, the reorganization and restructuring of high school practical arts programs is essential.

Furthermore, to provide more equitable and inclusive opportunities for all academically and vocationally oriented students, career development researchers and school practitioners have to systematically examine the role that perceived barriers play
in the career decision-making process. Equally important, in this climate of demographic shifts, extensive educational changes are in order if the barriers continue to separate women and minorities and high-tech business careers. Knapp (1999) illustrates a new reality for high-tech companies. In an increasingly global competitive landscape, training even entry-level workers is becoming more complex, going beyond the usual computer programming and data-entry skills to include foreign language and cultural training in some cases. Leveling the field of dreams calls for barriers to be torn down and the evolution of diversity to be encouraged and practiced. Accordingly, educational institutions at all levels must integrate, practice, and promote cross-cultural education in academic and career-related curriculums.

Recommendations for Future Research

1. This study should be validated by additional studies utilizing new samples to determine if the new observations yield will similar results.

2. This study should be replicated with a different population (e.g. students who attend a predominantly Caucasian college verses a predominantly Black college campus) or in another geographical location (i.e. rural community), or with more subjects, to assess which variables are important for predicting subject selection.

3. This study should be replicated in other countries to assess the career development issues affecting students of African descent in the Caribbean (i.e. Trinidad, Jamaica, etc.)

4. Finally, a close examination of the literature suggests that “there has been little
systematic research regarding career development counseling with African Americans” (Brown & Pinterits, 2001, p. vii), let alone African Caribbeans. Existing theories, models, and research in the area of career development have not adequately addressed the factors and circumstances surrounding the career choices of workers of African descent (Paul, 1998). Therefore, “the larger multicultural counseling literature is drawn upon because very little appears in the empirical literature regarding multicultural issues of career development” (Walsh, et al., p. 12). The model of this research study identified a limited set of variables, which affect the course/selection process of descendants of Africa. Future studies should investigate the actual process of selection, aspects of commitment, and how these variables affect the articulation process from high school to college. Equally important, future studies should investigate if students’ aspirations are related to certain selected socioeconomic and psychological factors. Further, other factors associated with the career development process that could prove useful to career and technical educators should be enumerated.
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Appendix A

Student Subject Consent Form

I understand that this research study is designed to identify the relevant factors, which influence the subject selection of students who are descendents of Africa who chose to take business and/or computer technology courses in high school. I understand that I have been asked to participate because I am a student of African descent who has attended high school. I understand that my participation in this study will involve the completion of a demographic/descriptive survey. The goal of this study is to better understand the relationship between relevant factors, which influence the subject selection of students of African descent and the number of business and/or computer technology courses taken by students.

I understand that my participation in this research study is voluntary and at no time will my identity be released without my expressed written consent. Any information provided will be protected to the limits allowed by the law. The demographic survey will be coded so that no names will be identified. I understand that the results of this research will be published in a doctoral dissertation as well as other possible venues (e.g. professional journals).

I further understand that the researcher in this project is Denise-Bonnette Jones, M.S., a doctoral student in the College of Education at Lynn University located in Boca Raton, Florida. Ms. Jones is conducting this research to due to occupational interest and to satisfy a program completion requirement for the Doctor of Philosophy in Educational Leadership with a Global Perspective degree. Survey participants may contact the researcher at [contact information removed] or through the chairperson of Ms. Jones' dissertation committee, Dr. Fred Dembowski at Lynn University [contact information removed]

I have read this form and understand the context and intent of the study. I hereby agree to participate in this research project. I am aware that two copies of this subject assent form have been provided. Please review and sign both copies indicating that you have read, understand, and agree to participate in the study. Please return the signed copy to the researcher. Thank you for you participation.

Name of Participant (please print) Date

Signature of Participant Date
General Directions: Please Answer All of the Following Questions.

1) In high school (9th thru 12th grades), how many of the following business and/or computer technology courses did you take? Please note: If you took multiple levels of the same course please indicate this number also.

___ General Business
___ Practical Keyboarding Skills
___ Practical Computer Skills
___ Accounting
___ Computer Programming
___ Computer Applications
___ Web Design
___ Graphics Arts
___ Business Management & Law
___ Legal Office Technology
___ Digital Publishing
___ Computer Aided Drafting
___ Engineering
___ Other ______________________

-1-
2) What is your gender?  (Check one)
   ____ Female  ____ Male

3) What culture best describes your heritage?  (Check one)
   ____ African American  ____ African Caribbean  ____ Other

4) What is the primary earner's occupation?  (Please be as specific as possible.)
   ____________________________________________

5) What best indicates your high school's source of funding?  (Check one)
   ____ Public  ____ Private

6) Which of the following choices best describes your high school environmental setting?  (Check one)
   ____ Urban  ____ Suburban  ____ Rural
7) In high school, how did the following perceived barriers, which relate to the future occupational environment, influence your selection of course work (major)? Please rate each of these perceived barriers on a scale of 0 (not an issue) to 10 (an important issue).

___ Sexism (gender based)
___ Tokenism (quota based)
___ Racism (culture based)
___ Lack of fellow representatives of one's own culture
___ Acculturation to Dominant Culture (assimilation into the larger culture)
___ Socialization (general levels of valued interaction)
___ Inclusion (occupational embracement)
___ Exclusion (occupational segregation/estrangement)
___ Access to Information (ability to acquire necessary information)
___ Access to Mentors (availability of role models)
___ Glass ceiling effect (limited mobility/probability of promotion to decision-making positions)

___ Other ____________________________ (Please be specific.)

8) In high school, what was your level of commitment to your chosen major on a scale of (no commitment) to 10 (extremely high commitment)?

___

9) In high school, what was your level of academic work ethic on a scale of 0 (no work ethic) to 10 (extremely high work ethic)?

___