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ASSESSING THE CORRELATIONS BETWEEN NON-COGNITIVE FACTORS AND THE FIRST SEMESTER GPA OF NONTRADITIONAL STUDENTS AT A COMMUNITY COLLEGE

By

ALEXIS PARENT FERROUILLET

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF EDUCATION

XAVIER UNIVERSITY OF LOUISIANA

Division of Education and Counseling

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Xavier University of Louisiana

New Orleans, Louisiana

CERTIFICATE OF APPROVAL

DOCTORAL DISSERTATION

This is to certify that the Doctoral Dissertation of

ALEXIS PARENT FERROUILLET

has been approved by the examining committee for the dissertation requirement for the Doctoral Program in Leadership in the Division of Education, October, 2019.

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I only hope that finishing this milestone will inspire my younger sister, Avanna, to go back to school and get her undergraduate degree and possibly more. She has been a wonderful source of strength for me and I admire her drive. She just needs to be reminded that she too wears a cape and can do anything she puts her mind to. My other family members such as my mother-in-law, Jocenta, and countless others have been a God send during this period in my life and I am truly blessed to have them all. The staff and students at Delgado Community College were paramount during this process and I am forever grateful. Thank you all!

ASSESSING THE CORRELATIONS BETWEEN NON-COGNITIVE FACTORS AND THE FIRST SEMESTER GPA OF NONTRADITIONAL STUDENTS AT A COMMUNITY COLLEGE

Abstract

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Xavier University of Louisiana

December 2019

Chair: Renée V. Akbar

Ninety percent of the students enrolled at community colleges in the United States are nontraditional (NCES, 2001). According to Horn and Carroll (1996), characteristics of nontraditional student include: delayed college enrollment, financially independent of parents, worked at least thirty-five hours per week, had dependents other than a spouse, were single parents, and had not received a standard high school diploma. Because of these characteristics, nontraditional students can face a plethora of challenges in higher education and feel underprepared for college coursework. Upon enrollment into the community college with an open admissions policy, these underprepared students must take high stakes standardized placement testing to determine their abilities to complete college-level course work (Hodara & Cox, 2016). The exclusive use of these cognitive skills tests to determine the preparedness of

nontraditional students is problematic because of the inaccuracy of cognitive skills tests at assessing their abilities (Sedlacek, 2005). Additionally, the repercussions of not performing well on the high-stakes placement test(s) are numerous (Bailey, 2009). These tests not only fail high-achieving students, but especially, academically high-risk students. Adebayo (2008) stated that the exclusive use of cognitive factors as predictors of academic success in academically high-risk students have had mixed results. As measuring cognitive skills alone does not accurately assess the potential of all students, basing their college preparedness on high-stakes placement tests can potentially lead to additional costs, coursework, and time for nontraditional students.

Researchers have found the Non-cognitive Questionnaire (NCQ) measures eight non-cognitive variables as reliable in predicting the academic success of minorities, student athletes, and students with nontraditional experiences at four-year universities (Sedlacek & Adams-Gaston, 1992). The researcher sought to find if any of the eight non-cognitive variables measured by the NCQ and other variables created due to data collection could be used to predict the first semester GPA of nontraditional students at community colleges.

The researcher administered the NCQ to 96 students enrolled in a college success skills course at a community college in the Spring of 2019. The NCQ measured the students' first semester GPAs, genders, ethnicities, and number of remedial or developmental courses they were enrolled in. The researcher created subgroups by analyzing and grouping the data by gender, age and ethnicity, then controlled for number of remedial courses enrolled. Step-wise multiple regression analysis and an analysis of variance were used to determine if there were any correlation(s) between the variables measured and the first semester GPAs of the students. The step-wise multiple regression analysis generated predictive models based on the correlations between the variables and first semester GPA for the subgroups that community colleges could

use in the future.

The researcher generated a predictive model based on a correlation between the NCQ variable deals with racism (DWR), and first semester GPAs in the original sample (n = 96). When the researcher grouped the sample by gender the female only (n = 72) sample analysis resulted in correlations between the number of remedial courses enrolled (RC), the non-cognitive variable, DWR, and a predictive model was generated using both variables. The male only sample (n=24) analysis resulted in no significant relationships between the NCQ variables and GPA. Therefore, no predictive model was generated. Additionally, the researcher grouped students by ethnicity. The analysis of the Black, non-Hispanic sample (n = 57) resulted in a correlation between the non-cognitive variable, availability of support (AS) and GPA—allowing the researcher to generate a predictor model. There was no significant correlation between deals with racism (DWR) and GPA as displayed in the original sample. Lastly, the researcher selected students by ethnicity and gender. The analysis of the Black, non-Hispanic and female sample (n = 47) resulted in statistically significant correlations between AS and GPA, and RC and GPA. The researcher generated a predictive model for that group using AS only. The researcher saw that the correlations between the NCQ variables were stronger, as these variables were controlled and decided to control for RC, the number of remedial courses enrolled at the number two, as that was the most frequent number in the sample. The analysis of the Black, non-Hispanic, female participants enrolled in two or more remedial courses represented the most statistically significant correlation between AS and GPA, generating a predictive model that included it.

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CHAPTER ONE
INTRODUCTION

Introduction to the Problem

Community colleges in the United States are two-year, educational institutions of higher learning where students can matriculate and earn associate's degrees. Community colleges also offer continuing education or non-credit courses to supplement traditional four-year universities. In 2018, there were 980 public community colleges in the United States (Jaaskelainen, 2019). During the 1999-2000 school year, 62% of the public community colleges in the United States had an open admissions policy (National Center for Education Statistics [NCES], 2016). Open-admission community colleges accept students directly after their completion of the application and receipt of high school transcripts or a GED. In 2017, 5.8 million students enrolled in public, two-year colleges in the United States (Jaaskelainen, 2019).

Unlike the students enrolled at four-institutions, approximately 90% of the student populations at community colleges are nontraditional (NCES, 2001). According to Horn and Carroll (1996), characteristics of nontraditional students include: delayed college enrollment; financially independent of parents; worked at least thirty-five hours per week; had dependents other than a spouse; were single parents; and, had not received a standard high school diploma. For this study, participants had to have at least one of these characteristics to receive the classification "nontraditional." Hittepole (2016) defined the nontraditional student as any student who is twenty-five years or older, explaining that it is assumed by the age of twenty-five a student should have at least one of the characteristics that Horn and Carroll identified. Because of these characteristics, nontraditional students can face a plethora of challenges in higher education that can be barriers to achieving their educational goals. These barriers in higher

education include a lack of resources, student support services, and academic flexibility (Hittepole, 2016). In addition, there is a lack of representation of nontraditional students and their experiences in higher education literature (Sissel, Hansman, & Kasworm, 2001). Further, a lack of representation in the literature and lack of attention on issues that nontraditional students face will lead to even more marginalization of this specific population (Sims & Barnett, 2015).

The majority of students that enter community colleges are not only nontraditional, but are also academically underprepared for college work for two reasons: (a) they lack current SAT or ACT scores, and (b) they have experienced a gap between high school and college enrollment (Hodara & Cox, 2016; Jaggars & Hodara, 2011; NCES, 2001). Upon entrance to college, these underprepared students must take high stakes placement exams to determine their readiness for college-level courses (Hodara & Cox, 2016). In 2011, 100% of public two-year colleges reported using a math placement test and 94% reported using a reading test (Fields & Parsad, 2012). These placement test scores—high school GPA, SAT, and/or ACT exams—assess the students' cognitive skills only. Cognitive skills measure intellectual ability, such as the ability to think critically and memorize information (American College Test [ACT], 2014). The exclusive use of these cognitive skills tests to determine the preparedness of nontraditional students is problematic because of the inaccuracy in testing the cognitive skills and abilities of nontraditional students (Sedlacek, 2005). Additionally, the repercussions of not performing well on the high-stakes placement test(s) are numerous (Bailey, 2009).

Mediocre performance on the placement exam may require the enrollment and successful completion of developmental, non-credit courses. Taking these courses, delays the student from obtaining a degree. At some two-year colleges, developmental courses are sequential, which results in the requirement to complete multiple courses before enrolling in a college level

mathematics or English course. Paying for non-credit developmental courses increases the cost of college for the nontraditional student and decreases the amount of financial aid available for college-credit courses (Bailey, 2009). Even more discouraging, students that enroll in developmental coursework are less likely to complete associate degrees (Bailey, 2009; Scrivener & Logue, 2016).

Cognitive skills alone do not measure the potential of all students (Sedlacek & Adams-Gaston, 1992). Research has shown that non-cognitive factors such as leadership skills and community service have been helpful in the selection process of the most high-achieving students (Bial, 2007). Highly selective four-year colleges and universities use a combination of cognitive and non-cognitive factors to determine their applicants' admissibility, and ultimately, their success at the institution. In fact, Bial (2007) argued that universities should depend more on non-cognitive factors as selection criteria because the students that perform best on standardized testing are not always among the most successful graduates of these institutions. Successful graduates generate more substantial alumni contributions for these institutions. Cognitive factors alone are not just faulty in assessing high-achieving students, but also assessing academically high-risk students. Adebayo (2008) stated that the exclusive use of cognitive factors alone as predictors of academic success in academically high-risk students have had mixed results. Sedlacek and Adams-Gaston (1992) stated that cognitive factors alone cannot predict the academic success of underrepresented students.

Considering that measuring cognitive skills alone does not accurately assess the potential of all students, basing their college preparedness on high-stakes placement tests can potentially lead to additional costs, coursework, and time for nontraditional students. Therefore, colleges should consider the use of non-cognitive factors to assess the preparedness of nontraditional

students to have a more complete picture of their abilities. Sedlacek (2005) stated that non-cognitive factors were especially important for nontraditional students because test scores and prior grades may not paint an accurate portrait of the nontraditional student's abilities. The Non-Cognitive Questionnaire (NCQ) is a survey tool that Sedlacek developed to measure eight specific non-cognitive factors in addition to cognitive factors. Admissions offices have used this tool for minority applicants at undergraduate institutions and professional schools (Sedlacek, 1993). However, two-year institutions have not yet adopted the NCQ as an admissions tool. The eight non-cognitive factors the NCQ measures are: (a) positive concept of self (PCS); (b) reasonable self-appraisal (RSA); (c) deals with racism (DWR); (d) leadership skills (LS); (e) community service (CS); (f) knowledge in field (KIF); (g) long-range goals (LRG); and, (h) availability of support (AS). Researchers have also used these non-cognitive factors to measure and predict specific academic success such as grade point average (GPA) (Ting, 1998), long-term academic success (Fuertes, Sedlacek, & Liu, 1994), and persistence (Hood, 1992) at four-year institutions.

The academic success predictor in this study was the students' first semester GPA. First semester GPA is a proven early predictor of college success (Gershenfeld, Hood, & Zhan, 2016), and a significant predictor of academic success for first-time students (Stewart, Lim, & Kim, 2015). GPA has been most significant in predicting graduation for Black female students (Farmer, Hilton, & Reneau, 2016), four-year students (Delaney, 2009; Jesse & Ellerseck, 2009; McGrath & Braunstein, 1997), and underrepresented students (Gershenfeld et al., 2015). Gershenfeld et al. (2015) found that GPA could better predict college graduation than ACT scores in underrepresented students at the University of Illinois. The researcher anticipated that there was a relationship between the first semester GPA and the non-cognitive factors that the

NCQ measured, enabling community college administrators to infer factors such as academic success and graduation of nontraditional students prior to the beginning of their first semester.

Problem Statement

Nontraditional students, upon entering a community college, must undergo high-stakes placement testing to assess their preparedness for college course work. These high-stakes tests only measure cognitive ability and provide a limited view of their academic potential (Sedlacek, 2005). Low performance on these high-stakes placement tests can lead to additional time, costs, and coursework for students and is not indicative of their ability to complete college coursework successfully (Bailey, 2009). Additionally, there is a lack of representation of nontraditional students in the literature (Sissel et al., 2001). The lack of information on these issues could lead to further marginalization of this special population. Therefore, researchers can use the non-cognitive factors that the NCQ measures to create a more complete picture of students' ability to meet the expectations and rigor of college coursework. By administering the NCQ upon enrollment into the community college, the non-cognitive factors measured can help to predict the students' first semester GPA, and ultimately, their success at the college. First semester GPA scores have been predictive of persistence in college and graduation for special populations such as first-time and underrepresented students (Gershenfeld et al., 2015; Jesse & Ellerseck, 2009; Stewart et al., 2015). The ultimate goal of this study was to demonstrate how the NCQ could serve as a tool to predict nontraditional students' ability to persist at academic institutions, guide curriculum choices, and achieve a more holistic view of a population of students that is virtually absent from the literature.

Purpose of Study

The goal of this study was to determine if there was a relationship between each of the

eight non-cognitive factors that the NCQ measured and the academic performance of nontraditional students in their first semester enrolled at a community college. Multiple regression analysis enabled the researcher to determine which of the eight non-cognitive factors measured best predicted the first semester GPA of nontraditional students. The multiple regression analysis equation used in this study is a predictive model that colleges can use to determine if nontraditional students can meet the expectations and rigor of college study. NCQ scores can provide a more accurate picture of the nontraditional student and their abilities. The NCQ can also provide more information about the nontraditional student population and their needs that community colleges can meet. Moving forward, the information generated from this study may assist student and academic services to provide a better experience for nontraditional students at community colleges.

Research Questions

Sedlacek's (1993) NCQ measures eight variables: (a) positive self-concept, (b) reasonable self-appraisal, (c) deals with racism, (d) long-term goals, (e) availability of support, (f) leadership skills, (g) community service, and (h) knowledge in field. The researcher measured these eight non-cognitive factors in the survey and then correlated them with each student's first semester GPA. This study sought to answer the following research questions:

RQ1. Which non-cognitive variables (PCS, RSA, DWR, LRG, AS, LS, CS, and KIF) that the NCQ measures, nontraditional status (NTS), and number of developmental courses enrolled (RC) correlate with the first semester GPA of nontraditional students enrolled at a community college?

RQ2. Do these correlations generate a predictive model from multiple regression analysis that community colleges in the future can use to predict the first semester GPA of

nontraditional students?

Hypothesis

The goal of the study was to determine if there was a statistically significant relationship between the eight non-cognitive factors that the NCQ measured, other variables created after collecting information on the participants (NTS, RC), and the first semester GPA of nontraditional students enrolled at a community college (see Figure 1). An additional goal was to create a predictive model containing the independent variables to predict the first semester GPA of nontraditional students at a community college.

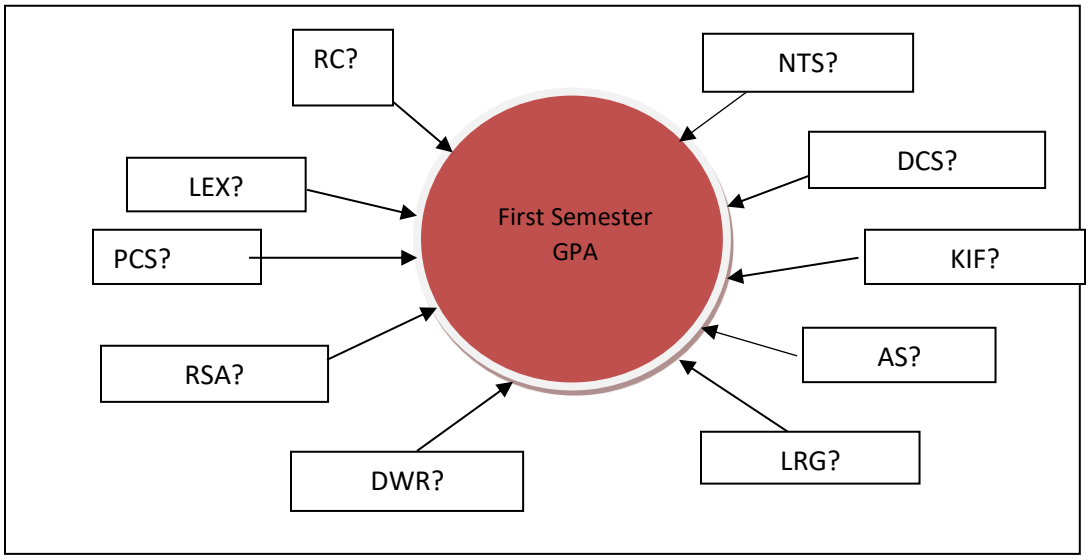

Figure 1: Possible dependent/independent variable model.

Significance

The use of non-cognitive factors as a predictor of nontraditional students' first semester performance at a two-year college could lead to many positive outcomes for this demographic. Student services could provide additional academic and social support that nontraditional students may need during the first semester of attendance. For example, scores that the NCQ measure, such as LS, can prompt a referral to student services for leadership training and

activities, if needed. Additionally, KIF scores indicate career choice knowledge and could prompt a referral to student career services. The use of the information gathered from these non-cognitive factors, and their predictive value for first semester GPA, could lead to a predictive model that community colleges could use to assess the potential for nontraditional students to meet the expectations and rigor of their curriculum. Additionally, the creation of this model will lead administrators to use the NCQ to guide curriculum choices for students, and add visibility to a population that the literature often overlooks.

Overview of Methodology

The researcher administered an NCQ questionnaire to students at a community college enrolled in a college success skills course. The students in the course signed a consent form, which the researcher provided, that included no personal identifiers other than the students' college identification number. At the end of the semester, the researcher retrieved the students' GPAs from college records. The researcher took the NCQ variable scores along with the first semester GPA data and performed a discriminant analysis, analysis of variance (ANOVA), and a stepwise regression analysis to create the best predictive model for nontraditional students at community college.

Delimitations and Assumptions

Assumptions

Assumptions are elements of the study that the researcher takes for granted. First, the researcher assumed that the participants would answer the questions on the questionnaire (NCQ) honestly and to the best of their abilities. Second, the researcher assumed that the administration of the NCQ to participants occurred honestly. The researcher preserved the participants' anonymity and confidentiality at all times. The only method of identification was the

identification number that the college issued. The researcher informed the participants that they were volunteers and could withdraw from the study at any time and with no ramifications. Third, the researcher assumed that the participants had a reading level that enabled them to comprehend the questions on the NCQ questionnaire. The students received instructions at the beginning of administering the questionnaire, informing them how to complete a Likert scale.

Limitations

The limitations of this study were the biases of the researcher. The researcher was a professor at a community college and was familiar with the nontraditional students and their experiences. Additionally, according to Sedlacek and Adams-Gaston (1992), researchers using the NCQ tend to get lower correlations with samples of selected or enrolled students: "selected samples have a more restricted range of scores and our correlations are lower than they should be" (p. 726).

Another limitation of this study was that the researcher administered the survey during the Spring semester. The population of first semester students is much smaller in the Spring semesters, which led to a smaller sample than the researcher had anticipated. Ideally, the data collection would happen in the Fall semester, when the population sample would be larger and more diverse.

Definitions of Key Terms

Non-traditional student. Horn and Carroll (1996) gave an expanded definition of the nontraditional student:

> Non-traditional students are defined as those having ANY of the following characteristics: (a) those who delayed enrollment in college, (b) part-time students enrolled in less than 12 credits a semester, (c) financially independent students, (d) those

> who work full time, defined as more than 35 hours per week (e) those with dependents other than a spouse, including children or other relatives, (f) single parents or those responsible for more than 50% of their child's upbringing, (g) those that did not receive a standard high school diploma. (p. 5)

Horn and Carroll's expanded definition of the nontraditional student included varying degrees of nontraditonality. This expanded definition suggested that students with one of the aforementioned characteristics were minimally nontraditional, a student that had two or three of the previous mentioned characteristics in the definition was moderately nontraditional, and four or more of the characteristics made a student extremely nontraditional. The U.S. Department of Education's 2002 report on the State of Education for Nontraditional Undergraduates (Choy & NCES, 2002) reported that non-traditional students comprised 75% of the undergraduate population. The report found that students who were even minimally nontraditional were much more likely than traditional to enroll in 2-year institutions (39 %) and the more non-traditional they were, the more likely they were to do so. Among highly non-traditional students, 64 % attended a public 2-year institution. (p. 12)

Non-cognitive factors. Non-cognitive skills are "related to motivation, integrity, and interpersonal interaction" (ACT, 2014, p. 1). Non-cognitive skills are known as "soft skills" that are associated with personality, attitude, and temperament. For all jobs, an employee should possess the non-cognitive skills like working well with others and functioning daily in a work environment (ACT, 2014).

Cognitive factors. Cognitive skills "include intellectual effort, such as thinking, reasoning, or remembering" (ACT, 2014, p. 1). There is more than a century of research that has shown that cognitive skills assessments are among the top predictive factors for job success

(ACT, 2014). These cognitive skills assessments include high stakes testing like college placement exams, the ACT, and the SAT.

Grade point average. According to Merriam-Webster, grade point average or GPA is, "the average obtained by dividing the total number of grade points earned by the total number of credits attempted" (Merriam-Webster, 2018).

Non-Cognitive Questionnaire (NCQ). Sedlacek (1985) created the NCQ instrument, which is a questionnaire with 29 items, including multiple choice, Likert-scaled, and open-ended questions. The questionnaire measures eight non-cognitive factors:

1. PCS: student has a positive view of self and recognizes their strengths and weaknesses.
2. RSA: student gives him/herself the correct praise, not too much or too little.
3. DWR: student understands their position in a multiracial and cultural society and can deal with and cope with racism.
4. LEX: student possesses leadership experience in extracurricular activities.
5. DCS: student has engaged in activities and services in their respective communities and recognizes their identity in an ethnic group.
6. KIF: student is familiar with information and background in their field of interest.
7. LRG: student prefers long-range goals as opposed to short-term.
8. AS: student can identify at least one person that they can turn to when needing assistance.

Large public institution. In the two-year institution classification system of the NCES, a large public institution is any two-year institution with an unduplicated headcount of at least 10,000 students. These institutions tend to be in urban locations, to confer awards and degrees

that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions (NCES, 2014).

Developmental education/remedial courses. These are a series of courses at an institute of higher learning (primarily community colleges) that students underprepared for college courses must successfully complete to enroll in college level mathematics, English, and/or reading courses. These courses help students "catch up" before enrolling in college-level courses in those areas.

Post-secondary education. This level of education relates to any education following secondary school (Meriam Webster, 2019). Any education is post-secondary that includes post-high school, college, graduate and professional schools, or training programs

Accuplacer. The Accuplacer is a placement test administered to students upon enrollment at post-secondary institutions when ACT or SAT scores expire. The Accuplacer (2019) is an integrated system of computer-adaptive assessments designed to evaluate students' skills in reading, writing, and mathematics.

Organization of this Document

The rest of this research document contains a literature review in Chapter Two, the methodology used in Chapter Three, followed by presentation of findings in Chapter Four, and a discussion of the results in Chapter Five.

CHAPTER TWO
LITERATURE REVIEW

Introduction

This literature review exhibits the evidence and introduces the conceptual theory of the nontraditional student and the major influences on the subject-matter of this study: community college, nontraditional students, cognitive factors, non-cognitive factors, and the NCQ. The researcher used Xavier University Library Services to retrieve much of the research on these topics.

Community Colleges

Public, two-year institutions are an essential component of post-secondary education in the United States. Two-year colleges service a modest number of undergraduate degree-seeking students in the United States. In 2016, there were 5.84 million students enrolled in two-year degree-granting institutions in the United States, compared to the overall 16.9 million students enrolled in post-secondary education (NCES, 2016). Community College enrollment makes up about one-third of the entire undergraduate student population enrolled in post-secondary education in the United States. In addition, there were 980 public two-year institutions in the United States in 2018 (Community Colleges in the United States, 2018). These public two-year institutions form the majority of the two-year institutions in the United States. Some of these public two-year institutions have an open admissions policy. In the 1999-2000 school year, 62% of these institutions had open admissions policies (NCES, 2016).

Nontraditional students at community colleges encounter the stigma of being labeled of academically underprepared. According to Jaggars and Hodara (2011), “the majority of students who enter community college are deemed academically underprepared for college-level work.

As a result, most community colleges devote substantial instructional and institutional resources to developmental education—courses in basic reading, writing, and mathematics skills" (p. 5). In addition, a 2007 descriptive analysis report on two-year institutions in the United States reported that 100% of large public institutions offered remedial services to their students (NCES, 2007). This is an indication that administrators at all large two-year public institutions feel that there is a need to address academically underprepared students. Yet, these administrators address the problem without examining what measures determine that the students are academically underprepared.

Many two-year public institutions assess academic preparedness by looking at cognitive factors alone, such as ACT/SAT scores, high school GPA, and/or high-stakes placement testing scores. High stakes testing scores, such as those from ACT/SAT or placement tests administered to students upon entering college, are inadequate predictors of academic success of academically high-risk and underrepresented students (Adebayo, 2008; Sedlacek & Adams-Gaston, 1992). In fact, researchers have also demonstrated the failure of these high-stakes tests to predict the success of high-achieving students in highly competitive colleges and universities (Bial, 2007). Academic deans and administrators acknowledge that the most successful alumni do not have the highest high school GPAs and/or standardized test scores. In turn, these universities have implemented the use of other factors, in addition to cognitive ones, to determine the students that deserve entrance into their institutions (Bial, 2007). At a two-year public institution, because there are not any competitive entrance requirements, students must enroll in mathematics and English courses based on their high stakes test scores. Unfortunately, a nontraditional student is less likely to have current ACT or SAT scores, requiring them to take a placement exam that they are unprepared for, leading to a lower score and placement into a developmental or remedial

course(s) (Hodara & Cox, 2016).

Developmental Education/Remedial Services

History

Developmental education has been in the United States for centuries. Developmental or remedial education dates back as far as the 17th century, when an adult language program started for clergymen who had to learn Latin quickly, as the books they studied were written in Latin (Boylan, 1988). Those clergymen were not prepared for the work that they would face at Harvard. Boylan noted, "under preparedness is not a new problem in American higher education. Large numbers of students have been unprepared for the institutions that they attended since the first American college admitted its first students" (p. 1). Students have been underprepared for centuries; this problem is not new. When students are underprepared, they must obtain help through courses to allow them to catch up to the level of readiness needed. There is no doubt that developmental education is necessary for some students, but some students are underprepared when they enter a community college, leading them directly into a developmental education course sequence (Hodara & Cox, 2016). There would not be a problem with this if developmental education did not have its own issues.

Issues in Developmental Education

Developmental education comes with its own set of challenges. The major problems with developmental education are that the courses do not count towards the completion of the degree and the courses require more money, resources, and time commitments from students (Bailey, 2009). The extra time spent in remedial courses can convert a two-year program at an institution to much more, which can affect the student's self-esteem and financial management (Bailey, 2009). Students instructed to enroll in developmental courses may not be prepared to do

so academically and financially, deterring them from returning or completing school, resulting in lower matriculation rates (Scrivener & Logue, 2016). The array of challenges that these students face in higher education is unsustainable. Looking at non-cognitive factors can help resolve some of the issues that nontraditional students face upon enrollment into community colleges, including forced enrollment in developmental course(s).

Nontraditional Students and Developmental Education

The research shows that nontraditional students are more likely to require developmental education. Hodara and Cox (2016) found that students who were out of high school longer before entering college (nontraditional) were more likely than students who entered college immediately after high school (traditional) to test into developmental math. This supports the claim that the nontraditional student, due to the delayed enrollment into an undergraduate program after high school, is likely to score lower on the math placement exam, placing them directly into developmental education. In addition, nontraditional students often lacked the predictors to assess college readiness, such as SAT and ACT scores, which forces the nontraditional students to take high-stakes placement tests upon entering college (Hodara & Cox, 2016). Therefore, the gap in enrollment between high school and college and the lack of information on the cognitive factors that determine admission for traditional students means that nontraditional students must pass a high-stakes placement test. Performing poorly on this high-stake placement tests is costly. Low performance on these tests leads to enrollment in developmental courses.

Another issue with developmental education and placement testing is that policy makers have tried to make the standards of college preparedness requirements universal, such as score requirements on the state level. Researchers and policymakers make recommendations for

uniformity in the placement tests offered and cut off scores for these tests; however, these recommendations encounter resistance from faculty and staff at community colleges (Duffy et al., 2013). One of the reasons for the resistance to the standardization of score requirements is that the assessments measure only some of the skills needed for a successful college experience (Bailey, 2009). Duffy et al. (2013) examined six community colleges on the implementation of placement and diagnostic testing for incoming students and found that the faculty members resisted the changes. Researchers set the cut off scores and qualifications for developmental education without any input from the colleges. The faculty members found a "workaround" for students that did not meet the cut-off numbers to remain enrolled in college courses (Duffy et al., 2013). This proved that the faculty realized that the use of placement test scores alone did not assess the skills needed to succeed in college and the distrust of community college faculty in the validity of these scores (Duffy et al., 2013).

Cognitive Factors as Predictors of Success

Cognitive factors serve as the benchmark for assessing the academic preparedness of traditional students entering colleges and universities. Traditionally, colleges and universities look at standardized test scores (ACT or SAT), high school GPAs, and class ranking to assess merit (Bial, 2007). All three of these measures assess cognitive skills or a student's ability to perform intellectually and/or remember information. Using cognitive factors alone as predictors of the college success of traditional students have produced mixed results for colleges and universities (Bial, 2007; Mattern et al., 2014). Bial (2007) stated, "it is now well documented in the research that the students with the strongest academic performance in college do not necessarily become the alumni with the most acclaimed careers or highest earning potential" (p. 2). Additionally, research shows that the use of cognitive factors as predictors of academic

success in special populations, such as academically high-risk and underrepresented students, have produced contradictory and mixed results (Adebayo, 2008; Sedlacek & Adams-Gaston, 1992). Therefore, not only has the use of cognitive factors been problematic in traditional and high-achieving students, but they have also proven inaccurate in predicting the academic success of the academically high-risk and the underrepresented. This misalignment of cognitive factors and success lead administrators to re-evaluate what determines the admissibility of students. Administrators realize that a university has a better chance of financial stability when their students obtain the highest earning potential. Thus, re-examining how non-cognitive factors lead to student success would be beneficial for higher education.

Some post-secondary institutions take an even more narrow approach and focus on standardized, high-stakes testing scores alone as indications for academic preparedness. In their study on developmental education at community colleges, Hodara and Cox (2016) found that for students who enrolled directly in college-level courses, high school GPA was a better predictor of performance in college English and math than were SAT, ACT, or Accuplacer scores. There are issues with high-stakes testing scores as predictors for academic success in the research for specific populations including minorities (Bial, 2007; Sedlacek, 2005; Spellman, 2007), and student-athletes (Ting, 2009). There is ample research that documents the gap between the standardized test scores of minority students with their majority peers, with the exception of Asian-Americans (Spellman, 2007). Cognitive factors as predictors of academic success of academically high-risk students have had contradictory and mixed results (Adebayo, 2007). Given that these high-stakes tests, such as placement tests, provide such a poor prediction of the college success of special populations like minorities, and student athletes, there is inherent possibility that the same can be argued for nontraditional students.

Non-Cognitive Factors as Predictors of Academic Success

Highly competitive, selective colleges and universities look at more than high-stakes testing to determine a traditional student's college admissibility. In addition to cognitive factors such as high school GPA, standardized test scores, and class ranking, selective admissions colleges are now looking at non-cognitive factors to predict a student's college success (Bial, 2007). Even though these institutions of higher learning do deem the assessments of cognitive skills as valid, they also realize the value of the non-cognitive factors. These colleges and universities understand that student success relates to more than their ability to perform in the classroom and on standardized tests. Most community colleges do not use non-cognitive factors in the selection of their student population; however, non-cognitive factors can provide a better portrait of their students' needs and opportunities for college success.

Non-Cognitive Models

Researchers have developed non-cognitive models to help determine college preparedness and career readiness. In the ACT Research Report Series, Mattern et al. (2014) described a multidimensional model of college and career readiness that includes non-cognitive factors. The researchers found that non-cognitive skills can also accurately predict academic performance and a combination of cognitive and non-cognitive factors can predict college retention. Conley (2007) presented a model of college readiness that included cognitive and non-cognitive factors. This model was helpful in identifying both cognitive and non-cognitive factors that determine a student's college readiness; however, Conley did not suggest how to measure these facets. College readiness has no universal definition, which makes it difficult to measure. Even when college readiness is determined by one institution, there are ways that faculty and staff can manipulate the determination, including but not limited to, placing students

into college level courses regardless of institutional requires (Maryuma, 2000).

Non-cognitive Skills and their Influence on Jobs and Earnings

There is ample evidence for a relationship between non-cognitive skills, labor productivity, and earnings (Garcia, 2014). Casner-Lotto and Barrington (2006) surveyed over 400 employers in the United States and asked them to rank the most important skills for new employees and the four highest ranked were considered to be non-cognitive skills. This shows that employers value non-cognitive skills in the workplace. Additionally, Murnane, Willett, Braatz, and Duhaldeborde (2001) found that there was a positive association between adolescent self-esteem and their wages earned ten years later. This suggests that high self-esteem, a non-cognitive factor, could be associated with higher earnings and performance. It is evident that non-cognitive skills can be associated with not only academic success, but also job success.

Sedlacek's Non-cognitive Questionnaire (NCQ). In 1976, Sedlacek developed a questionnaire—the NCQ—that examined eight non-cognitive variables. Sedlacek argued that assessing students' college readiness went far beyond test scores and GPA, which these eight variables could predict more accurately. Over thirty-three studies on student development have used the NCQ instrument, which is a predictor of academic success at institutions of higher learning (Thomas, Kuncel, & Credé, 2007). The NCQ is part of the criterion for the Gates Millennium Scholarship, a program funded by The Bill and Melinda Gates Foundation to predict success in prospective students. The NCQ has not been helpful in predicting success in all students (Sedlacek, 1998). After performing a qualitative evaluation of the NCQ with data from 42 articles and dissertations, Thomas et al. (2007) argued that the NCQ was not a valid tool for the admissions selection process because it failed to correlate factors that predict college success. Thomas et al. also pointed out that African American students perform better on the NCQ than

European American students, which leads to increased minority admission. This is consistent with the findings of the eight non-cognitive concepts measured in the NCQ, which researchers have found to predict GPA and persistence in minority college students (Tracey & Sedlacek, 1997). Therefore, the NCQ may not be predictive of academic success of all students but can be predictive of college and academic success for minorities and special populations.

The NCQ as a predictor of academic success, grade point average, and college persistence in special populations. Tracey and Sedlacek (1979) found that the NCQ was highly predictive of GPA in Black and White students. The specific non-cognitive factors that were the most predictive of GPA were PCS, RSA, and preference for LTG (Tracey & Sedlacek, 1985). In that same study, the researchers found that the NCQ was a predictor of college persistence in Black students, but not in White students (Tracey & Sedlacek, 1985). The non-cognitive variables that were predictive of persistence in Black students were PCS and RSA. This lends to the finding that the NCQ can be predictive of college success in minorities, but not necessarily in Whites.

Sedlacek and Adams-Gaston (1992) found that the SAT math and verbal scores had no correlation with the first semester grades of the student athletes. However, the non-cognitive factors that the NCQ measures—specifically PCS, RSA, AS, and CS—all had had significant correlations ($p < .05$) with first semester grades (Sedlacek & Adams-Gaston, 1992). Similarly, Ting (2009) conducted a two-step regression analysis on NCAA athletes to predict their first semester GPA and found that the PCS was the non-cognitive factor that related to student athlete's grades the most, followed by preference for LTG. The findings of these studies show that the NCQ can be predictive with not just racial minorities, but also special populations of students such as student-athletes.

Even with their known accuracies, non-cognitive factors have received little attention in education for two reasons. First, the non-cognitive evaluations are often used for self-knowledge, not admissions evaluation; second, the tests are easy to manipulate (Mattern et al., 2014). Contrary to this belief, the NCQ is an admission tool for professional and undergraduate programs that can increase minority enrollment (Sedlacek, 1992). The institutions examined in this study have used the NCQ to gather the information as predictors of academic success and retention of minority applicants. These institutions are also aware of the research on the inaccuracies of cognitive factors as predictors of academic success for these minority students. The NCQ could be a powerful addition to the admission process of the nontraditional students at community colleges. The knowledge gained from the NCQ will help administrators and faculty members of community colleges learn more about nontraditional students and their needs. Nontraditional students are at risk for marginalization due to the lack of research and knowledge about this special population, but the NCQ can provide more information about them to make them more visible in the literature.

First Semester GPA as a Predictor of College Success

There is a wealth of research on student academic success and college persistence, especially amongst first-year students (McLaughlin, 2006; Pike & Saupe, 2002; Tinto, 1993; Tracey & Sedlacek, 1989). Tinto (1993) presented a theoretical framework of college persistence that identified specific factors that influenced those students' persistence in college that included cognitive and non-cognitive factors. Some studies have used this theoretical framework to add to the body of research on college success (Adebayo, 2008; Stewart et al., 2015). The use of this framework has led to some ground-breaking research on predictors of academic success, as Stewart et al. (2015) found that first semester GPA had a strong correlation

with persistence.

Some studies have found that first semester GPAs were a strong predictor of other elements of student success among special populations. Stewart et al. (2015) found that first semester GPA is a significant predictor of persistence in college for first-time students. Considering that some nontraditional students are also first-time students, this is a significant factor in this study. Farmer et al. (2016) found that first semester GPA was a predictor of graduation for Black female students. Black females represent a special population group in post-secondary research and are now the most educated group in the United States (NCES, 2010). Considering this statistic, a large percentage of the population of nontraditional students are female and Black.

Conclusion

After a full review of the literature, it is evident that there is a gap in the literature on nontraditional students and the use of non-cognitive factors as an assessment of their preparedness for college work in a community college setting. There is research about the community college and its use of placement exams to assess applicants' cognitive ability and readiness for college level work. There is also ample evidence that these placement exams lead to an increased placement into developmental courses for nontraditional students, resulting in additional challenges for these students to overcome at the community college. All large public institutions offer developmental or remedial services for nontraditional students who perform poorly on high-stakes placement tests (NCES, 2007). Thus, community colleges that have large populations are prepared to educate those low performers on the placement test, but have not addressed the assessment tools they use, despite the research showing that nontraditional students are more likely to perform poorly on these high-stakes placement exams (Bailey, 2009).

The use of the NCQ, which measures non-cognitive factors and researchers have shown to predict academic success in special populations, could be the solution for nontraditional student success at community colleges. The use of better predictors of college success can lead to support for minority populations and help address the needs and issues of the nontraditional student. When institutions address the needs of these students, they achieve better outcomes and the institution are more successful.

CHAPTER THREE
RESEARCH DESIGN

Introduction

A group of students attending a large public institution in the southeastern United States completed the NCQ questionnaire, along with general demographic questions during their college and career success skills course. The students voluntarily completed the questionnaire. The researcher asked them to sign a waiver to retrieve their first semester GPAs from the college. The researcher scored the NCQ and retrieved the first semester GPAs from college records in May 2019. The researcher completed a statistical analysis using ANOVA and discriminant analysis of the NCQ results and the first semester GPA using SPSS to determine if there were any statistical relationships.

Population/Site Selection

This study took place at one of the southeastern United States' largest community colleges. The community college has seven campuses throughout the region. The two sites of the community college chosen for this study were two separate campuses located approximately 14 miles from one another. The two sites where the researcher administered the surveys have the largest populations of students at their campuses. The first site (henceforth referred to as Site 1) has the largest population and the second site (henceforth referred to as Site 2) has the second largest population.

Sample

The researcher administered the NCQ with additional demographic questions to students enrolled in 10 sections of a College Success Skills course at Site 1 and five sections of the course at Site 2 of the community college in the Spring semester of 2019. The researchers administered

a total of 165 questionnaires and the students completed 163 (99% completion rate).

Inclusion criteria for the sample. The sample used for data analysis contained only participants who self-identified as having at least one of the seven characteristics of a nontraditional student from Horn and Carroll's (1996) definition, which the researcher determined based on their responses to question five of the survey. Participants included those enrolled in the community college in Spring 2019, but not in Fall 2018. Participants who were not enrolled in two concurrent semesters at the college (Fall 2018 and Spring 2019), were included in the sample (n = 96). The number of questionnaires included in the study was 59% of the 163 returned questionnaires.

Exclusion criteria for sample. If a participant did not choose any of the seven characteristics in question number five on the questionnaire, was enrolled in the college in Fall 2018 and Spring 2019, submitted an incorrect college identification number, or there was some factor that resulted in the error of the retrieval of the first semester GPA from college records, then the participant was excluded from the sample. The number of questionnaires excluded from this study was 67 of the total 163 returned. The researcher had to exclude 41% of the questionnaires in the sample.

Instrumentation

Non-Cognitive Questionnaire

The researcher used the NCQ to measure the eight non-cognitive variables in this study:

- Positive Concept of Self (PCS) (7-27 points)
- Realistic Self Appraisal (RSA) (4-14 points)
- Understanding and deals with Racism (DWR) (5-25 points)
- Preference for Long-Term Goals (LRG) (3-13 points)
- Availability of a Strong Support System (AS) (3-15 points)

- Leadership Experience (LEX) (3-15 points)
- Demonstrated Community Service (CS) (2-8 points)
- Knowledge in their Field (KIF) (2-8 points)

The NCQ is a Likert-format scoring tool that asks participants to score eighteen (18) statements on a scale of one to five with the choices: strongly agree, agree, neutral, disagree, and strongly disagree. Additionally, there are multiple-choice questions on educational goals and three open-ended items on past activities and current aspirations. The researcher scored each question and entered them into a pre-determined formula (Sedlacek, 1984), to calculate the score for each of the aforementioned non-cognitive factors (see Appendix B). The researcher then used those scores for the data analysis.

In addition to the twenty-three questions from the NCQ, there were three demographic questions that measured gender, race, and first-generation student status. There was also a question to self-identify the seven characteristics of a nontraditional student, as Horn and Carroll (1996) defined them.

Reliability and Validity

The test and re-test reliability of an instrument is the measure of testing the same group on two separate occasions (close to one another) and obtaining the same answer. The test and re-test reliability of the NCQ ranged from .70 to .94, (i.e., 70% to 94%). The probability of a subject taking the survey twice in two separate sittings and giving the same answer will happen 70% to 94% of the time (Sedlacek & Adams-Gaston, 1992). The researcher could not find a set standard for test and re-test reliability, though the closer the number was to one, the better. The inter-rater reliability was the consistency of the rating of answers on the open-ended questions (see Appendix A and Appendix B). According to Tracey and Sedlacek (1985), the inter-rater

reliability of the NCQ ranges from .83 to 1.00 (i.e., 83% to 100%) for the open-ended questions.

Validity is a judgment based on evidence such as reliability of an instrument and whether the scores the instrument produces are correlated with what they are expected to be correlated with, and not with those they should not (Price, Jhangiani, & Chiang, 2015). A principal components analysis showed that the NCQ factors are independent of each other (Tracey & Sedlacek, 1985). The ranges of the re-test reliability and inter-rater reliability of the NCQ were close to one (73% to 94% and 83% to 100%, respectively). The median coefficient alpha was 0.83 (Tracey & Sedlacek, 1985). Based on these results, the researcher was confident that the scores on the NCQ represent the intended variables, and therefore, were valid.

Data Collection and Procedures

The researcher or a representative went to the College Success Skills Course at the beginning of the class period. Upon entrance to the classroom, the instructor introduced the researcher or representative to the class and then the researcher explained the consent form (see Appendix A), the structure of the survey, and how the collected data would be used for a dissertation. Then, the researcher gave a copy of the survey to each student who agreed to be a participant. The researcher gave out 165 survey packets to 165 students at Site 1 and Site 2. However, the researcher only received 163 completed surveys for a 99% completion rate. Each participant signed a consent form and waiver (see Appendix B). After each participant filled out the survey on paper, the researcher entered the exact answers to the survey on a digital form created in the Google documents program so that the researcher could compile the data digitally. From there, the researcher transferred the data collected to a Microsoft Excel file. In May 2019, the researcher received the Spring 2019 GPA (first semester GPA) of each participant from the college records, using the participants' college identification number solicited on the survey.

Data Analysis Procedures

Coding of Variables—Non-Cognitive Variables

The researcher calculated the eight variables from the NCQ—PCS (7-27 points), RSA (4-14 points), DWR (5-25 points), LRG (3-13 points), AS (3-15 points), LEI (3-15 points), DCS (2-8 points), KIF (2-8 points)—based on the formula from the NCQ II (see Appendix B).

Grade Point Average (GPA). The researcher recorded the first GPA of each participant after retrieval from college records, to the nearest hundredths decimal.

Non-traditional status (NTS). The researcher determined nontraditional status by how many characteristics the participants self-reported on the survey. There was a maximum of seven characteristics and a minimum of one. Question five on the survey listed the seven characteristics and asked the participants to select as many of the characteristics that described themselves. The researcher recorded that number and used it as the NTS value.

Gender. The gender variable was nominally coded, where males received a one and females received a two.

Race. The race variable was nominally coded in the order the choices were placed on the questionnaire: Black, Non-Hispanic received a one, White, Non-Hispanic received a two, Asian/Pacific Islander received a three, Hispanic received a four, and other received a five.

Remedial courses (RC). The researcher recorded the amount of developmental or remedial courses that each participant took in the Spring semester of 2019 (RC). The initial observation of the data suggested that there could be a possible negative relationship between the number of remedial courses taken and GPA. Students do not receive college credit for developmental courses; however, the college includes these courses in the calculation of GPA for the semester. If the participant did not enroll in any remedial courses, they received a zero; in

one, received a one; in two, they received a two, and so forth. The College Success Skills course was a college level course, and therefore, not included in the amount for RC.

Statistical Analysis

Analysis of Variance (ANOVA)

Analysis of variance is a statistical procedure that simultaneously examines the means of two or more groups among two or more variables or treatments. It tests the variance among means to determine if differences relate to factors other than chance. The statistic measures total error variance consists of two separate groups: within-group and between-group. The researcher can attribute the variation that within-group and between-group cannot account for to the treatment. ANOVA determines significance by calculating an F-value along with several degrees of freedom using the ratio of the sum of between-group error to within-group error (Weiss & Hassett, 1982). The researcher tested the null hypothesis of no statistically significant relationship between the eight non-cognitive variables, NTS, and GPA. The alpha level of .05 determined significance, which the researcher used to reject the null hypothesis.

Step-Wise Multiple Linear Regression

Stepwise multiple regression is a statistical procedure that adds variables into a regression equation determining significance. The process finds the best predictor among several variables and pairs it with the next added variable, until there is a significant multiple correlation. The researcher then matches the pair of predictor variables with the next variable, one step at a time, until the researcher has scrutinized all the independent variables (Johnsson, 1992). The researcher chose step-wise analysis for this study due to the recommendation from previous studies that used the NCQ (Boham, 1997). The researcher tested null hypothesis of no statistically significant relationship between the eight variables of the NCQ and the variables

GPA, RC and NTS. The researcher followed the following steps in this study:

1. The level of significance was set to .05 to include a variable in the predictor equation.
2. The researcher computed the statistics.
3. The researcher selected the best predictor model based on the least amount of error after substituting values for the selected independent variables in each model.

Delimitations/Limitations

Delimitations

The community college used in this study and its student population have challenges. The researcher chose to focus on the nontraditional students and the use of cognitive assessments to assess their preparedness due to a gap in the literature that showed the discrepancies between the efficacy of using cognitive factors alone to predict academic success and student outcomes. The researcher selected the community college because it was one of the largest public institutions in the southeastern United States. The researcher selected nontraditional status as a variable because the definition of the nontraditional student varied too dramatically. First semester GPA served as the primary indicator of academic achievement because previous studies identified it as an early predictor of college success (Gershenfeld et al., 2016). The researcher chose NCQ as a tool for this study because of its validity and predictive value in countless other studies.

Limitations

The limitations of this study include the bias of the researcher, who is a current professor at this community college and is familiar with nontraditional students and their experiences. The college offers and recommends the College Success Skills to first semester students, though it is

not a requirement. Therefore, the sample used for data analysis resulted in a little more than 50% of the surveys administered. Another issue was that the researcher administered the survey during the Spring semester, and according to administration, the vast majority of first semester students enroll in the Fall semester. Consequently, the sample of first semester students was not as large in the Spring Semester as it could be in the Fall semester. The researcher could not control the environment where the students completed the NCQ. Uncontrolled factors, such as interactions with administer of the NCQ, could have affected the students' decisions to complete the NCQ. The researcher and administers did their best to have the students complete the questionnaire, but there were no guarantees as student participation was voluntary and there were no incentives to complete the questionnaire. The researcher and administers of the NCQ did their best to accommodate students and make sure that the completion of the survey went smoothly.

One of the limitations of using a standardized questionnaire is that there are limited opportunities to adapt the questionnaire for a particular population. Additions, deletions, and changes are necessary in all the NCQ administered surveys, but the number of modifications is limited to maintain comparability, limit complexity of the survey, and keep the length of the questionnaire within limits. An additional limitation, according to Sedlacek and Adams-Gaston (1992), is that researchers using the NCQ tend to obtain lower correlations with samples of selected or enrolled students: "selected samples have a more restricted range of scores and our correlations are lower than they should be" (p. 726).

Conclusion

This study sought to discover if the use of the non-cognitive factors measured by the NCQ indicates a relationship with the first semester GPA of nontraditional students at a

community college. If so, the NCQ could serve as a tool to help predict the first semester performance of nontraditional students. This is advantageous as the review of literature demonstrated that there was some fault in the community college's assessment of cognitive factors alone, primarily measured through high stakes assessments, to gauge the abilities of their incoming students.

CHAPTER FOUR

FINDINGS

Introduction

Researchers have shown that the exclusive use of cognitive factors are inaccurate in predicting the academic abilities of special groups such as minorities (Sedlacek, 1993). The use of non-cognitive factors and their relationships with first semester GPA, an early predictor of graduation and college persistence in special groups (Farmer et al., 2016; Stewart et al., 2015), will aid community college faculty and administrators in determining not only the early success of the nontraditional student at their institution, but also their long-term success. Additionally, the NCQ measures and identifies eight non-cognitive factors that will provide a wealth of information for administrators about nontraditional students and enable student services administrators to provide programming and facilities that can help enhance the nontraditional student's experience at the community college. Finally, this study aimed to bring more visibility to the nontraditional student population that is virtually invisible in the literature and in danger of marginalization (Sissel et al., 2001).

This chapter begins with a description of the sites and sample participants and provides descriptive statistics for the sample. It explains all statistically significant correlations and generated predictive models from data analysis of the sample (n = 96) and its subgroups. Lastly, it details the findings of those data analyses ,which the researcher conducted using SPSS.

Description of Sites

This study took place at one of the southeastern United States' largest community colleges. According to the college's fall 2018 enrollment report, it serves a student population of 14,258 students, of which, 68.2% are female and 32% are male (Louisiana Board of Regents,

2019). This community college has seven campuses throughout the American Southeast. This study took place at two of the seven campuses. In the Fall of 2018, Site 1 had 9,477 students—66.7% were female and 33.1% were male (Louisiana Board of Regents, 2019). In the Fall of 2018, Site 2 had 2,500 students—75.2% were female and 24.8% were male. The student race distribution of the population at Site 1 was 47.7% Black and non-Hispanic; 29.7% White and non-Hispanic; 10.4% Hispanic; 3.3% Asian; and, 8.9% who identified as other or did not indicate their race (Louisiana Board of Regents, 2019). At Site 2, the student race distribution was similar, though not identical to the first. The race distribution for the Site 2 in the Fall of 2018 was 60.2% Black and non-Hispanic; 19.8% White and non-Hispanic; 8.1% Hispanic; 3% Asian; and, 8.9% other or not indicated. The median age of all students at the two sites in the Fall of 2017 was 27.9 years (Louisiana Board of Regents, 2019).

Table 1

Site Gender Totals with Percentages

	Male	Female	Total
Site 1	3,135 (33.1%)	6,342 (66.7%)	9,477
Site 2	619 (24.8%)	1,881 (75.2%)	2,500

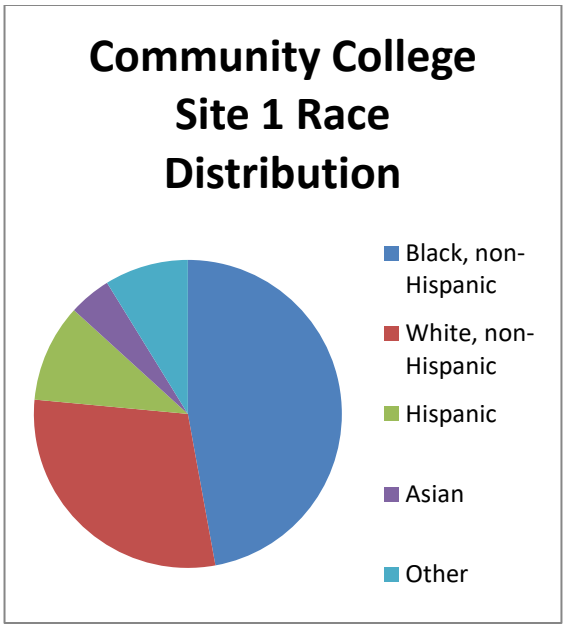

Figure 2: Site 1 race/ethnicity distribution.

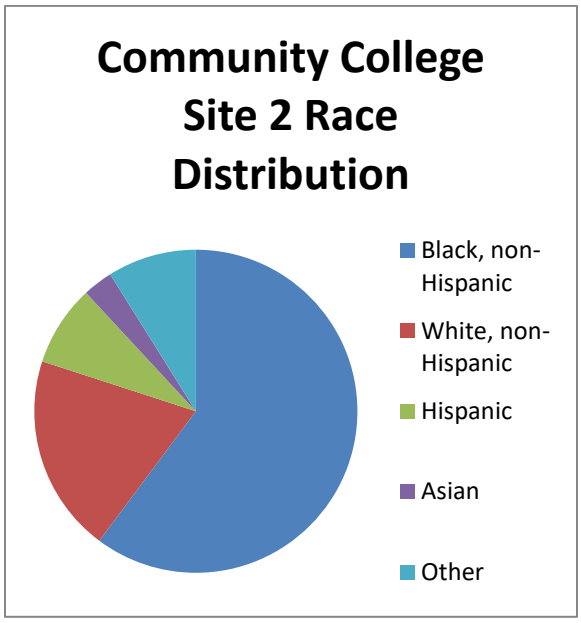

Figure 3: Site 2 race/ethnicity distribution.

Description of Participants/Sample

The researcher administered the NCQ, with additional demographic questions, to students enrolled in 10 sections of the College Success Skills course at Site 1 and five sections of the

course at Site 2 in the Spring semester of 2019. The researcher chose the College Success Skills course as the site for administering the NCQ because the administrators often recommended it to first semester students at this community college, though it was not a requirement. The researcher determined that administering the NCQ to the students enrolled in this course would be the best way to obtain the largest number of first semester students. The researcher administered 165 questionnaires in those sections of the course, with 163 completed and returned questionnaires (99% completion rate).

Inclusion Criteria for Sample

The sample used for data analysis contained only participants that self-identified as having at least one of the seven characteristics of a nontraditional student from Horn and Carroll's (1996) definition. The researcher used item 5 of the survey to gather this information. If the participant did not enroll in two concurrent semesters at the college (Fall 2018 & Spring 2019), the researcher included the participant's questionnaire the sample (n = 96). The number of questionnaires included in the study was 59% of the total 163 questionnaires returned.

Exclusion Criteria for Sample

The researcher excluded any participant who did not choose any of the seven characteristics in question number five on the questionnaire, was enrolled in the college in Fall 2018 & Spring 2019, submitted an incorrect college identification number, or there was some factor that resulted in the error of the retrieval of GPA from college records. The researcher excluded 67 questionnaires from this study (41% of the total).

Statistical Analysis—Frequencies, Percentages, & Ranges of Sample

Gender

The sample (n = 96) consisted of 25% males and 75% females—zero participants

reported "other" as a choice for gender. The gender percentages of the sample (75% female and 25% male) were identical to the gender percentages of Site 2 of this study (see Table 1).

Table 2

Frequencies and Percentages for GENDER

	Frequency	Percent	Valid Percent	Cumulative Percent
MALE	24	25.0	25.0	25.0
FEMALE	72	75.0	75.0	100.0
Total	96	100.0	100.0	

Race

The participants of the sample (n = 96) identified their race/ethnicity as follows: 57 (59.4%) identified as Black, non-Hispanic; 15 (15.6%) as White, non-Hispanic; two (2.1%) as Asian/Pacific Islander; 13 (13.5%) as Hispanic; and nine (9.4%) as other. The race distribution of the sample (n = 96) differed slightly from the distribution of race at Site 1. However, it is much closer to the racial distribution of Site 2. The Black, non-Hispanic percentage of Site 2 (60.4%) was almost identical to the percentage of the sample (59.4%). All other racial groups were different from the sample at both sites. Interestingly, the "other" category of the sample (9%) was identical to the "other" categories at both Site 1 and Site 2.

Table 3

Frequencies and Percentages for RACE

	Frequency	Percent	Valid Percent	Cumulative Percent
Black, Non-Hispanic	57	59.4	59.4	59.4
White, Non-Hispanic	15	15.6	15.6	75.0
Asian/Pacific Islander	2	2.1	2.1	77.1
Hispanic	13	13.5	13.5	90.6
Other	9	9.4	9.4	100.0
Total	96	100.0	100.0	

Age

The median age of the sample was 28.68 years old. This was slightly greater than the college-wide age median in 2017 (27.9 years). The mean of the sample 26 years old. The age range of the sample was 17 to 60 years (43 years). The age with the highest percentage of participants was 19 years (16.7%).

Remedial Courses (RC)

The researcher recorded the number of developmental or remedial courses in which each participant enrolled in the Spring semester of 2019. The initial observation of the data suggested that there could be a negative relationship between the number of remedial courses taken and GPA. Students did not receive college credit for developmental courses; however, the college included these courses in the calculation of GPA for the semester. The sample (n = 96) contained 10 participants that enrolled in no remedial courses (10.4%); 15 participants enrolled in one remedial course (15.6%); 37 participants enrolled in two remedial courses (38.5%); 33 enrolled in three remedial courses (34.4%); and one participant in four remedial courses (1%). The variable range was zero to four, with a median of two (see Table 4).

Table 4

RC (Remedial Courses) Frequencies & Percentages

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	10	10.4	10.4	10.4
	1	15	15.6	15.6	26.0
	2	37	38.5	38.5	64.6
	3	33	34.4	34.4	99.0
	4	1	1.0	1.0	100.0
	Total	96	100.0	100.0	

Nontraditional Status (NTS)

Each participant reported their nontraditional status—or lack thereof—on the questionnaire. There were seven characteristics for the participants to choose from. The highest amount chosen was five out of seven. Among the participants, 30.2% reported that they had one nontraditional characteristic, 35.4% reported that they had two nontraditional characteristics, 18.8% reported having three nontraditional characteristics, 11.5% reported having four nontraditional characteristics, and 4.2% reported having five nontraditional characteristics. No participants reported having six or seven nontraditional characteristics.

Table 5

NTS (Nontraditional Status) Frequencies & Percentages

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	30.2	30.2	30.2
	2	34	35.4	35.4	65.6
	3	18	18.8	18.8	84.4
	4	11	11.5	11.5	95.8
	5	4	4.2	4.2	100.0
Total		96	100.0	100.0	

Descriptive Statistics

The researcher determined the descriptive statistics (mean and standard deviation) for each independent variable (PCS, RSA, KIF, LEX, AS, DCS, DWR, LRG, NTS, and RC) and the dependent variable, GPA (see Table 6).

Table 6

Descriptive Statistics of all Variables

	N	Range	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
AGE	96	43	17	60	28.36	1.074	10.521
RC	96	4	0	4	2.00	100	.984
GENDER	96	1	1	2	1.75	.044	.435
RACE	96	4	1	5	1.98	.145	1.421
NTS	96	4	1	5	2.24	.115	1.131
GPA	96	3.667	.333	4.000	2.72021	.097933	.959544
PSC	96	10	14	24	19.17	.260	2.545
RSA	96	8	6	14	10.80	.206	2.014
DWR	96	9	14	23	17.56	.220	2.156
LRG	96	7	6	13	9.62	.172	1.687
AS	96	9	6	15	12.78	.212	2.073
LEX	96	8	4	12	8.59	.202	1.977
DCS	96	6	0	6	2.91	.144	1.407
KIF	96	5	1	6	3.24	.092	.903
Valid N (listwise)	96						

ANOVA Analysis of Variance

The researcher performed an ANOVA using the independent variables (PSC, RSA, LRG, AS, LEX, DWR, DCS, KIF, RC, & NTS) and GPA as the dependent variable. This resulted in two statistically significant regression models. For Model 1 $p = .005$ and Model 2 $p = .003$, respectively.

Table 7

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.997	1	6.997	8.174	.005b
Residual	80.472	94	.856		
Total	87.469	95			
Regression	10.414	2	5.207	6.284	.003c
Residual	77.055	93	.829		
Total	87.469	95			

Note. [a]Dependent Variable: GPA
[b]Predictors: (Constant), DWR
[c]Predictors: (Constant), DWR, RC

Step-Wise Multiple Linear Regression

The researcher conducted a step-wise linear regression analysis to determine the relationships between the dependent variable, GPA, and the independent variables—PCS, RSA, KIF, LEX, AS, DCS, DWR, LRG, NTS and RC, in this order—using SPSS. The researcher analyzed the relationships between the dependent variable (GPA) and the independent variables. The researcher submitted the data to content analysis to determine if a predictive relationship using an equation was identifiable for future use. This analysis generated two predictive models. The first variable used in model one was DWR, due to its significant relationship with GPA (F = 8.174; adjusted R^2 = .070; p = 0.05). The second model included both DWR and RC, as predictor variables (F = 4.124; adjusted R^2 = .100; p =0.03).

Table 8

Models Generated from Stepwise Linear Regression Analysis of Sample (N = 96)

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	4.931	.779		6.330	.000	3.384	6.478
	DWR	-.126	.044	-.283	-2.859	.005	-.213	-.038
2	(Constant)	5.217	.779		6.695	.000	3.670	6.765
	DWR	-.120	.043	-.270	-2.769	.007	-.206	-.034
	RC	-.193	.095	-.198	-2.031	.045	-.382	-.004

Note. Dependent variable: GPA

$$Y=B_1X_1+B_2X_2+Constant$$

Model 1: $GPA= -.126DWR+4.931$

Model 2: $GPA= -.120DWR-.193RC+5.217$

After further analysis, the researcher chose Model 2 as the better predictor model for the dependent variable, GPA due to the higher adjusted R^2 and lower *p* value.

Additional Analyses Controlling for Social Factors

The researcher further analyzed the data set by using selected cases and social factors of the sample to determine if there were any other significant relationships between other NCQ variables and GPA for specific groups. First, the researcher selected cases using AGE and used the frequency numbers to determine which age point was the best. The researcher decided to use age < =27 for the sample (n = 54). A stepwise linear regression analysis resulted in zero significant correlations between GPA and the NCQ variables (NTS or RC). The researcher then analyzed the data by using GENDER as a selection value. The number of female participants in

the original sample (n = 96) was significantly larger than male participants (n = 24). The analysis on the male only sample produced no significant correlations between any of the independent variables and GPA. Performing a stepwise linear regression analysis on female participants resulted in another weak negative relationship (Allen, 1996) between RC and GPA (r = -.373, p = .001) and DWR and GPA (r = -.277, p = .009). The analysis of the female only sample (n = 72) resulted in weak negative relationships (Allen, 1996); however, the r-values moved further away from zero, exhibiting a stronger correlating relationship between the two sets of variables. This analysis also resulted in two models [Model 1 (F= 11.304; adjusted R^2= .127; p = .001) Model 2 (F= 10.523; adjusted R^2= .234; p = .000) with RC as the stronger predictor value.

Table 9

Stepwise Linear Regression Model for Female ONLY Sample (N = 72)

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	3.515	.260		13.502	.000	2.995	4.034
	RC	-.392	.117	-.373	-3.362	.001	-.625	-.160
2	(Constant)	6.016	.892		6.747	.000	4.238	7.795
	RC	-.418	.111	-.397	-3.758	.000	-.640	-.196
	DWR	-.138	.047	-.309	-2.920	.005	-.232	-.044

Note. [a]Dependent Variable: GPA
[b]Selecting only cases for which GENDE*R* = FEMALE

Model 1: *GPA=-.392RC+3.515*

Model 2: *GPA=-.418RC-.138DWR+6.016*

The researcher chose Model 2 as the better predictor model after further analysis for the female

only sample due to higher adjusted R^2 and smaller p value.

Next, the researcher selected cases by race/ethnicity. The sample of Black, non-Hispanic participants (n = 57) was the largest of the race groups. The stepwise regression analysis concluded that the variable AS had a statistically significant weak positive relationship with GPA (r = .332, p = .006). There was no significant correlation between NTS and GPA. The researcher generated one predictor model for the Black, non-Hispanic sample (n = 57). For Black, non-Hispanic participants, as the AS increased, GPA increased; as GPA decreased, the amount of support decreased. This resulted in one predictive model, Model 1 (F= 6.793; adjusted R^2 = 0.094; p = .012). An analysis was conducted on the White, non-Hispanic sample (*n=15*), but there were no significant correlations and a predictive model was not generated.

Table 10

Stepwise Linear Regression Analysis Model for Black, Non-Hispanic ONLY (N = 57)

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.600	.706		.850	.399	-.815	2.014
	AS	.142	.054	.332	2.606	.012	.033	.250

Note. Dependent Variable: GPA; Selecting only cases for which RACE = BLACK, NON-HISPANIC

$$GPA=.142AS+.600$$

After analyzing the results of the female only (n = 72) and the Black, non-Hispanic (n = 57) groups, the researcher conducted an analysis on a sample that was female and Black, non-Hispanic due the size of the sample population. The analysis of the Black, non-Hispanic and female sample (n = 47) also resulted in a statistically significant weak negative relationship (Allen, 1996) between DWR and GPA (r = -.265, p = .036). However, the Black, non-Hispanic

and female sample (n = 47) analysis resulted in statistically significant correlations between GPA and the NCQ variable, AS. There was a moderately positive correlation (Allen, 1996) between AS and GPA (r = .483, p = .000). Additionally, there was a statistically significant moderately negative correlation (Allen, 1996) between RC and GPA (r = -.412, p =.002). There was no significant correlation between NTS and GPA. This meant that as AS increased, GPA increased; as AS decreased, so too did GPA. The AS increased a black and female participant's GPA. There was a moderately negative relationship between RC (the number of remedial courses) and GPA. As RC increases, GPA decreases, and as RC decreases, GPA increases. This is in accordance in what Bailey (2009) stated about developmental courses containing students that are underprepared for college course work. The more courses in which a Black female enrolls, the lower the semester GPA. The multiple regression analysis generated two predictor models for the Black and female sample (n = 47) [Model 1 (F= 13.669; adjusted R^2 = .216; p =.001) and Model 2 (F= 12.127; adjusted R^2 = .326; p =.000)].

Table 11

Stepwise Linear Regression Models for Black, Non-Hispanic & Female Sample (N = 47)

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-.291	.756		-.385	.702	-1.814	1.231
	AS	.214	.058	.483	3.697	.001	.097	.330
2	(Constant)	.771	.791		.974	.335	-.824	2.365
	AS	.193	.054	.435	3.560	.001	.084	.302
	RC	-.363	.126	-.353	-2.890	.006	-.617	-.110

Note. a. Dependent Variable: GPA

Model 1: *GPA=.214AS-.291*

Model 2: *GPA=.193AS-.363RC+.771*

The researcher chose Model 2 as the better predictor model for the Black, non-Hispanic female sample (n = 47) due to the higher adjusted R^2 and smaller p value.

Due to the moderately strong and statistically significant relationship between GPA and RC for the Black, non-Hispanic and female sample (47), the researcher examined the descriptive statistics of RC and saw that the mean of RC was 2.24. In addition, examining the frequencies of RC, two and three had the largest percentages. Therefore, the researcher then selected cases of Black females that had two or more remedial courses and conducted a step-wise multiple regression analysis to determine if any NCQ variables were predictive of the GPA of this sample. The findings for the Black, non-Hispanic female participants that took two or more remedial courses (n = 36) resulted in two NCQ variables having statistically significant correlations with GPA. There was a moderately positive relationship between AS and GPA (r = .534, p = .000) and a weak negative relationship between GPA and DWR (r = -.321, p =.028). This differs slightly from the Black and female sample, whereas the Pearson correlation increased a little, this is due to the change in sample size. The Black and female sample was slightly larger, but not significantly different. There was one model generated from the step-wise multiple regression analysis (F= 13.572; adjusted R^2=.264; p = .001).

Table 12

Stepwise Linear Regression Predictor Model for Black, Non-Hispanic Females & RC≥2 (N =36)

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-.532	.773		-.689	.496	-2.103	1.038
	AS	.219	.060	.534	3.684	.001	.098	.341

Note. a. Dependent Variable: GPA

GPA=.219AS-.532

The predictive models for the entire sample (n = 96) may not be as useful due to the adjusted R^2 (.007), indicating that the variability in the GPA of the participants was due to the predictive variable selected for that first model (DWR). The researcher used selection criterion within the sample to determine if different NCQ variables had predictive relationships when controlling for social variables. When the researcher used selection criteria for the sample by race, a new predictive variable with statistical significance emerged. For the Black, non-Hispanic sample, the NCQ variable AS had a weak positive relationship (Allen, 1996) with GPA (r = .332, p = .006). This weak positive relationship (Allen, 1996) was statistically significant and indicated that the more support available for Black, non-Hispanic participants in this sample, the GPA increased. There was also weak negative (Allen, 1996) statistically significant relationships between GPA and DWR (r = -.292, p = .043) and GPA and RC (r = -.247, p =

.032). The researcher excluded both these variables (DWR and RC) from the predictive model generated by SPSS for the Black, non-Hispanic sample (n = 57). The predictive model's adjusted R^2 was .094, a slight increase in variability from the original sample. When the researcher only used gender as selective criteria, variables RC (r = -.373, p = .001) and DWR (r = -.277, p = .009) both had weak negative relationships with GPA. SPSS generated two predictive models for the female only sample (n = 72). The researcher chose the second model that had a smaller p value and a higher adjusted R^2 (.212). In the female only sample, the relationship between DWR and GPA was weaker than in the original sample (n = 96), but also displayed how the number of remedial courses that female participants were enrolled in affected the first semester GPA. As the number of remedial courses increased, GPA decreased; as remedial courses decreased, GPA increased. This was in accordance with Bailey's (2009) statement that remedial coursework was meant for students that were not prepared for college coursework.

Next, the researcher selected a sample of Black, non-Hispanic and female participants (n = 47). After a step-wise regression analysis of this sample, there was a moderately negative relationship between the number of remedial courses (RC) and first semester GPA (r = -.412, p = .002). There was also a moderately positive relationship between AS and GPA (r =.483, p =.000). There was a weak negative relationship between DWR and GPA (r = -.265, p = .036); however, DWR was an excluded variable. The relationship between AS and GPA in this female and Black, non-Hispanic sample (n = 47) increased slightly from the Black, non-Hispanic only sample. The relationship between RC and GPA became stronger in the Black, non-Hispanic and female population. It went from a weak negative to a moderately negative relationship. For Black and female participants (n = 47), the increase in RC decreased the first semester GPA.

This step-wise linear regression analysis resulted in two predictive models. The researcher chose the second model due to the higher adjusted R^2 and smaller p value.

After surveying the sample after observing the significant relationship between RC and GPA for the female only population, and surveying the percentages of the race groups, decided to control for race, gender, and number of remedial courses. The researcher selected a sample of Black, non-Hispanic females enrolled in two or more remedial courses, due to the percentages recorded in the descriptive statistics. The Black, non-Hispanic female population was the most abundant in the group and most of the sample took two or more remedial courses. The researcher conducted an ANOVA and step-linear regression analysis on all the female, Black-non-Hispanic participants enrolled in two or more remedial courses (n = 36). The ANOVA analysis resulted in a weak negative relationship (Evans, 1996) between DWR and GPA and a moderate relationship between AS and GPA. The moderate relationship between AS and GPA in the Black, non-Hispanic female sample enrolled in two or more remedial courses had the highest Pearson correlation of all the sample groups and variables. The moderate relationship between AS and GPA was the highest correlation of all the relationships in the samples. The adjusted R^2 of the predictive model selected, 0.264, means that twenty-six percent (26%) of the variance in the first semester GPA is attributable to the AS for the Black, non-Hispanic female participants that were enrolled in two or more remedial courses in this sample.

Table 13

Statistically Significant Pearson Correlations between GPA and Independent Variables

Sample	N	Pearson Correlation & Significance of variables		
		DWR & GPA	RC &GPA	AS & GPA
Original	96	r = -0.283, p = 0.003	r = -0.215, p =.0018	NONE
Female ONLY	72	r = -0.373, p = 0.001	r = -0.277, p = 0.009	NONE
Black, non-Hispanic ONLY	57	r =-0.292, p = 0.043	r = -0.247, p =0.032	r = 0.332, p =0.006
Age >= 27	54	NONE	NONE	NONE
Black, non-Hispanic & Female	47	r =-.265, p = .036	r = -0.412, p =0.002	r =0.483, p =0.000
Black, non-Hispanic, Female, & RC>=2	36	r = -.321, p = .028	NONE	r = 0.534, p = .000

Table 14

Adjusted R Square and F Value for Predictive Models for Each Sample

Sample	N	Adjusted R^2	F
Original	96	0.100	4.124
Female ONLY	72	0.234(Model 2)	10.523
Black, non-Hispanic ONLY	57	0.094	6.793
Age >= 27	54	NONE	NONE
Black, non-Hispanic & Female	47	0.326 (Model 2)	12.127
Black, non-Hispanic, Female, & RC>= 2	36	0.264	13.572

Conclusion

The data analysis sought to reveal whether there was any significant correlations between the dependent variable GPA, the independent variables measured by the NCQ (PSC, RSA, AS, DWR, LEX, KIF, DCS, LRG), and the other variables created from the participants' responses (NTS and RC). The researcher used those significant correlations to create a predictive model(s) for the variables to predict the first semester GPA of nontraditional students. The results

revealed significant correlations between DWR and GPA, and RC and GPA in the original sample (n = 96) of nontraditional students. The predictive model for this sample (n = 96) had a small adjusted R^2 (see Table 14), but still greater than zero.

The researcher then controlled for gender, race/ethnicity, and age. The data analysis of the female only sample (n = 72), 75% of the original sample, resulted in significant correlations between DWR and GPA, and RC and GPA. The predictive model generated for this sample (n = 72) had an adjusted R^2 that was three times the amount of the predictive model for the original sample (see Table 14). When the researcher controlled for age, there were no significant correlations between GPA and any of the independent variables, therefore, there was no predictive model. The researcher conducted data analysis on the largest race/ethnic group of participants, Black, non-Hispanic (n = 57). That analysis resulted in significant relationships between three independent variables: DWR, RC, AS, and the dependent variable GPA. The adjusted R^2 for the generated predictive model was low, but still higher than the adjusted R^2 for the model generated for the original sample.

After looking at the results of the samples of controlled social factors, the researcher conducted a data analysis on the female and Black, non-Hispanic participants, the largest subgroup (n = 47) in the original sample (n = 96). The researcher found that there were significant relationships between the independent variables: DWR, RC, AS and the dependent variable, GPA. The adjusted R^2 of the predictive model generated for this female and Black, non-Hispanic sample was also more than three times bigger than the adjusted R^2 of the original sample (n = 96). Lastly, the researcher controlled for one of the variables, RC, and created the female, Black, non-Hispanic and enrolled in two or more remedial courses sample (n = 36) for analysis. This analysis resulted in the strongest correlation of all the samples between AS and

GPA. There was also a significant relationship between DWR and GPA. The predictive model generated had the highest *F* value of all the other models (see Table 14).

CHAPTER FIVE
DISCUSSION

Introduction

This study used quantitative techniques to explore whether the non-cognitive factors measured by the NCQ and other variables developed from data collection would have a statistically significant relationship(s) with the first semester GPA and generate predictive models for nontraditional students at a community college. Because community colleges use cognitive factors alone to gauge the potential of nontraditional students, the goal of this study was to find those statistical relationships for non-cognitive factors and use them to develop predictive models of the first semester GPA—giving community colleges an alternative method to measure their potential. The researcher created several predictive models for the original sample (n = 96) and additional subgroup samples. This chapter begins with an analysis of the findings of this study, followed by recommendations and implications for policy, practice, and future research.

Discussion and Analysis of Findings

The researcher used the data analysis to determine if there was any significant correlation between the dependent variable, GPA, and the independent variables: those measured by the NCQ (PSC, RSA, AS, DWR, LEX, KIF, DCS, LRG), and the other variables created from collecting information from the participants (NTS and RC). Using those significant correlations, the researcher created models for the variables to predict the first semester GPA of nontraditional students. The results suggested that there were significant correlations between DWR and GPA in all of the samples (original, female only, Black, non-Hispanic, Black, non-Hispanic and female, and Black non-Hispanic female enrolled in two or more remedial courses) of

nontraditional students. The statistically significant weak negative relationship (Allen, 1996) between DWR and GPA in all samples indicated that as a participant's awareness of racism and their ability to cope with it decreases, their GPA increases. According to Sedlacek (1998), DWR or ability to deal with racism is a variable that measures whether the person is aware of their place in a racist society. In previous studies that used the NCQ as a tool, there were no significant correlations mentioned between DWR and academic outcomes (Adebayo, 2008; Ting, 2002; Tracey & Sedlacek, 1984, 1987). It is unclear if there were no significant relationships in those studies or if the researchers simply did not mention such relationships in their studies. The reason that there is a correlation for this sample is unknown and may indicate the need for further study. The predictive models generated for the original and the female only samples used DWR as a variable. For the other sample groups (Black, non-Hispanic and Black, non-Hispanic and female), the researcher excluded DWR from the model. The original sample's (n = 96) predictive model's adjusted R^2 was low (approximately 7%), indicating that DWR created little variance in the GPA score. Alternatively, the adjusted R^2 of the female only sample (n = 75) was three times the adjusted R^2 score of the original sample, indicating a larger variance created by DWR in the GPA. These results could be unique to this sample population, only because the researcher solicited the participants from a select group of students enrolled in a specific course at the community college. According to Sedlacek and Adams-Gaston (1992), the NCQ tends to yield lower correlations with samples of selected or enrolled students.

The samples of Black, non-Hispanic; Black, non-Hispanic and female; and, Black, non-Hispanic, female, and enrolled in two or more courses, had a statistically significant relationship between AS and GPA. In the Black, non-Hispanic sample (n = 57)—the largest of the race/ethnicity groups— the findings suggested that the NCQ variable AS had a weak positive

relationship with GPA (Allen, 1996). According to Sedlacek (1998), the non-cognitive variable AS measured whether a student could identify at least one person that they could turn to when they needed assistance. This weak positive relationship (Allen, 1996) was statistically significant and indicated that the more support available for Black, non-Hispanic participants in this sample, their GPA increased. The relationship between AS and GPA in the female and Black, non-Hispanic sample (n = 47) increased to a moderately positive relationship (Allen, 1996), generating a predictive model that used only AS as a predictive variable, tripling the adjusted R2 from the predictive model of the original sample (see Table 12).

After the results of the statistical relationship between AS and GPA strengthened in the Black, non-Hispanic female sample, the researcher controlled for the number of remedial courses they were enrolled in. This resulted in the strongest correlative relationship of this study and the highest adjusted R^2 of all the generated predictive models. The predictive model generated for Black, non-Hispanic females enrolled in two or more remedial courses used AS only as a predictive variable. When AS increased, first semester GPA increased as well. This was important information as Black, non-Hispanic females represent a special population group in post-secondary research and are now the most educated group in the United States (NCES, 2007). This suggests that most nontraditional students are Black, non-Hispanic females and explains why they were the largest subgroup in this sample (49%). Farmer et al. (2016) found that first semester GPA to be a predictor of graduation for black female students. Using the predictive model for this exceptional group could lead to prediction of graduation for Black females at their enrollment in a community college. It is no surprise that AS had a significant relationship with GPA. Sedlacek and Adams-Gaston (1992) found the same correlation between "NCQ support person" and first semester grades in student-athletes enrolled at a large eastern

university with NCAA Division I athletes in 1992. Sedlacek and Adams-Gaston referred to the student-athletes as nontraditional due to their "unique culture and set of experiences." The results may be unique to this sample population because the participants came from a group of students enrolled in a course at the community college. Additionally, according to Sedlacek and Adams-Gaston, researchers using the NCQ tend to get lower correlations with samples of selected or enrolled students.

The variable, RC (number of remedial courses enrolled) had a statistically significant relationship with GPA in all samples, except for the Black, non-Hispanic and female sample, for whom the researcher controlled the number of courses at two or greater. For all samples, the researcher generated a predictive model after step-wise regression analysis, which all had adjusted R^2 values greater than zero. The weak negative relationship between RC and GPA in all samples (except for the last sample where it is a controlled variable), indicated that as the number of remedial courses increased, their GPA decreased. Nontraditional students are underprepared academically upon entrance to community colleges and are more likely to enroll in developmental courses (Hodara & Cox, 2016). Ninety percent of the participants in the original sample (n = 96) had enrolled in at least one remedial course. Seventy-four percent had enrolled in two or more remedial courses. The remedial courses through developmental education prepared students for college coursework. The more developmental or remedial courses that the student had to complete, the more underprepared they were. This could have been the case for all nontraditional students or because students that enrolled in remedial courses often take the College Success Skills course. The researcher was not able to differentiate between the two factors. Follow-up qualitative inquiries could further investigate this phenomenon. The consistency in the negative relationship (weak and moderate) between the

independent variable, RC, and the dependent variable (GPA) related to the results of previous studies. According to Hodara & Cox (2016), nontraditional students are more likely to enroll in developmental courses upon entrance to a community college. The number of participants enrolled in remedial courses was 86 (90%) of the original sample (n = 96). Only 10 of the students had not enrolled in remedial courses. The predictive model generated for the female only sample included RC as a variable, only. The chosen models for the other samples did not include RC. Additionally, the college recommends the course where the researcher solicited participants to students enrolled in developmental courses. This may have led to the significant correlation between number of remedial courses and the first semester GPA for this population.

Recommendations for Policy, Practice, & Future Research Based on Results

Policy Recommendations

Based on the findings of the statistically significant relationships between two non-cognitive NCQ variables (DWR and AS) and first semester GPA, combined with the inaccuracy of cognitive skills testing alone to assess the academic preparedness of nontraditional students (Sedlacek, 2005), community colleges should consider implementing policies that include the use of non-cognitive factors in the assessment of academic preparedness of nontraditional students. Unfortunately, even with their known accuracies, non-cognitive factors have received little attention in education for two reasons. First, researchers typically use non-cognitive evaluations for self-knowledge not admissions evaluation; second, the tests are easy to manipulate (Mattern et al., 2014). The use of non-cognitive evaluations on a large scale is due to a couple of factors. The assessments that community colleges use to determine if a student is prepared for college is not universal, thereby leading to policy and procedural change at each individual site. The recommendation would be for community colleges to come together to

evaluate all the factors (non-cognitive and cognitive) that measure preparedness of nontraditional students and create policies that take both of those categories into equal consideration.

Practice Recommendations

The researcher recommends that community colleges administer and use the NCQ along with a demographic questionnaire in addition to cognitive variables to predict nontraditional students' academic success at their institutions. The questionnaire can calculate the variables DWR and AS and predict their academic performance in their first semester. Additionally, the scores from the NCQ can assess the needs of the nontraditional student. Student advisors or counselors can use those scores (high or low) to help students achieve success. The other non-cognitive variables that the NCQ measure can yield information on a student's self-esteem (PCS and RSA), career knowledge (KIF), long-term goal setting (LRG) and involvement in their community (CS). There are several services/programs/organizations at community colleges that can help nontraditional students improve their scores in those areas.

Community colleges should not only acknowledge that their population is largely nontraditional, but also provide support services for the nontraditional population so that these students can succeed, matriculate, and attract other students to enroll. Hittepole (2016) stated that nontraditional students face barriers in higher education that prevent them from achieving their academic goals, including a lack of resources, student support services, and academic flexibility. The findings for the Black, non-Hispanic sample and the Black, non-Hispanic female sample showed that AS was statistically related to first semester GPA. Community colleges should pour their resources into student support services for these populations, specifically Black, non-Hispanic females, the largest subgroup in this study and the fastest growing demographic in higher education (NCES, 2007).

The participants self-identified the seven characteristics that determine whether a student is nontraditional on the NCQ questionnaire; admissions officials can direct nontraditional students to the services/resources that the college has to offer. The seven characteristics that can affect the academic success of the nontraditional student and can be addressed upon entrance to the community college are: (a) works full time, (b) has dependents other than a spouse, (c) is a single parent, (d) enrolled part-time, (e) delayed enrollment, (f) is financially independent, and (g) did not receive a standard high school diploma (Horn & Carroll, 1996). Those students with dependents (married and single) would benefit from childcare services for the college. Those who work full time can have counselors who can help them create a class schedule that best suits their needs. Some colleges have services that provide students with grocery assistance, legal aid, medical care, and accounting services. Students need immediate referral so that they can use those services and prevent obstacles from hindering their performance in school. Providing these services early can help to increase the support that the nontraditional student receives. Because a statistically significant relationship exists between AS (availability of support) and first semester GPA, colleges can further increase the amount of support, thereby increasing GPAs as well.

These findings can also influence course offerings. The relationship between remedial courses and GPA can influence community colleges to institute preparatory programs for students during the summers and winter breaks for students that are deemed academically underprepared, especially for those that must enroll in two or more remedial courses. Colleges can develop a three to four-week course for students before they enter English, math, and reading developmental courses. The preparation courses will give the student a re-introduction to basic skills in each subject that will put them in a better position to pass the classes when they begin their first semester. This academic support service should be cost-free to the student and offered

at a time that is convenient for nontraditional students (daytime and evening options).

Future Research Recommendations

Based on the results, researchers should conduct further investigation into the relationship of AS and "availability of support" on nontraditional students for the knowledge of the institution. There is a difference between familial/personal support and institutional support. Follow up questions to gain knowledge of which type of support participants referred to (familial or institutional) would give colleges insight as to whether or not the support services that they currently provide are helping their students.

Additionally, the open-ended questions on the NCQ that asked participants about short and long-term goals could be followed up with qualitative inquiry that investigates whether the participants feel as if the college's student services are helping them to meet those goals. The NCQ variable "long range goals" did not have a statistically significant relationship with GPA, but the answers offer an insight into the students' goals. It would be beneficial to the college to help the participants reach their short and long-term goals. Some of the long-range goal responses that the participants reported were to become a homeowner and credit repair. The colleges could create a qualitative inquiry to survey some participants on their thoughts on first-time homebuyers' resources and credit counseling provided by the college. Aiding students in reaching their short/long term goals, such as home ownership and improvement of credit, would certainly benefit both the student and college and attract more students to that institution.

To further explore the relationship between RC and GPA, admissions offices should administer the NCQ to all incoming students, not just those enrolled in the College Success Skills Course. Examining the complete population of incoming nontraditional students would help to determine if the RC and GPA correlation applies solely to students enrolled in the

College Success Skills Course or to all the incoming nontraditional students at the community college.

Implications for Policy, Practice, & Future Research

Policy Implications

This quantitative study involved the examination of the non-cognitive factors that the NCQ measured and other variables developed from data collection would have a statistically significant relationship(s) with the first semester GPA and generate predictive models for nontraditional students at a community college. Because of the correlations between the non-cognitive factors measured by the NCQ and academic performance, the encouragement of the development and nurturing of non-cognitive factors/skills in early childhood, primary and secondary education should be the goal of education policy (Garcia, 2014). Education policy should include early childhood, elementary, and secondary education programs that not only recognize the importance of non-cognitive factors/skills, but also include their development in curriculum and extracurricular programming for students. Policies that support and develop non-cognitive factors in early childhood, elementary, and secondary education will ensure academic success for students whenever they decide to enter higher education.

Practice Implications

Researchers have shown that administering the NCQ as a predictor of academic success in minorities and special groups can occur at all levels of higher education. The NCQ is a predictor of academic success at several institutions of higher learning (Thomas et al., 2007). Researchers have used the NCQ in over thirty-three studies for student development. It was also a part of the criteria for the Gates Millennium Scholarship, a program funded by The Bill and Melinda Gates Foundation to predict success in prospective students. Because of the findings of

this study, the researcher suggests that the NCQ serve as a predictor of academic success of nontraditional students at community colleges.

When community colleges implement the NCQ in their admissions procedures, it will allow the institutions to gain a plethora of knowledge about these students. Implementation of the NCQ can also lead to better prediction of student success, determining whether intervention services are necessary or if the students need to complete specific courses that can lead to retention and increased matriculation for nontraditional students.

Research Implications

The participants in this study came from a select group of students enrolled in a specific course at the community college. According to Sedlacek and Adams-Gaston (1992), researchers using the NCQ tend to get lower correlations with samples of selected or enrolled students. In the future, researchers should administer the NCQ to the entire group of incoming students in the Fall semester (due to greater numbers in enrollment). Additionally, community colleges have open admissions, thereby making this group not "selective" and producing results that could have higher correlations between the non-cognitive factors and whatever specific outcome is under analysis. Furthermore, the college administration recommended the course selected for this study to students enrolled in developmental courses. This may have led to the significant correlation between number of remedial courses and first semester GPA. For research purposes, the researcher suggests not soliciting students from this specific course to see if similar results are achievable. Lastly, researchers should administer the NCQ to participants at the beginning of the semester. Due to procedures of administrative approval, the researcher administered the NCQ to the study sample later than anticipated. Most previous studies found that researchers should administer the NCQ in the beginning of the semester or before the participants begin the

semester (Adebayo, 2005; Boham, 1997; Sedlacek & Adams-Gaston, 1992; Ting, 2012). The delayed administration of the survey may have affected the results.

Because of the invisibility of the nontraditional student in the literature (Sissel et al., 2001), there is a need for further studies on nontraditional students and their experiences in higher education. Community colleges educate the highest percentage of nontraditional students (NCES, 2000); however, researchers need to examine nontraditional students' experiences at other institutions of post-secondary education. Failing to do so could only lead to further marginalization of this population (Sims & Barnett, 2015).

Conclusion

This study sought to determine if the non-cognitive factors measured by the NCQ and other variables developed from data collection would have a statistically significant relationship(s) with the first semester GPA of nontraditional students at a community college. Because community colleges only use cognitive factors to gauge the potential of nontraditional students, the goal of this study was to use those non-cognitive relationships to develop predictive models of the first semester GPA using the non-cognitive variables and other variables developed from data collection. This study found more than one statistically significant relationship between the non-cognitive factors and first semester GPA leading to the generation of predictive models through multiple regression analysis for the original sample (n = 96) and additional subgroup samples. The use of the predictive models generated from multiple regression analysis that community colleges can use to predict the academic success of nontraditional students in their first semester and lead to a greater understanding of the needs of nontraditional students during enrollment. Assessing the needs of the student during enrollment can guide curriculum choices and lead to higher retention and matriculation rates.

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APPENDIX A. NON-COGNITIVE QUESTIONNAIRE II WITH DEMOGRAPHIC QUESTIONS

Student Lola Number _____

Please answer all of the following questions.

1. Your gender is? Choose ONE

( ) Female

( ) Male

( ) Prefer not to say

2. Are you a first-time college student? Choose ONE

( ) Yes

( ) No

3. Are you the first person in your family to go to college? Choose ONE

( ) Yes

( ) No

4. Your race is? Choose ONE

( ) Black, Non-Hispanic

( ) White, Non-Hispanic

( ) Asian/ Pacific Islander

( ) Hispanic

( ) Other

5. Please check ALL of the following statements that describe you:

[ ] I enrolled in Delgado more than one semester AFTER I finished high school.

[ ] I am currently enrolled in LESS than 12 hours at Delgado.

[ ] I am financially independent.

[ ] I financially support people (i.e., family members) other than my spouse.

[ ] I am a single parent that is responsible for a child(ren) for more than 50% of the time.

[ ] I did not receive a standard high school diploma.

[ ] I work more than 35 hours per week.

[ ] None of these describe me.

6. How much education do you expect to get during your lifetime? Choose ONE

( ) Some college

( ) An Associate's Degree

( ) A Bachelor's Degree

( ) A Master's Degree

( ) A Doctoral Degree

7. Please list three (3) goals that you have for yourself right now. (Please write clearly)

a._____

b._____

c._____

8. About 50% of college students typically leave before receiving a degree. If this were to happen to you, which of the following would be the reason? Choose ONE

( ) I'm absolutely certain that I will obtain a degree.

( ) To accept a good job.

( ) To enter the military.

( ) The cost would be more than I can afford.

( ) Marriage.

( ) Disinterest in study.

( ) Insufficient reading skills.

( ) Other.

9. Please list three (3) personal accomplishments that you are proud of.

(Please write clearly)

a. _____

b. _____

c. _____

#10- 27 Please select which of these answers best describes your feelings on ALL of the following statements. Please choose ONE answer for each question.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Colleges and universities should use their influence to improve social conditions.	( )	( )	( )	( )	( )
It should not be very hard to get a B (3.0) average at DCC.	( )	( )	( )	( )	( )
I easily get discouraged when I try to do something and it doesn't work.	( )	( )	( )	( )	( )
I am sometimes looked up to by others.	( )	( )	( )	( )	( )
If I run into problems concerning school, I have	( )	( )	( )	( )	( )

someone who would listen to me and help.					
There is no use doing things for people. You find that you get it in the neck in the long run.	( )	( )	( )	( )	( )
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
In groups where I am comfortable, I am often looked to as a leader.	()	()	()	()	()
I expect to have a harder time than most students at DCC.	( )	( )	( )	( )	( )
Once I start something, I finish it.	( )	( )	( )	( )	( )
When I believe strongly in something, I act on it.	( )	( )	( )	( )	( )
I am as skilled academically as any student at DCC.	( )	( )	( )	( )	( )

I expect that I will encounter racism at DCC.	( )	( )	( )	( )	( )
People can pretty easily change my mind even when I thought my mind was already made up on a subject.	( )	( )	( )	( )	( )

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My friends and relatives feel that I shouldn't go to college.	()	()	()	()	()
My family has always wanted me to go to college.	( )	( )	( )	( )	( )
If tutoring is made available on campus at no cost, I would attend regularly.	( )	( )	( )	( )	( )
I want a chance to prove myself academically.	( )	( )	( )	( )	( )
My high school grades don't really reflect what I can do.	( )	( )	( )	( )	( )

28. Please list offices held and/or groups belonged to in high school or in your community. Please number your items 1, 2, etc.. (Please write clearly)

_____
_____
_____
_____

APPENXIX B. CONSENT FORM

Consent to Participate in a Research Study

Title of Study: Assessing the Correlations between Noncognitive Factors and the first semester GPA of No

Nontraditional Students at a Community College

Investigators:

Name: Alexis Parent Dept: Education Phone: (504) 251-1230

Introduction

- You are being asked to be in a research study of noncognitive factors and first semester GPA
- You were selected as a possible participant because you are enrolled in a College Success Skills course and are a first semester student.
- We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

Purpose of Study

- The purpose of the study is to assess the relationship(s) between noncognitive factors and first semester GPA.
- Ultimately, this research will be used in a dissertation.

Description of the Study Procedures

- If you agree to be in this study, you will be asked to do the following things: complete a questionnaire. You also allow the researcher to retrieve your Spring 2019 grade point average from college records.

Risks/Discomforts of Being in this Study

- There are no expected risks beyond those typically encountered during daily interactions.

Benefits of Being in the Study

- There are no expected benefits to this study.

Confidentiality

- The records of this study will be kept strictly confidential. Questionnaires will be shredded and discarded after data is collected

Payments

- There will be no compensation for participation in this study.

Right to Refuse or Withdraw

- The decision to participate in this study is entirely up to you. You may refuse to take part in the study at any time without affecting your relationship with the investigator of this study or Delgado Community College. Your decision will not result in any loss or benefits to which you are otherwise entitled. You have the right not to answer any single question or not to complete the questionnaire.

Right to Ask Questions and Report Concerns

- You have the right to ask questions about this research study and to have those questions answered by me before, during or after the research. If you have any further questions about your rights as a human participating in research you may contact Dr. Charles Gramlich, Chair of the Xavier University IRB, at cgramlic@xula.edu or (504) 520-7397

Consent

- Your signature below indicates that you have decided to volunteer as a research participant for this study, and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the researcher.

Subject's Name (print): _____

Subject's Signature: _____

Date: _____

Investigator's Signature: _____

Date: _____

APPENDIX C. SCORING FOR THE NONCOGNITIVE QUESTIONNAIRE II

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COLLEGE PARK, MARYLAND
20742

SCORING KEY FOR SUPPLEMENTARY ADMISSIONS QUESTIONNAIRE *II*

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QUESTIONNAIRE ITEMS | **VARIABLE NAME (NUMBER)**

6 Use to score for Self-Concept" (I)
Option 1 = 1; 2 = 2; 3 = 3; 4 = 4; No response = 2

A. Options for Long Range Goals (IV)
Each goal is coded according to this scheme:

1 = a vague and/or immediate, short-term goal (e.g., "to meet people," "to get a good schedule," "to gain self-confidence")

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2 = a specific goal with a stated future orientation which could be accomplished during undergraduate study (e.g., "to joiri a sorority so I can meet more people," ".to get a good schedule so I can get good grades in the fall," "to run for· a student government office")

3 = a specific goal with a stated future orientation which would occur after undergraduate study (e.g., "to get a good schedule so I can get the classes I need for graduate school," "to become president of a Fortune 500 Company")

B. Options for Knowledge Acquired in a Field (VIII)
Each goal is coded according to this scheme:

QUESTIONNAIRE ITEMS	VARIABLE NAME (NUMBER)
	1 = not at all academically or school related; vague or unclear (e.g., "to get married," "to do better," "to become a better person")
	2 = school related, but not necessarily or primarily educationally oriented (e.g., "to join a fraternity," "to become student body president")
	3 = directly related to education (e.g., "to get a 3.5 GPA," "to get to know my teachers." Find the mean for each dimension (e.g., Long Range Goals and round to the nearest whole number).
8	Use to score for Self-Concept (I) and Self-Appraisal (II) Option 1 = 4; 2 through 9 = 2; No response = 2
9	Use to score for <u>Self-Concept (I)</u> **Each accomplishment coded according to this scheme:**
	1 = at least 75% of applicants to your school could have accomplished it (e.g.,"graduated from high school," "held a part-time summer Job")
	2 = at least 50% of applicants to your school_ could have accomplished it (e.g., played on an intramural sports team,"· "was a member of a school club")
	3 = only top 25% of applicants to your school could have . accomplished it (e.g., "won an academic award," "was captain of football team")
	Find the mean code for this dimension and round to the nearest whole number.

For items 11 through 28, positive-(+) items are scored as is. Negative(--) items are reversed_, so that 1 = 5, 2 = 4, 3 == 3, 4 = 2, and 5 = 1-. A shortcut is to subtract all negative item responses from 6.

QUESTIONNAIRE ITEMS	DIRECTION	NAME (NUMBER)
10		Use to score for Racism (Ill)
11		Use to score for Realistic Self-Appraisal (II)
12	**+**	**Use to score for Long-Range Goals (IV)**
13		**Use to score for Leadership (VI)**
14		**Use to score for Availability of Strong Support (V)**
15	**+**	**Use to score for Community Service (VII)**
16		**Use to score for Leadership (VI)**
17	**+**	**Use to score for Racism (Ill)**
18		**Use to score for Long-Range Goals (IV)**
19		**Use to score for Positive Self-Concept (I)**
20		Use to score for Realistic Self-Appraisal (II)
21		Use to score for Racism (Ill)
22		Use to score for Positive Self-Concept (I)
23		Use to score for Availability of Strong Support (V)
24		Use to score for Availability of Strong Support (V)
25		Use to score for Racism (Ill)
26		Use to score for Racism (Ill)
27		Use to score for Positive Self-Concept (I)
28		Use to score for Leadership (VI), Community Service (VII), and Knowledge Acquired in a Field (VIII). Each organization is given a code for A, B, arid C below. Find the mean for each dimension (e.g., Leadership) and round to the nearest whole number.

A. Leadership (VI)

1 = ambiguous group or no clear reference to activity performed (e.g., "helped in school")

2 = indicates membership but ho formal or implied leadership role; it has to be clear that it's a functioning group and, unless the criteria are met for a score of "3" as described below, all groups should be coded as "2" even if you, as the rater, are not familiar with the group (e.g., "Fashionettes," l was part of a group that worked on community service projects through my church")

3 = leadership was required to fulfill role in group (e.g., officer or implied initiator, organizer, or founder) or entrance into the group was dependent upon prior leadership (e.g., "organized

a tutoring group for underprivileged children in my community," "student council")

B. Community Service Relatedness (VII)

1 = no community service performed by group, or vague or unclear in relation to community service (e.g., "basketball team")
2 = some community service involved but it is not the primary purpose of the group (e.g., "Scouts").
3 = group's main purpose is community service (e.g., "Big Brothers/Big Sisters") ·

C. Knowledge Acquired in a Field (VIII) (same coding criteria as used for item 88.

APPENDIX D. NCQ II Worksheet for

1. Positive Concept of Self (PCS)

   Item6 + item8 + item 9 + (6-item19) + item 22 + (6-item 27) = _____

2. Realistic Self-Appraisal (RSA)

   Item 8 + (6 - item 11) + (6- item 20) = _____

3. Understands and Deals with Racism (DWR)

   (6 - item 10) + item 17 + (6 - item 21) + (6 - item25) + (6 - item26) = _____

4. Preference for Long-Range Goals (LRG)

   Item 7A + item 12 + (6 – item 18) = _____

5. Availability of Support (AS)

   (6 – item 14) + item 23 + (6 – item 24) = _____

6. Successful Leadership Experience (LEX)

   (6 – item 13) + (6 – item 16) + item 28A = _____

7. Demonstrated Community Service (DCS)

   Item 15 + item 28B = _____

8. Knowledge in Field (KIF)

   Item 7B + Item 28C = _____