PATHWAYS TO COLLEGE READINESS: THE EFFECTS OF PRE-COLLEGE AND DEVELOPMENTAL PROGRAMS ON STUDENTS

by

RENÉE R. HANSON

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written under the direction of

Alan Sadovnik, Ph.D., SPAA, RU-N Chair

and approved by

Dula F. Pacquiao, Ed.D. RBHS

Peija Zha, Ph.D. RBHS

Rubab Qureshi, Ph.D. RBHS

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ABSTRACT

Pathways to College Readiness: The Effects of Pre-College and Developmental Programs on Students

RENÉE R. HANSON

Dissertation Director: Alan Sadovnik, Ph.D.

The purpose of this study is to determine the effectiveness of these academic programs and college readiness of student participants in pre-college/college developmental programs. Two education programs were assessed. Mixed method design was implemented and triangulation was used as there was a convergence of results from both quantitative and qualitative research methods. A longitudinal sample of 1,400 participants who entered a college developmental program over a ten-year period was analyzed. A series of statistical analyses were conducted from the sample. Logistic regression models were created to predict persistence and degree attainment of participants. In addition, interviews and classroom observations were also conducted for further analysis.

The data revealed that African American students (male and female) were predominant participants in both program A and B compared to other race and ethnic groups in the programs. Program B students showed positive graduation rate outcomes as first-time, college degree-seeking students overtime when compared to the U.S. average graduation rate of traditional first-time bachelor degree-seeking students. The combination of logistic regression results and the qualitative data collected and analyzed showed program B students were more likely to earn a college degree in five years and beyond.

Preface

The United States has become a significant participant in the world's new, knowledgebased global and technological economy. Based on this new economy, now more than ever, American students must be well-prepared in their educational and career endeavors especially in mathematics, science, social sciences, and technology in order to compete with their global counterparts. As a result, the issue of college readiness has gained significant attention. College readiness is broadly defined as youth possessing key academic comprehension, skills and habits in credit courses without the need for remedial curriculum or training, however not all students are performing at the levels needed especially low-income urban youth. Once in college, a number of these students are recommended for non-credit remedial classes.

This dissertation examines two programs aimed at increasing college enrollment, retention, and/or the graduation rates of first-generation/low income students, one a pre-college program (program A) and the second a developmental college program (program B).

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CHAPTER I: Introduction

Historical research evidence has long shown that people of color, particularly disadvantaged African Americans, have had an extensive history of setbacks and their despair began in the nation with the transformation of the economic structure. For example, race has played a significant role either in the success or loss of educational, occupational attainment, and status. The history of racial discrimination in schools, employment, housing, economic and social opportunity in the United States created dire outcomes for many low-income African Americans and other low-income groups of color. While some African Americans became more educated and successful after slavery, others left behind became more 'visible' in their struggle as part of the permanent urban poor. These negative and unequal societal factors are a reality and have further exacerbated into the late twentieth century and today. For the past two decades, educational reform has once again become a key platform in the policy and research arenas. To help in this reform effort, pre-collegiate / college developmental programs remain a pathway to college readiness and higher degree attainment.

Pre-College and College Developmental Program Overview

TRIO programs have been regarded as one of the first national college access and retention programs to address the important social and cultural barriers to education in America among minority groups, particularly low-income African Americans. As a part of President Lyndon B. Johnson's War on Poverty, one of the first TRIO programs created under the Educational Opportunity Act of 1964 was the then pilot program Upward Bound. After the Higher Education Act (HEA) passed in 1965, three programs

were implemented, Upward Bound, Talent Search, and Student Support Services (SSS), regarded as TRIO programs, were developed to help individuals from economically and socially challenging life circumstances in order to continue their education post high school. Under TRIO, another eight programs were enacted to provide various educational services at differing stages of a student's educational trajectory, such as the Ronald E. McNair Scholars Program. The McNair program was founded in 1986 and is a federally-funded education achievement program that recruits low income/firstgeneration and underrepresented undergraduate college students in preparation for doctoral (PhD) study.

For example, Upward Bound continues to be one of the largest academic programs and also represents longevity as a U.S. federal program geared towards the preparation of disadvantaged students to succeed in college. Seftor et al. (2009) quoted from Public Law 90-222, December 23, 1967, that Upward Bound is "designed to generate skills and motivation necessary for success in education beyond high school for those students from low-income households and low-quality secondary school preparation (pg. 4)." The U.S. Department of Education (2010) added that Upward Bound's mission is to increase the number of students who complete secondary education and enroll in and graduate from postsecondary education institutions. The majority of Upward Bound projects are hosted by colleges and universities. Myers et al. (2004) also adds that although students may participate in Upward Bound through the summer following twelfth grade (for three to four years total); participants typically remain in Upward Bound for about 20 months. The Department of Education (2011) noted Upward Bound projects have long provided students with a myriad of academic services, including mathematics, sciences, writing, and English/Language Arts instruction. Tutoring, counseling, mentoring, cultural enrichment, work-study programs, education or counseling services designed to improve the financial and economic literacy of students; and programs and activities previously mentioned that are specifically designed for students who are limited English proficient, students from groups that are traditionally underrepresented in postsecondary education, students with disabilities, and other disconnected students.

Congress has mandated TRIO programs' to include two-thirds of students from families with incomes under \$33,075, with neither parent graduated from college. According to 2008 data from the Council for Opportunity in Education (COE), more than 1,000 colleges, universities, community colleges, and agencies now offer TRIO programs in America, the Caribbean and the Pacific Islands and funds are distributed to institutions through competitive grants.

Purpose of Study

The purpose of the study is to examine the educational and social aspects of precollegiate/developmental programs and whether these programs have been able to create educational opportunities and transform the educational trajectories of first-generation, low–income, minority and underrepresented high school students these programs serve.

The study used a case study design to evaluate two programs (a pre-college program for high school students and a college developmental summer program for high school graduates in the mid-Atlantic area of the United States) was conducted. The programs were examined for their longevity and how each program was able to provide access to higher education by halting some of the educational barriers most often faced by disadvantaged and low-income students. The scope of this research was primarily to explore the issue of "college-readiness." A National Assessment of Educational Progress (2009) report defined college readiness as an academic preparation referring to reading and mathematics knowledge and skills necessary to qualify for placement into entry level college credit-bearing courses that meet general requirements without the need for remedial coursework. Students need to be prepared for academic success beyond high school. Overall, a 2016 report by the American College Testing (ACT) entitled "The Condition of College and Career Readiness" showed that only 26 percent of ACT-tested high school graduates were ready for college-level coursework. Math and science coursework continue to be a challenge for U.S. high school students.

Research Questions

The key questions asked in this study are given the dismal statistics of profound poverty, educational inequalities, and low academic achievement particularly among lowincome African Americans; how have pre-college and developmental programs affected educational outcomes, and whether or not these university program models and practices are working to improve the student participants' educational outcomes or more specifically whether the students will be college-ready. The study seeks to answer the following questions:

 What factors (parent education, gender-race categories, SAT scores, etc.) predict English and math grades in the college developmental program (program B)?

- 2) What factors (gender, race, parent education, high school GPA, etc.) predict college persistence/degree attainment in the college developmental program (program B)?
- 3) How does the college developmental program enable low income and students of color who enter college, not being college ready, gain college skills and/or graduate in numbers comparable to the general college student population?

As a foundation for this research, I use the theoretical frameworks of conflict theory and interactionist/labeling theory. The first section will provide a historical overview of the United States educational system, African Americans with a review of the Brown vs. Board of Education case, black educational outcomes, and the current state of the U.S. educational system. The next section will address the underlining results of concentrated poverty in the educational attainment and achievement of students of color with particular focus on African Americans. The third section will use data collected on a pre-college program (program A) and a developmental program (program B) through indepth interviews and classroom observations, in addition data/annual reports were used to analyze any evidence of the level of effectiveness in reforming the education of their participants and providing the college ready skills needed for student retention and degree attainment. The last section will provide findings from the data and suggest recommendations/implications from the evidence found.

Program Effects of Other Pre-Collegiate Programs

This study examines a pre-college and developmental program and analyzes the effects or achievements found by previous research studies. "With many pre-college programs, they tend to strive for student academic rigor and social preparedness for college (Tierney, Corwin, and Colyar, 2005)." In addition, Gandara & Moreno (2002) stated that although academic rigor and preparation have been affirmed by research evidence, there is still a lack of research evidence that shows the impact of college preparation programs on increasing college enrollment and persistence.

Over the years, very few large-scale evaluations of pre-college programs have been implemented. Most of the research studies and evaluations tend to focus on two key federally funded programs, Upward Bound and GEAR-UP. Burkheimer, Riccobono, and Wisenbaker (1979) conducted one of the first research evaluations of pre-collegiate programs by a team at the Research Triangle Institute (RTI), which conducted a comprehensive longitudinal evaluation of Upward Bound programs from 1973 to 1978. According to Coleman (2011), the early results from the evaluation showed that the Upward Bound Program had an impact on educational aspirations, postsecondary education progress and persistence. The RTI researchers concluded that the Upward Bound program effectively met its mandated goal of providing participants with the skills and motivation needed for enrollment and success in postsecondary education.

The Mathematica Policy Research, Inc (MPR), an independent think-tank that analyzes public policy, has challenged RTI's findings and created controversy by demonstrating mixed outcomes of the effectiveness of Upward Bound (Myers, Olsen, Seftor, Young & Tuttle, 2004). The Mathematica study was the first large-scale evaluation of Upward Bound in the late 1970s. The scope of the research involved the random selection of 67 Upward Bound sites and conducted a comparison of Upward Bound students to a control group of students with similar socioeconomic (SES) characteristics who are non-Upward Bound participants. Furthermore, the think-tank (RTI) examined educational outcomes including whether a student who graduated from high school applied to college, was admitted, and actually enrolled. Overall, the study found that Upward Bound had 'no impact' on students when it came to grade point average or credits earned in courses such as science or English. "Upward Bound had no impact on high school graduation" (Myers, et al., 2004, p.8)"

For example, in a 2004 report, MPR (Myers, et al., 2004) presented some mixed inconsistent outcomes for UB students overall, however, concluded there were larger, positive impacts for students who entered the program with *low educational expectations*. The findings in the study reported were significant at the 0.1 level. The following are several findings from the study. First, a comparison of UB students to non-participants (control group) found that the UB participants: 1) earned more non-remedial high school credits in math (0.2 credits); 2) were more likely to receive financial aid to attend college (33 percent vs. 30 percent); 3) earned more non-remedial credit and 4) more likely to remain in school (35 percent vs. 28 percent).

Another finding analyzes the two groups by race and ethnicity. The UB Latino students completed 10 percent more high school credits than Latinos in the control group; less likely to drop out of school and more likely to earn non-remedial or nondevelopmental credits in four-year colleges. UB African American students earned 16 percent more Advanced Placement credits than their non-program African American peers, and UB white students earned 10 percent more high school credits than their nonprogram white peers in the control; and UB white students were also less likely to drop out of school, and they earned less remedial credit in college. UB male students, across all races and ethnicities, were less likely to drop out of school and were more likely to attend a highly selective four-year college. Females in the UB program participated in fewer remedial courses than their peers in the control group when attending two-year academic institutions. In addition, UB had a small impact on high school graduation and college access for female students.

Despite the outcomes presented by the Mathematica Policy Research, Inc. (1979, 2004, 2009), several other studies on pre-college programs (Upward Bound and Student Support Services) found that these programs assist at-risk among students in high school and beyond. Horn & Chen (1998) stated that "participating in any type of outreach program during high school nearly doubled the odds of "at-risk" among the1992 high school graduates enrolling in a four-year college or university." There is more evidence of this available from the College Board and the Council of Opportunity in Education (COE); however, because of limited funding they were unable to hire external evaluators for more rigorous evaluations (Hagedorn & Tierney, 2002).

"The American Youth Policy Forum/AYPF (2006) found that students participating in the program beyond a year were 14 percent more likely to attend a fouryear college than students who stayed in the program less than one year" (pg. 173). Overall, students who participated through their senior year had the greatest benefits from UB. According to AYPF, 85 percent of the students who remained in UB their senior year enrolled in college after they graduated from high school.

Since 1997, "several national studies on federal TRIO programs have been conducted by the U.S. Department of Education (Pell Institute, 2010)." Data show that

TRIO program participation has a significant impact on the educational outcomes of lowincome, first-generation students and students with disabilities.

The current U.S. education arena shows that government federal grant agencies have even higher accountability measures, especially when it comes to the challenging issue of college readiness for students not just in education but also using high quality education to be career ready in the new, global knowledge-based workforce. Gandara et al (1998) and Perna & Swail (1998) added that policymakers understand that Upward Bound and Talent Search programs provide a beneficial service to program participants, however, the empirical research is limited about what program strategies work best and for whom.

Summary

In order to produce better college ready outcomes, policy makers at the federal, state, and institutional levels have to understand that there needs to be continued efforts of improving retention and graduation rates at the high school level. Examining these pre-collegiate programs that stress support of successful college preparation and retention may assist educational leaders and policymakers in having better awareness that more investment is needed in higher education and pre-college programs. Further, it is important to recognize the urgency of obtaining positive student outcomes for all students, especially low-income, first-generation, and underserved populations. This study may provide helpful information for high school college readiness programs working with disadvantaged students; and help to create efforts in increasing the key objectives of college readiness, such as academic rigor, college retention, and degree attainment.

CHAPTER II: Theoretical Framework

With today's global economy, education and skills are a must and American secondary schools have to achieve at even higher levels to sustain its competitive edge. The theory is that all U.S. citizens have an opportunity to develop their skills, in other words, everyone has an equal chance to succeed. However, this has not been the case in most American schools. This issue has been argued among conflict theorists. Conflict theorists do not believe that the US has a "just democratic society", especially when it comes to equal educational attainment.

Figure 2.1 Conceptual Framework Diagram

Conflict Theorists: Based on Collins (1971), Bourdieu (1977), Bernstein (1961,1971) Anyon (2005)



"Conflict theory posits that that conflict is a fundamental part of the social order, and that schools are a critical site for the reproduction of social inequality, specifically class conflict and racial stratification (Chernoff, 2013)." The author also stated larger social forces produce unequal outcomes that favor among schools help maintain reproduction of status quo. Conflict theorists such as Jean Anyon in her book, Radical Possibilities (2005) agrees there could be greater equality of opportunity for liberal education, however Anyon is skeptical and believes that more powerful groups would find a way to overpower this or that schools are functioning in the interests of the "dominant groups in society" (pg. 3). In other words, the relationship between school and society is problematic and there will be limitations in reducing the achievement gap by the mindsets of educational authority figures and the advantaged school districts. Another issue from conflict theorists, like Max Weber, is the educational barriers associated with class position and status. Contemporary conflict theorists have developed the Weberian theory further.

For example, sociologist, Randall Collins (1971), stated that educational expansion is best explained by status group struggle, between prominent groups both in educational backgrounds and social class, e.g., top tier, elite schools and the less prominent educational groups such as second or third tier research schools. Collins showed that social origins can affect educational and occupational achievements after one graduates.

Pierre Bourdieu's (1977, 1986,1992) sociological approach was a linkage between macro and micro processes of school and society. Bourdieu demonstrated how cultural capital, including forms of culture, music, literature, etc. is passed on by families and schools and how social capital advantages advantaged groups. The concepts of cultural and social capital are important because in order to understand the transmissions of inequalities, one must recognize imperative indicators of status and class position. For example, social capital includes networks that give families knowledge of college and the admissions process.

Another conflict theorist Basil Bernstein (1961, 1971) expounded on the social origins effect within education. Bernstein's sociological approach included macro and micro processes. Bernstein believed that structural aspects of the educational system such as speech patterns/languages or communication codes reflect students' social class setting status and schools are usually middle-class organizations. Furthermore, Bowles and Gintis (1976, 2002) stated that the achievement ideology is disguised as "true power relations" within the schools that in turn reflect and correspond to the power relations with the larger society.

Interactionist theory is another concept that provides a useful analysis of liberal educational reform such as Upward Bound and other pre-college programs. The theory is based on a combination of functionalism and conflict theory to produce a theory of society. Along with Rist (1970), other research studies have examined this self-fulfilling prophecy of labeling techniques. According to Cullen and Steberny (1976), IQ tests, personality tests, and categories such as "slow learner" and "hyperactive" are seen to be guilty of attaching stigmatic labels, and in some cases, mislabeling altogether. Cullen and Steberny described labeling theory as related to an ascribed or conferred state. The question is how the issue of school labeling and the mechanism involved started the

production of the self-fulfilling prophecy? Numerous labeling theorists have debated this point since the early twentieth century.

Within the realm of education, faulty labeling of the student as deviant, either in reference to the student's intellectual capacity or behavior in class set the stage for processes that make the student become what he or she has been labeled. A 1971 study by Brian Simon showed that "I.Q. and achievement tests are devices whose primary function is to classify, sort and arrange people (pg. 65)." Simon (1971), Clark (1963) and Pepin (1971) also added that this testing was often used to evaluate minority youth. Other criteria for labeling other than testing which has been equally important are ascriptive characteristics such as race, age, and gender. Rist (1971) stated that the symbolic significance of these characteristics and how they are defined is significantly determined by the way they form together with the cultural baggage that a teacher or school labeler brings into an encounter with a pupil. For example, educators tend to utilize appearance-based criteria. Clifford and Walster's (1973) study found labeling students as deviant by race. Symbolic interactionists, i.e., Mead (1934), Cooley (1964) Blumer (1969) and Goffman (1959, 1963) showed that both public or social internalized identities ("selves" or "me's") emerge through the interaction of active, reflective, interpretive individuals.

In fact, Erving Goffman (1959) argued that the functions of interactions are to hold societies together. Ray Rist, another interactionist, expressed how school processes affect educational achievement and drew from Goffman's use of the labeling theory. Rist emphasized situations where societal reaction will enclose an actor in a deviant role independent of the actor's choice. This is clearly shown in Rist's study (1971) where elementary school students, labeled as intellectual deviants because of their lower-class status by a classroom teacher, were placed into an inadequate/low-quality curriculum by the teacher and eventually became what they had been labeled. His classic study described how black students from low-income backgrounds were placed in lower reading classes compared to middle-class students placed in advanced reading classes.

Rist and other labeling theorists stressed that the students and schools often mirror the hierarchy of society, in which the less advantaged are more likely to acquire devalued labels and the more advantaged students tend to acquire valued labels. Cullen et al. (1976) stressed that labeling in schools serve as a mechanism that has helped exacerbate the ongoing stratification system in our society.

In many of today's poorly funded urban school systems, students of color continue to be less likely to possess the basic skills in areas of reading, math, and writing, to advance into higher education and succeed. A 2006 report by the Alliance for Excellent Education, stated that U.S. high schools are in crisis with low graduation rates and the high dropout rates serve only as one of many indicators of this crisis. Hecker (2005) reported that postsecondary education is critical for eligibility in 80 percent of the fastest-growing jobs in the U.S. In the analyses of student preparation regarding collegelevel work, showed weakness in core skills, such as basic study habits and the ability to understand and manage complicated material.

The vast majority of students who took developmental education courses in college do so to gain the skills and knowledge they should have received in high school. A 2004 National Center for Education Statistics (NCES) study found that the point that a student leaves college is the issue of lack of reading skill comprehension. Many

American high schools are not adequately preparing students for the rigors of college and career. Adelman (2006) stated, "a rigorous high school curriculum is a strong predictor of college readiness while a weak curricula, vague standards, and lack of alignment between high school content and expectations of college are still in need for development" (pg.19).

The term college readiness has remained one of the United States' most pressing educational issues. Students are departing high school without the needed intensive academic preparations for college success. A 2008 U.S. Department of Education report stated that 21 percent of all entering freshmen reported taking at least one developmental course. That same year, the Strong American Schools (2008) report entitled "Diploma to Nowhere", stated that 60 percent of freshman who enrolled every year in the California State University system, the nation's largest, took a developmental course. These reports suggest that the lack of college readiness trends need to be reversed for better student learning and because of the emergence of new knowledge –based global competition.

According to Conley (2007), college readiness is often defined in the education field as the level of preparation a student needs in order to succeed without the need of developmental education in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate program. Furthermore, "success" means a student who completes entry-level courses at a level of comprehension makes it attainable for students to take the next course in sequential order or the following course in the subject area. Klasik & Strayhorn (2018) stated that college readiness is hard to define and readiness means that students are prepared to succeed in college, however defining "success" is difficult (pg. 334). The reason for the operational definition is that a number of educational experts have various definitions on how college readiness should be measured. Klasik & Strayhorn (2018) also added college readiness measures like those of Conley (i.e., 2007, 2014) capture a more complete understanding of characteristics associated with college readiness, however the complexity of elements in Conley's components may be difficult for tracking national readiness trends (pg. 334). Most experts agree while high school graduation rates are low developmental education courses in U.S. colleges have immensely increased. "Among students who make it to college, completion is far from assured. Only a third of students who attend two-year colleges and graduate within three years and just 56 percent of students who attend fouryear institutions graduate within six years (ACT, 2007)." Unfortunately, this is especially the case for low-income students of color than their advantaged peers. Fifty percent of African American students and about 56 percent of Latino/Hispanic students graduate from high school, way below the national average of 73 percent. Although, in recent years, U.S. high school average graduation rates have risen to about 80 percent, however, students of color (i.e., African American and Latino students) have lower graduation rates compared to their white and Asian American peers.

The patterns of high school graduation rates and college readiness of students of color provide evidence of these educational disparities. The nation's post-secondary institutions is the high costs of developmental education that has resulted in unprepared high school graduates. This is not only detrimental to the students but to the nation as a whole. A research brief by the Alliance for Excellent Education (2011) reported that during the 2007-2008 school year, enrolled college students' developmental needs

throughout their time in college cost the nation about \$5.6 billion; including \$3.6 billion in direct developmental education costs for students who did not have the skills to succeed in post- secondary coursework. This holds true for certain colleges in the mid-Atlantic area. Ujifusa (2011) stated that developmental higher education costs a mid-Atlantic state almost \$90 million annually.

A series of initiatives have been developed to help reduce the need for developmental education and to try to align the student's high school coursework with post-secondary work demands. For example, David T. Conley (2007) identified four different areas imperative to postsecondary success. The areas include 1) core cognitive strategies; 2) core content knowledge; 3) academic behaviors; and 4) contextual skills and awareness.





Conley describes **cognitive strategies** as competencies that include analytical skills, critical thinking, well-reasoned arguments, evaluation of varied or conflicting perspectives and the development of problem solving skills which are important in classroom and career success. Next, **content knowledge** involves understanding larger

ideas that define a discipline such as the mastery of basic concepts in mathematics, science, English, social studies and arts in providing students the exploration of all areas and expressing themselves clearly. This area is where most high school courses and college curricula are not aligned and as a result, students are not college ready. **Academic behavior** is of vital importance because this concerns the student's ability to manage the increased level of work in post- secondary classrooms. This involves ownership of the learning process in which students demonstrate study skills including prioritizing coursework, good note-taking, organization and successful participation in study groups. For example, this may involve rigorous outside-the- classroom preparation and overall discipline. In addition, students will be expected to study independently and in groups, take critical feedback, and the initiative in seeking assistance in their coursework when needed. Lastly, contextual skills and awareness are key areas for not only academic but also social success (e.g., workforce). This means comprehending student-instructor interactions. 'College knowledge' is the knowledge imperative for choosing an appropriate college, understand how to navigate certain facilities while in college or as new freshman, such as the admission process and financial aid information (Conley, 2007).

Currently, an initiative is in place to help with the alignment of secondary school standards with postsecondary rigor and possibly reduce the need for developmental education. The state-led *Common Core State Standards Initiatives* in both mathematics and English language arts are one of these initiatives. The following table identifies key common core concentrations in mathematics and English for high school students.¹

¹ Common Core Standards Initiative Key Points

English/Language Arts	Mathematics
 Student vocabulary development through various instructions and readings. In addition, assist students in the 	 High school standards for students to prepare and practice the application of mathematical concepts to real world
comprehension of words meaning and vocabulary or phrase expansions.	issues.
 Prepare students for the 21st century workforce. Students should be able to apply formal English to their speaking and writing skills and also for students to make choices in language expressions. 	 College and career readiness standards to help students develop a deep comprehension or understanding of mathematics to novel issues.
 Vocabulary or terminology that is considered in their own category not because the areas should show in an autonomous way but because their use extends across reading, writing, speaking and listening. 	 Emphasis on high school standards pertaining to mathematical modeling and also the application of mathematics and statistics in the analysis of empirical situations and understand them better and improve decisions.
Source: Common Core Standards Initiative Ke	ev Points in Conley, D (2007) "Toward a More

Table 2.1:	: High	School	Common	Core	English	and	Mathematics	s Standar	ds
	()				()				

Source: Common Core Standards Initiative Key Points in Conley, D (2007) "Toward a More Comprehensive Conception of College Readiness", http://www.gatesfoundation.org/UnitedStates/Education/ResearchAndEvaluati/Research/HSImpro vement.htm (accessed March 12, 2010)

In July 2010, the District of Columbia State Board of Education adopted these national standards for English and math, joining other states in an effort to establish common expectations for what students need to learn each year from kindergarten through high school.

The purpose of this study is to identify the key indicators that pre-college programs use to measure college readiness and to test whether these indicators are producing the needed outcomes. In order to continue these standards, research suggests that programs like those in this study need to be better funded. A brief by the U.S. Secretary of Education, Arne Duncan (2011), addressed the U.S. Congressional Appropriations Committee concerning the Department of Education fiscal year 2012 budget. In the statement, the President's budget continued support for key existing programs supporting college access and completion, particularly for students of color and disadvantaged students. According to Duncan (2011), "the request included a \$67 million increase for the Federal TRIO program (i.e., Upward Bound) for a 2012 total of \$920 million and \$323 million for GEAR UP program, which assists an estimated 756,000 middle and high school students to prepare for and enroll in college" (pg.5).

CHAPTER III: Review of Literature

Although, in the past decade, the U.S. Department of Education has shown its commitment toward strengthening K-12 preparation and aligning high school standards with college expectations, more needs to be done. Students' lack of college preparation is evident in most U.S. high schools especially among low-income urban high schools. For example, Stover (2009) stated that 28 percent of college freshmen enroll in at least one remedial course so they can be prepared for the academic rigor of college classes." According to ACT Inc. (2016), only 26 percent of graduating seniors scored well enough to meet college readiness benchmarks in four key academic areas: English, math, reading, and science. Furthermore, these benchmark scores were not high enough, indicating that students could attain at least a C or higher in first-year college courses.

This literature review will address not only academic achievement gaps and how income statuses are linked to college readiness but also how the issue of place (the built environment) is often linked to the lack of college readiness, especially among low-income African American and Hispanic students. Theories in education, sociology, and urban studies are used to examine the prevalence of the lack of college readiness and the need for pre-college programs among many American high school graduates, their root causes, and particularly the educational impacts experienced by low-income minority and disadvantaged groups.

Race and Poverty

More than twenty years after Harvard University sociologist William Julius Wilson (1987, 1996, 2009) described what he saw as the causes and outcomes of

concentrated poverty, its persistence remains a relevant social issue today for low-income minorities, especially when it comes to educational opportunities.

In 1987, Wilson's groundbreaking book, The Truly Disadvantaged: The Inner City, the Underclass and Public Policy, Wilson was criticized for labeling residents of poor black communities as "the underclass". His book provided a framework for understanding why there was such concentrated poverty in black America. It provided a structural analysis of the 1965 report by the late U.S. Senator and sociologist Daniel Patrick Moynihan, who described impoverished African-American communities cultural deficits (i.e., low family values) as root causes of racism and slavery.

In his research, Wilson detailed geographical changes in the late 1960s and the early 1970s, including the out-migration of higher-income (mostly white) and then middle-income (white and black) families from urban neighborhoods, which resulted in impoverished, depopulated areas with greater social, educational and economic disadvantages. The 1970s marked the end of the Second Great Migration of blacks from the rural south to northern cities, where employment opportunities and transportation improvements were more in the suburbs and continued to facilitate flight from central cities. The groups left behind in those environments were low-income, many of whom were people of color (African American and Hispanic), isolated in a higher concentration of poverty with dilapidated housing and neighborhoods.

During the 1980s, poverty was further exacerbated by the lack of federal government support for basic urban programs. During the Reagan era, direct aid to cities was drastically cut, which resulted in reduced budgets for general revenue sharing or unrestricted funds that could be used for any purpose, such as economic development, social service block grants, job training and urban development action grants to name a few. Carole (1992) noted "that many of these programs have been designed to assist low-income individuals in gaining better financial security."

Since the 1990s, deindustrialization and technological change has made the labor market more suburban, which necessitated longer commutes by automobile, a commodity that most inner-city residents lack (Wilson, 2009). Often this group lacks information and knowledge about suburban job opportunities as well, a circumstance that has led to the problems of job and geographic mismatch. Those were just two of the factors contributing to new urban poverty.

Wilson and other scholars have long recognized that economic structural changes and joblessness have been factors in the persistence of poverty in the United States among poor African Americans, particularly males. According to Wilson (1996), joblessness not only affects those actively seeking work but also those who are outside the labor market or who have dropped out completely.

In Wilson's 1996 book, When Work Disappears: The World of the New Urban Poor, a follow-up to the Truly Disadvantaged (1987), the author stated that in 1950 a significant portion of the inner-city adult population was poor but at least working. In this book, Ending Poverty in America: How to Restore the American Dream, Wilson (2008) stated that the uncounted males, (those not actively in seeking employment) in the labor market are disproportionately represented in poor inner-city neighborhoods. In the last three decades, low-skilled African-American males have encountered increasing difficulty in gaining access to jobs, even menial jobs." In 2009, the number of unemployed reached 13.2 million, the rate rose from 8.1 percent to 8.5 percent, which is the highest since 1983. In the first five months of 2009, 3.3 million jobs were lost (U.S. Bureau of Labor Statistics, 2009). According to the U.S. Bureau of Labor Statistics, 663,000 jobs were lost in March 2009, 5.1 million since the recession began in December of 2007. Manufacturing jobs led in the losses, losing about 161,000 positions, 1.5 million since 2007 and construction lost about 126,000, 1.1 million jobs since 2007. Adult men continued to be hit the hardest; the male (ages 20 and up) unemployment rate rose from 8.1 percent to 8.8 percent. Black men saw their unemployment rate reach 15.4 percent, well above the national average (U.S. Bureau of Labor Statistics, 2009).

In 2009, the recession caused a major disappearance of jobs. The unemployment rate edged up to 8.2 percent. Unemployment had been higher for a longer time period than in any previous recession since the 1930s (and would be higher still if a substantial number of people had not stopped looking because job prospects continued to be dismal). The unemployment data also showed 13.6 percent for African Americans (4.6 percentage points higher than at the start of the recession); 11.0 percent for Hispanics or Latinos (4.7 percentage points higher than at the start of the recession) compared to 7.4 percent for whites (Stone, 2012).

A 2007 Brookings Institution report titled A Hand Up - a Strategy to Reward Work, Expand Opportunity and Reduce Poverty, stated that despite declining periods of poverty in the late 1980s and early 1990s, the nation's poverty increased again between 2000 and 2006 –the only time period on record when a strong rate of aggregate economic growth has coincided with an increase in impoverishment, especially in urban inner-city communities. In *A Hand Up*, author Jason Bordoff and his colleagues (2007) reported that poverty is correlated to family composition. For example, married couples experienced the lowest poverty rate, at 4.9 percent, while families with single, femaleheaded households experienced an extremely high rate of 28.3 percent.

An alarming statistic showed that the percentage of people in the United States who live in poverty is high relative to other developed countries. One reason is that when taxes, means-tested benefits and broad-based social insurance are factored in, social safety net policies are more generous in other countries than in the United States. Another reason could be that the poverty measures have been outdated. The poverty measure was developed more than forty years ago and is a specific dollar amount that varies by family size, but is the same across the U.S. (Census Bureau, 2009).

The economic situation is still quite challenging for low-income families. According to the U.S. Census Bureau (2017), in 2016, a family of four was considered poor when their annual income fell below \$24,563 and extremely poor when their income fell below half that amount \$12,282. Child poverty seemed to be related to both race/ethnicity and age. For example, the youngest children were the poorest and nearly 70 percent of poor children in the nation were children of color. The State of America's Children (2017) report also provides research evidence on child poverty in America. For example, in 2016 "nearly 1 in 5 children were poor in 2016 – more than 13.2 million children. About 1 in 3 Black and American Indian/Alaska Native children were poor compared with 1 in 9 white children."

Economists and statisticians agree that family income levels compared to the economy today are still not sufficient. Fass (2009) stated that there is no agreement about what constitutes a minimum but decent standard of living in the United States and



Figure 3.1: Percentage of Children in Poverty by Race/Ethnicity, 2016

Sources: "Child Poverty in America 2016: National Analysis" (2017), *Children's Defense Fund and* U.S. Census Bureau, Current Population Survey, 2017, "2016 Annual Social and Economic Supplement"

Figure 3.2: Percentage of Poor Children by Family Structure, 2016



Sources: "Child Poverty in America 2016: National Analysis" (2017), *Children's Defense Fund and* U.S. Census Bureau, Current Population Survey, 2017, "2016 Annual Social and Economic Supplement"

The Urban Poor

Urban poverty is defined by Wilson (2009), "as poor, segregated neighborhoods in which substantial proportions of the adult population are either officially unemployed or have dropped out of or never entered the labor force, (pg. 2)." In recent years, problems in the economy further exacerbated the increasing poverty rates among urban black men because of continued lack of education, rising prison rates, and job competition. A 2017 Prison Policy Initiative brief showed the United States with the highest incarceration rate in world, over 2 million people in the prison system. In fact, the 2010 Census data showed that blacks were disproportionately incarcerated five times more than whites and Hispanics nearly twice as likely to be incarcerated. Figures 3.3, 3.4 and 3.5 are examples of these trends.



Figure 3.3: Unemployment Rates by Race/Ethnicity, September 2016 – September 2017

Source: Bureau of Labor Statistics, U.S. Department of Labor, The Economics Daily, Unemployment rate decreased to 4.2 percent in September 2017 on the Internet at https://www.bls.gov/opub/ted/2017/unemployment-rate-decreased-to-4-point-2-percent-in-september-2017.htm (retrieved February 10, 2018).


Figure 3.4: Educational Attainment of Men and Women (% of 25 to 34-years old with at least an associate's degree or higher), 2015-2016







Source: Sakala, L. (2014) "Breaking Down Mass Incarceration in the 2010 Census: Stateby-State Incarceration Rates by Race/Ethnicity", *Prison Policy Initiative* The critical issues facing poor African Americans especially urban black males today are significantly low educational skills and discrimination, which are one of the barriers to better employment opportunities. These data clearly show education is vital for black men to secure employment and gain upward mobility.



Figure 3.6: Education Percent Levels Completed by Young Adults Ages 25 to 34 by Race, (2015 -2016)

Sources: Ryan, C. and Bauman, K. (2016) "Educational Attainment in the United States: 2015", *U.S. Census Bureau*, March 2016 and U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement

Figure 3.6 above shows that rates of higher educational attainment by race/Hispanic origin have grown wider over the decades. By the year 2016, among young adults (ages 25 to 34), the percentage of whites who had attained at least a bachelor's degree (55 percent) was two and a half times that of Hispanics (26 percent) and one and a half times that of African Americans/Blacks (35 percent) (Census Bureau, 2017).

One aspect of the inequalities faced by blacks has been the issue of education. The NAACP's battle to end segregation in public education had gradually gained strength

through impressive court victories, including the Brown vs. Topeka Board of Education (1953). The issue was not only creating equality in school infrastructures, libraries, and teacher qualifications, but also producing quality education and opportunities for black students. Segregation in public schools violated both the Fourteenth and Fifteenth Amendments. The Brown rulings in 1954 and 1955 opened an era of new hope for blacks. Later, the promotion of educational opportunity equity, from the 1966 Coleman Report, had been the persistent goal of US educational policy since the 20th century, however not all schools have been able to meet these goals.

The Achievement Gap

Evidence shown in today's urban secondary schools indicates why programs under the TRIO umbrella are critical for disadvantaged groups. High poverty schools come with a myriad of problems. They are located in environments with high unemployment, low parental engagement, high crime rates, etc. These schools have a difficult time recruiting good teachers and administrators, and students score far below their peers in higher income schools (i.e., reading, math and other courses).

A 2010 report entitled "A Call for Change" by the Council of the Great City Schools, an advocacy group for urban public schools, showed that the achievement gap has widened considerably among African American students as compared to their white counterparts. This trend is even bleaker among black males. The report also noted that African American boys drop out of high school at nearly twice the rate of white boys, and their SAT scores on average are 104 points lower than those of whites. Black men represented just 5 percent of college students in 2008. A number of black students who leave high school come from racially isolated communities and concentrated areas of poverty. However, the Council report notes that poverty alone may not explain these academic differences (Council of the Great City Schools, 2010).

Ronald Ferguson (2014), the director of the Achievement Gap Initiative at Harvard University noted that racial differences in children's experience before they begin kindergarten are connected to sociological and historical forces. Low academic expectations are present early on, as early as pre-kindergarten for most poor black children and other minority children and adolescents.

Lee & Burkam (2002) reported that as early as kindergarten, disadvantaged children show signs of inequalities in their cognitive ability compared to their more advantaged peers. Based on their data findings from the Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K), Lee and Burkam found significant differences among the young student's performance scores in reading and math by socioeconomic (SES) and racial/ethnic identities. Unfortunately, these same less advantaged children are placed in under sourced schools.

For example, by the kindergarten age of five, the average cognitive score of children in the highest SES group was 60% above the scores of the lowest SES group. Moreover, the average math achievement was 21% lower for blacks than for whites and 19% lower for Hispanics (Lee & Burkam, 2002).

However, according to Jean Anyon (2005), the cognitive deficits are significantly *less* closely related to race and ethnicity after accounting for social class. As a result of such low expectations, urban schools and students have suffered the most from lack of funding and services. The lack of funding has caused urban school districts, and schools

with high concentration of low-income and minority students, to be low-performing because of the lack of instructional resources compared to the affluent school districts. "These policies have also left minority students with less and lower-quality curriculum materials, less qualified teachers and most detrimental of all, less access to future human and social capital (Wagner 2008, pg. 20)."

An example of the outcomes from segregated and unequal education can be seen in Kathryn Neckerman's book, Schools Betrayed: Roots of Failure in Inner-City Education (2007). Neckerman presents the long segregated educational history of Chicago Public Schools (CPS) from the early 20th century to the 1960s. Neckerman examined the racial inequalities that have plagued the education system and lives of blacks which heightened during the 1960s in Chicago. Racial segregation of schools peaked further in 1960 when the black population surpassed 800,000. As areas of the South and West Sides of Chicago became heavily populated by poor, low-income neighborhoods, schools in these areas were so overcrowded that students only attended half a day. African American students were not receiving the required and quality learning as their white peers.

In the 1980s, standard-based reform dominated educational policy especially when the National Commission on Educational Excellence's report, *A Nation at Risk* (1983) argued that the U.S. schools were 'mediocre' at best and were faced with falling behind Japanese students who performed better on international tests in reading, mathematics and science. This is still the case today but at worse levels. The high school graduation rate in the United States today is about 80 percent. The Organization of Economic and Cooperative Development (OECD, 2003) stated that the United States is far behind countries including Denmark (96 percent), Japan (93 percent) and Poland (92 percent). Wagner (2008) reported about a third of U.S. high school students are college-ready, and rates are far lower for poor students of color. Students are not only graduating from high school unprepared but also college which makes them 'unprepared' for the work world. Today's economy demands at least some postsecondary education.

Wagner (2008) has noted that schools that serve mostly low income and minority populations are failing because we have a highly new, competitive, global, knowledge-based, technological economy. Students need new skills for college and careers. America is at a great disadvantage already as American schools have not kept up with our changing world. American schools are not only failing but also have become obsolete -even for those schools that score the best on standardized tests (Wagner, 2008).

At first, the standard-based, accountability, and other reforms under the 2001 No Child Left Behind Act (NCLB) had good intentions to raise achievement levels for ALL students and finally close the achievement gap. For example, this was true for Chicago Public Schools (CPS) and their concern with the low performances on the Iowa Test of Basic Skills (ITBS) especially among disadvantaged minority students. However, the CPS system still failed to help their inner-city schools and students.

Pauline Lipman's 2003 book, High Stakes Education: Inequality, Globalization and Urban School Reform, demonstrated the problems with the standard-based reforms that were proposed by CPS. Lipman uses two urban African American schools and a predominately Latino school, as case studies to compliment her research. Lipman found that CPS's strict accountabilities, particularly with standardized testing, has led many schools to become reconstituted because of very low-test scores, resulting in: increased school closings, high teacher turnover, and continued two-tier schooling (poor black education vs. middle-class white education). Lipman's case studies of the three urban schools found mismanagement of funds, and illegal standardized test score inflations in order for schools to stay operational. In addition, teachers have complained that the standards were harmful because they failed to provide intensive academic support for students who lacked necessary prior knowledge and skills that most often comprised disadvantaged minority students. "The standards have shifted the key discussion about race and equity to standard-based outcomes (Tate, 1997, pg.3)." Lastly, teachers complained they were forced to move on to the next standard, even when students lacked background knowledge, leaving students further behind.

It has become more difficult to narrow or close the achievement gap that has long existed between white and Asian students and black and Latino students. "Education policy and reform should not only be concerned with what is happening inside the classroom but try to fix the issues 'outside the classroom', the factors affecting poor children (Berliner, 2004)." Berliner mirrors the thoughts of Massey and Denton's position on poverty in their 1993 book, American Apartheid: Segregation and the Making of the Underclass on how housing segregation and location affect upward mobility, Berliner and other scholars note that residential segregation affects not only employment opportunities but a person's educational achievement. Berliner (2004) emphasizes how poverty is connected to racial groups (i.e., African American and Latino) and how these same groups stuck in poverty have difficulty getting out of poverty.

In Orfield and Lee's 2005 report, "Why Segregation Matters: Poverty and Educational Inequality", the authors stated that people of color, in poor communities deal with less adequate and dilapidated housing, and urban infrastructures and the lack of mentors for urban youth is an issue in these neighborhoods. The educational sociologist, Earl Hopper in a 1971 report, "Stratification, Education and Mobility in Industrial Societies" noted existing differences between the education amount and education route, where one goes to school determines his or her life chances. Impoverished neighborhoods unfortunately cannot help that the inevitable impact of poverty in their community on both the schools and the children that attend those schools.

Research studies have established a correlation between education and income (Fry, 2017, Swanson, 2009, Webber et at., 2013). Over the years, business leaders and educators have become cognizant that the lack of school readiness is not only an issue with poor students but research shows that middle income students tend to lag behind their higher income peers in cognitive and social skills as well.

A 2008 report by the Brookings Institution and the Economic Mobility Project noted that every additional degree from high school through graduate or professional school increases one's income. Educational attainment of Americans has increased substantially over most of the twentieth century. Minorities, particularly African Americans and Hispanics, have continuously made modest progress in closing the gap between themselves and both whites and Asians, however the academic achievement gap has not narrowed much.

Education Reform and Policy

There has been an ongoing debate concerning liberal education policy and reform regarding teacher unions as a major impediment to poor and minority-student achievement and equity through educational reform. At the same time, other groups believe that education reform by itself cannot close the achievement gap between the more advantaged and poor, black and white without addressing larger economic inequalities in society. Groups, like these, agree that the NCLB and other traditional school reform initiatives are failing as documented in a 2008 report entitled, "School Accountability: A Broader, Bolder Approach" (Economic Policy Institute, 2009).

The purpose of the Broader, Bolder Approach to Education (BBA) was to call for a new national education policy with a diverse and bi-partisan group of researchers, practitioners, and policymakers to combine school improvement with the social, economic, family and community that prepares children to benefit from high-quality instruction in schools (EPI, 2008). For example, the BBA report urged the nation and the states to narrow the achievement gap by implementing several high-quality instructions in schools (high-quality early childhood care and education) for all disadvantaged children by providing routine and preventative pediatric, dental and eye care for all poor children, e.g., in full-service, school-connected health centers. In particular, the BBA report (2008) and Noguera and Rothstein (2008) identified the need for disadvantaged children to have access to enriched academic content and other social, emotional, organizational skill building including after school, weekend, and summer hour programs, such as TRIO programs, (i.e., Upward Bound's Annual Summer Program for high school students).

TRIO Programs

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TRIO programs developed for several reasons. The National Center on Education allocated resources to school systems to meet the educational needs of the less advantaged student population through special funding (Title I). According to Rumberger (2007) added that a number of these programs addressed high-level poverty schools and districts as research evidence showed a relationship between poverty levels and academic outcomes. The inequality debate was not only sparked by the Civil Rights Movement, but also by the alarming report entitled the Equality of Educational Opportunity, later known as the Coleman Report (Coleman, 1966).

The Coleman Report stressed the tragedy of our dysfunctional education system. This report was funded by the US Department of Commerce in response to the concerns with educational inequality as articulated by the Civil Rights Movement. The Coleman report was to initially document that poor, low-income children performed academically below school standards because of the lack of school resources. However, the 1966 report showed differences among schools. For example, schools with average resources on student academic achievement showed modest outcomes after factoring in the students' familial background. Gamoran and Long (2006) emphasized how schools are still imperative for student learning. Coleman's (1966). findings identified differences among the schools; resource levels mattered modestly for individual students. Kahlenberg (2008) also noted that Coleman discovered one of the main predictors of academic achievement, the family's economic bracket level in which a child is raised rather than just the quality of the school he or she attends.

Programs like Upward Bound, one of the original examples of education reform, have continued to assist not only low-income students but all students who lack the basic skills in reading, math, writing and other subject areas in preparation for college enrollment, graduation and future success. The research evidence from the Coleman report and from current societal inequalities within the educational system in the U.S. suggests the needs to increase its academic performance to meet the global demands.

Employment skills attainment is a competitive component the United States is lagging behind compared to other OECD countries. Figure 3.7 shows that the U.S. graduates in skilled jobs are well below the OECD average (79%). In 2006, only 63 percent U.S. graduates between the ages of 25 to 34 years with tertiary qualifications were in skilled jobs and there has been no change in this number since 1998.



Figure 3.7: Proportion of younger graduates in skilled jobs in 2006

Source: "Highlights from Education at a Glance 2009", OECD 2009 = OECD Avg. \bigvee = United States Fry, Richard (2017) "U.S. Still has a Ways to go in Meeting Obama's Goal of Producing More College Grads", Pew Research Center, January 18, 2017

A Pew Research Center article by Richard Fry (2017) showed that in 2015, the U.S. ranked 10th among the 35 OECD countries in collegiate degree attainment, up from

15th in 2009 (see Figure 3.7). Fry also stated that 47% of U.S. 25- to 34-year-olds had at least an associate degree, exceeding the OECD average of 42%. However, the U.S. still remained behind nations like Canada, Japan, and Korea by more than 10 percentage points.

The United States continues to have educational and employment disparities based on social classes and race/ethnicity. Despite reform efforts, these disparities remain key factors in academic achievement, college readiness, and graduation rates. Low-income students are being left behind. Mezuk et al. (2011) reported class and race achievement gaps are significantly the result of unequal access to opportunities. Condron (2009) also noted, "the achievement gap between whites and disadvantaged minority students (African American and Latino) has been primarily but not exclusively attributed to difference in the quality of instructional opportunities provided between and within schools."

The 2009 report, "Cities in Crisis: Closing the Graduation Gap" by the Editorial Projects in Education Research Center, showed that despite progress made by several cities between 1995-2005, including DCPS in Washington, D.C., the average high school graduation rate of the 50 largest cities is well below the national average of 71 percent, with only (58 percent) of African American and Hispanic graduating. There still remains an 18- percentage point urban-suburban gap. In addition, only 38 percent of low-income high school seniors go directly to college as compared to 81 percent of their peers in the highest income quartile; and if low-income students attend college, they earn bachelor's degrees at a rate that is less than half of that of their high- income peers. Despite similar talents and potential, educational attainment has widened between America's highest and lowest incomes. In 2005, the Advisory Committee on Student Financial Assistance (ACSFA) reported that among highly qualified students, nearly 67 percent of high income, students compared to only 47 percent of low-income students enrolled in four-year colleges. Overall, the growing achievement and economic gaps in America is very detrimental to its success as a nation. A January 2015 study by Oxfam International entitled, "Wealth: Having it All and Wanting More" showed that the wealthiest one percent has seen their share of global assets increase from 44 percent in 2009 to 48 percent in 2014 and predicted to rise to 50 percent in 2016; members of the global elite had an average wealth of 2.7 million per adult in 2014.

Status of U.S. Public Schools

Countless research evidence has shown that inadequate funding and impoverished urban schools at both the primary and secondary education levels have resulted in dismal achievement rates and achievement gaps in urban school districts to remain quite dismal, particularly minority high schools. I will discuss how unequal funding and poor and racially segregated schools have elevated these problems. First, inadequate funding is not a new issue; in fact, this issue goes back more than four decades.

Title I was introduced as part of the Elementary and Secondary Education Act (ESEA) of 1965 that required schools receiving funds under Title I should have comparable services as schools that do not receive Title I funds. According to McClure (2008), the public policy was aimed to ensure that federal financial aid is distributed on top of state and local funds to which all public-school children are entitled. To help the plight of high poverty schools, the 2001 No Child Left Behind Act (NCLB) was intended

to increase federal government involvement with new matching Title I funds. Carey and Roza (2009) stated that by 2006, the Title I program had grown to almost \$13 billion per year with federal funds approaching 10 percent of all school revenues and provided an even larger percentage of funds for high poverty schools. However, the academic achievement gap has continued to widen. There have been many flaws in Title I funding. First, more money is provided for disadvantaged students in wealthier states than disadvantaged students in poorer states. The authors of the original Title I formulas aimed to account for the fact that education costs more in some parts of the country than in others. A certain amount of federal funding per student would be tied to the average amount of state and local funding per student. The more a state spent per student, the more each of its districts received. Carey and Roza (2009) found that differences in perstudent spending are primarily a function of differences in wealth, not cost. Carey and Roza noted that, "because many rich states like Connecticut, Virginia etc. pushed the state share of education funding well past the fifty percent mark, sometimes to sixty percent or more, most of the best-wealth equalizing policies were spurred by school finance lawsuits filed by numerous states over the last 30 years." The Abbott v. Burke case was one of the most important education finance litigations in America. The scope of the case called the *Abbott districts* (Education Law Center, 2005) required that every New Jersey student has equal and efficient education that entails special funding to the state's thirty-one very high impoverished urban school systems.

Another problem with funding of poor schools is at the local level. At the smallest unit of the school district, important decisions are made that determine how funding is distributed among individual schools. One of the most important decisions is

how districts budget for teachers. Roza and Hill (2004) note that when teachers decide where to work, they tend to choose better schools with low poverty levels and better working environments, which results in student outcome disparities among schools within districts.

The bottom line is that low-performing urban schools cause more far-reaching effects on students attending these schools especially high schools. Increased drop- out rates, low graduation rates and low future employment possibilities are just some of the many setbacks they will encounter. High school students are leaving more often, over one million students dropout each year. Dropping out is not only damaging to students, but harmful to their families and the American society, resulting in unemployment, poverty, need for public assistance, and trouble with the law.

Society suffers from high healthcare costs associated with mass incarceration, a loss of workers, and the need for more social services. High school diplomas are more unattainable for disadvantaged students of color, particularly black and Latino males because of the inequalities within the public education system. Research shows that the key barriers to degree attainment include students' finding the transition to high school difficult, they possess limited basic skills and lack of engagement, key barriers to degree attainment. Rumberger (2004) explains that academic and social engagement are key components for successful navigation through the education pipeline. Groups that often leave high school are urban poor minority students. David Berliner (2004) believes that poverty and low academic achievement are synonymous especially among low-income African American and Latino students with out-of-school factors correlated with poverty playing a large role (e.g., residential segregation, crime-ridden neighborhoods, drug

activity, etc.). According to Berliner, there has been a plethora of research studies and evidence that strongly indicate correlations between academic achievement and lowincome; however, education reformers often ignore this fact. According to the U.S. Department of Education's National Center for Education Statistics (2007), high school students from the richest families are about seven times more likely to finish high school than their peers from impoverished backgrounds.

According to Khadaroo (2009), the majority of the nation's schools have seen improvements in their graduation rates, some are even substantial; however, there is still a crisis in our nation's high schools. In 2009, Swanson reported that the national average for the US high school graduation was about 70 percent as compared to only 55 percent of African Americans and 57 percent of Latino students; white students slightly surpassed the national average with 77 percent graduating from high school that same year. The Editorial Projects of Education, EPE (2009) study also reported that the high school graduation rate among suburban school districts was 75 percent as compared to the 74 percent for rural school districts and 60 percent for city/urban schools.

Post-secondary education, particularly college, is imperative in a global economy as a high school diploma is not sufficient. Eighty percent of the fastest-growing jobs in the new, knowledge-driven economy require some postsecondary education (Webster & Bishaw, 2005; Bureau of Labor Statistics, 2005). By 2020, 65 percent of all employment in the economy will require postsecondary education and training beyond high school (Carnevale et al, 2014). Figure 3.8 demonstrates how higher education and employment go hand in hand in this economy.



Figure 3.8: Share of New Jobs by Educational Attainment between 2010-2020

Source: Carnevale, A, Smith, N, and Strohl, J (2014) "Recovery: Job Growth and Education Requirements through 2020,", *Georgetown Public Policy Institute: Center on Education and the Workforce*: Washington, DC

Figure 3.9 below compares the District of Columbia student's achievement with the national average. Only nine percent of incoming ninth graders complete college 'ontime' meaning that more than ninety percent who exit the high school system, will never start college or do not complete their degree will face a future of lost opportunities and low-wage employment.

Figure 3.9: Education Trajectories%, District of Columbia compared to the United States



Source: Atchison, D. and Stein, L. (2017) "Looking Back to Move Forward: Progress and Opportunity in District of Columbia Public Schools", American Institutes for Research, September 2017

Profile of an Urban School District

The researcher examined the District of Columbia public school system history as example in serving low-income and disadvantaged urban students. The researcher further examined the District's various education challenges, reform strategies including efforts concerning student academic preparedness. The District of Columbia's public- school system, like many other urban centers, operated separate schools for black and white children from the post-Civil War era through the mid-twentieth century. The separation of races endured in the District until the U.S. Supreme Court outlawed separate educational facilities in the 1954 decision in Brown v. Board of Education (Brookings Institution, 2008; 21st Century School Fund and Urban Institute, 2008). In a related District case, Bolling v. Sharpe the DC Board of Education moved rapidly to desegregate the schools beginning in the 1954-55 school years with integrated facilities (Cozzens, 1998). However, the system was in a challenging position to provide equal/quality education to all students with racial tensions in schools and wide variation in student achievement levels contributing to the current circumstances.

Demographic transformations to the city were also a factor. A 2007 Washington Post article showed that during the Brown decision, 57 percent of public-school students were black, and within a dozen years, over 30,000 white students had left the system. Today the public-school student population consist of over 80 percent African American students, a trend towards de-facto re-segregation that is repeated in many urban areas across the nation.

The District of Columbia Public School System will be further analyzed as an example to show the deficiencies within an urban public-school system and why precollege programs and/or developmental programs are vital for better academic and social outcomes of high school students, particularly for low-income minority students.



Figures 3.10: Snapshot of the District of Columbia Public School System, 2012-2014

Source: District of Columbia Public Schools website https://dcps.dc.gov/service/school-data



Figure 3.11: SAT Score Averages, District of Columbia Public Schools, 2007-2009

Sources: Atchison, D. and Stein, L. (2017) "Looking Back to Move Forward: Progress and Opportunity in District of Columbia Public Schools", *American Institutes for Research*, September 2017 and "DC Students Reading and Math Scores Rise in 2009", *Office of the State Superintendent of Education*, July 2009. Retrieved October 25, 2010

The D.C. Public School system (DCPS), like many other public schools in the nation, are plagued with low test performance, and lack of quality schools and teachers that are most often present in schools with predominately low-income minority students including African American and Latino students. DCPS's pre-kindergarten through grade 12 school systems receive 100 percent Title I funding. It is comprised of 21 school districts with 129 public schools and a total enrollment of 46,393 between 2013-2014. EPE (2009) reported that there are about 240,000 high school students in the entire metropolitan area and 4.9 percent are served by the principal district. The principal district is the largest and most central local education agency serving the city.

Historically, DCPS had numerous issues that have interfered with students' education (GAO, 2009). For example, problems within the districts' central office, included a lack of textbooks, teachers not being paid on time, and data systems were nonexistent with numerous errors, making it challenging to access basic information, such as the student enrollment count at a school and attendance rates.

These problems remained in the DC public school system for years. Along with poor academic and accountability efforts, physical facilities in the system were also in poor condition. Although in the last few years DCPS has shown some improvement in both NAEP Reading and Math scores at the 8th grade level as seen in figures 3.12 below; however, it is not known how much of these improvements can be attributed to traditional public schools or charter schools.

Figure 3.12 2007-2013 NAEP Reading and Math Scale Scores of 8th Graders, National Average and District of Columbia, 2013



Source: Atchison, D. and Stein, L. (2017) "Looking Back to Move Forward: Progress and Opportunity in District of Columbia Public Schools", American Institutes for Research, September 2017

Over the past twenty years, new leadership employed more than seven superintendents with an average tenure of about three years. These constant changes in leadership may have caused more harm than good.

As a response to the research evidence, the D.C Council (the legislative branch of the D.C. Government) approved the 2007 Reform Act that significantly altered the governance of DCPS (GAO, 2009). The 2007 Reform Act changed the day-to-day management of the public schools from the Board of Education to the Mayor's office and placed DCPS under the Mayor's office as a cabinet-level agency. Figures 3A.1 show the organizational structure of DCPS before and after the 2007 Reform Act.



Sources: "District of Columbia Public Schools: Important Steps taken to Continue Reform Efforts, But Enhanced Planning Could Improve Implementation and Sustainability", GAO: Washington, DC, GAO-09-619, June 2009 and "Fact Base for DCPS Reform" (2006), The Parthenon Group, (Boston, London, San Francisco), December 2006

The District of Columbia is unique because it functions as both local and state offices for many educational responsibilities (GAO, 2008). Table 3.1 below shows many examples of the problems faced by DCPS's revolving door of teachers leading to the lack of school performance among students.

School Year	2007-2008
Teachers who exited DCPS	 817 teachers left DCPS after the 2007-2008 school years. 400 teachers accepted financial incentives from DCPS to resign or retire 250 teachers who were let go because they were past the 2-year deadline to become Highly Qualified under NCLBA 100 probationary teachers who were let go because they were deemed underperformers 67 teachers who resigned or retired without financial incentives
	2008-2009
Teachers who entered DCPS	 566 teachers came into DCPS during the 2008-2009 school years. 395 teachers came from traditional backgrounds or other school systems 123 teachers came from the DC Teaching Fellows Program 48 teachers from the 'Teach for America' program

Table 3.1: Status of DCPS's flow of Teachers from the 2007 to 2009 School Years

Source: Based on the Government Accountability Office Analysis, "District of Columbia Public Schools: Important Steps taken to Continue Reform Efforts, But Enhanced Planning Could Improve Implementation and Sustainability", GAO: Washington, DC, GAO-09-619, June 2009

Table 3.1 reflects the major changes in the DC Public School system that began

from Adrian Fenty's first act in January 2007 as the new District of Columbia mayor. He

introduced legislation that would bypass the Board of Education and give him control of

the schools. The mayor preached accountability to improve schools that have turned out too many children unprepared to join society much less the workforce. Failures in the U.S. education system, especially in urban education have led to attacks on the egalitarian norms by 'rightist' groups. Educational reformers seem to want higher standards, such as more rigorous testing or education for employment. The conservative debate centered on the fear of losing the global competitiveness and loss of money and jobs to countries like Japan. DCPS education reform reflected these conservative ideas, from a neoliberal perspective.

Mayor Adrian Fenty began his efforts with the hiring of Michelle Rhee, the first chancellor for DCPS system. He believed Rhee was the right candidate to transform a system that has defied change for the last four decades. Rhee was a former administrator for Chancellor Joel Klein of the New York City Schools who came from the "Teach for America" organization. In 1997, she founded the New Teacher Project and became a recognized leader of the national reform movement in the nation. Chancellor Rhee comes from a neoliberal philosophy and part of the significant transformations witnessed in DCPS is attributed to her commitment to school choice and more charter school education. As Apple (2006) noted, neoliberals view public education institutions as "black holes" in which money is poured into and disappears without providing any adequate results. Neoliberals believe not only are public schools failing students as future workers but most public institutions are taking the financial life out of society and that market-based solutions are the key to reform.

Since becoming Chancellor, Rhee along with Fenty discussed plans with other officials to restructure 15 DC public high schools in various forms because the schools

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failed to meet progress standards under the No Child Left Behind Act (NCLB). Some of the changes were to bring in top charter school operators. Charter schools operate publicly funded schools but often have the flexibility within the curriculum and union contract arrangements. The major change was to divide the larger schools into smaller units and rewrite union contracts to allow for greater flexibility and progress.

Rhee is the D.C.'s sixth school superintendent in 10 years. She has already taken out one-third of the district's principals, shaken up the system, improved test scores, and replaced ineffective teachers (Nichols, 2009).

High school graduation rates have also improved in the District. According to Turque (2010), high school completion rates in the 2008-09 academic year increased by 2.6 points, to 72.3 percent, up from 69.7 percent in 2007-08. Officials attribute the rise to improved programs for struggling students and more careful tracking of transcripts to make sure students have the credits and courses needed to graduate but emphasized that there is still more room for improvement. For example, graduation rates, a critical indicator of a school district's success, are calculated in various ways. The formula, also used by some states, divides the number of graduating seniors by that same number plus all those who have dropped out in the preceding four years. There is evidence that the method does not provide an accurate picture (Turque, 2010).

Chancellor Rhee's overall objective for the District of Columbia school system was to become one of the best-performing urban school districts in the country in six years while reducing the black-white achievement gap and having higher high school graduation rates. The data reveal that some progress has been evident (DC Office of the State Superintendent of Education, 2009). For example, 168 more black D.C. high school students received diplomas in 2009 than in 2008. Although there have been improvements in NAEP scores, minority students in the eighth grade, particularly African American, are still performing at low rates when compared to their White, Asian and even Hispanic peers.

Under the guidance of Chancellor Rhee, the D.C. State Superintendent, Kerri Briggs, applied for the Race to the Top (RTTT) grant. This grant is a part of the American Recovery and Reinvestment Act of 2009 (ARRA) that President Obama signed into law on February 17, 2009. This historic legislation is designed to stimulate the economy, support job creation, and invest in critical sectors, including education. ARRA supports education reform through investments in innovative strategies to improve student outcomes, long-term gains in school and school system capacity and school productivity and effectiveness.

According to the U.S. Department of Education (2009), ARRA provides \$ 4.35 billion for the Race to the Top fund which is a competitive grant program designed to encourage and reward states that are creating the conditions for education and innovation and reform; achieving significant improvement in students' outcomes including substantial gains in student achievement, closing achievement gaps, improving high school graduation rates, and ensuring student preparation for success in college and careers.

On August 24, 2010, D.C. and Maryland Public Schools were awarded a combined \$325 million in federal funding from the Race to the Top grant for their efforts to enact educational reforms initiatives proposed by the Obama Administration. D.C. plans to use the money to collect significant amounts of data to more effectively evaluate teachers' performance in order to create tests aligned with the new standards and support poorly performing schools. D.C. is among 12 jurisdictions in the nation to earn a share of the \$4.3 billion in RTTT dollars made available for the first time by the U.S. Department of Education. According to Fabel (2010), the city's \$75 million award provides federal backing for the contentious reforms put in place by D.C. Chancellor, Michelle Rhee, and the city's charter school law. Part of the District's plan requires participating schools to "have evaluations in place for principals and teachers based on at least 50 percent student [academic] growth," and "support human capital decisions based on these evaluations." This plan supports Rhee's tactic of using student performance to dismiss ineffective teachers.

The nearly four-year reign of Mayor Adrian Fenty ended in the 2010 mayoral race in DC that elected D.C. Council Chairman Vincent Gray as the new mayor. By the end of October, Chancellor Michelle Rhee decided to resign.

The Fenty and Rhee team certainly made a name for themselves both locally and nationally, laying a foundation in education for those to follow, however both recognize there is still a long way to go for the District and Mayor Gray has to continue this tremendous task. According to Fenty and Rhee (2010), "school reform will and must be driven by dedicated residents who understand the serious, long-term consequences of failing to improve the city's foundering educational system" (pg.2).

Kaya Henderson took over as DCPS Chancellor and in January 2015, long-time native Washingtonian and D.C. Council member Muriel Bowser became the new Mayor for the District of Columbia.

Student Readiness and Persistence

Groundbreaking studies by Bean (1980, 1985), Cabrera, Nora, and Castaneda (1993), and Tierney (1992) have contributed to how educational researchers and practitioners view student retention and attrition. One model, in particular, Vincent Tinto's attrition model has become a dominant theory for most research regarding student departure. Tinto's Student Integration Model (1975) is based on Durkheim's theory of suicide which theorizes that the social integration of students increases their institutional commitment and reduces the likelihood of student attrition. Tinto (1975) stated, "It is the interplay between the individual commitment to the goal of commitment to the institution that determines whether or not the individual decides to drop out (p. 96)." For example, research has shown that students' commitment to the institution at the end of their first year of college, i.e., subsequent institutional commitment (Tinto, 1993) is a strong predictor both students' intent to persist (Bean, 1983).

The main theme in Tinto's theory is that most attrition rates reflect the nature of the student's social and intellectual experiences within the institution and the issue of isolation. "Isolation refers to the absence of sufficient interactions where integration maybe achieved and students may feel isolated from their institution" (Tinto, 1993, p. 50). Tinto's model also emphasized characteristics such as individual goals, pre-college experiences, and family background. Individual attributes include gender, race, and academic ability. Pre-college experiences include academic and social experiences such as school GPA and academic and social attainment. Family characteristics include social status and expectational climates. Overall, student's motivation, academic ability, and the institution's background determine success and degree attainment.

The idea of college readiness has gained significant attention in the last few years; however, there has been little movement on the issue. College readiness refers to a myriad of accomplishments and skills for preparation of postsecondary education which includes course-taking, grades, study and organizational skills, financial stability, motivation and other areas.

College readiness is essential for college success however many U.S. high school students today are graduating unprepared or lacking the necessary skills. As a result, a number of students require remediation. Research shows that these remediation courses may be detrimental to students because a number of these college students eventually drop out. College preparation is vital as our nation has become a knowledge-based global economy wherein successful career readiness is equivalent to higher educational degree/training. Without a college degree, students face greater difficulty in the job market.

However, there has been a misalignment in the preparedness perceptions by high school instructors and college instructors. In 2009, ACT surveyed 2,761 high school teachers and 2,831 post-secondary teachers which showed that both groups of teachers had vastly different perceptions of how ready college freshmen are for college level coursework. The following figure shows how this 'readiness' is perceived.

Figure 3.13. Academic Preparedness, Survey of High School and College Instructors



Source: "ACT National Curriculum Survey" (2009) ACT: College Readiness Standards, https://www.act.org/content/dam/act/unsecured/documents/NCS-PolicySummary2012.pdf

Experts from all levels of education (pre-K to postsecondary education) agree that students need to take specific courses to be ready for college. Spence (2009) noted that this core curriculum may include courses in reading, writing, mathematics, and other academic courses such as those in the science and social science. Academic preparedness for college refers to the reading and mathematics knowledge and skills necessary to qualify for placement into entry level college credit courses that meet general requirements without the need for remedial coursework (The National Assessment of Educational Progress, 2009). There is evidence that math, particularly Algebra II (advanced math), may provide students with the ability to work with variables. However, the evidence from research and practice indicates that taking these courses, and having good grades do not ensure the development of learning in these key areas for college success. Spence (2009) stated that "a high percentage of students who have passed core academic coursework need remedial education in reading, writing and math upon entering college" (pg. 36).

While educational systems understand what is needed for college readiness; many states and school systems have different ideas about it. States have not set readiness standards that powerfully predict success in postsecondary education. States either have

no statewide readiness standards, or if present, the standards are set too low. For example, reports by institution of postsecondary education estimate remedial rates of 50 to 60 percent for community colleges and 20 to 30 percent for universities. These rates can rise to 70 percent and even higher for community college degree programs when rigorous statewide standards are applied (Spence, 2009 pg., 38, 39).

Overall, statewide college readiness initiatives are still not specific. The concept of "readiness" still varies. While a set of states have implemented certain standards, other states have established core readiness standards in reading, writing and mathematics as part of college readiness standards, but have failed to get all public colleges and universities to use those standards in placing students in college level courses (Spence, 2009 pg. 45). Some states have increased teacher training but have not linked the training to specific readiness outcomes.

Recent education data show that more students are earning their high school diplomas. According to Wong (2016), over 82 percent of the students who were high school seniors during the 2013-14 year graduated, up from 81 percent the year before with the most progress observed among disadvantaged students (i.e., low income, students of color). However, these students are not entering college.

According to the 2015 data from the National Clearinghouse Research Center, college enrollment rates have decreased because of, high unaffordable college tuition. The number of students who immediately enrolled in college after high school graduation fell from 69 percent in 2008 to 66 percent in 2013. "Traditionally, at-risk students especially students of color are responsible for the biggest improvements in high school completion" (pg. 1). At the same time, disadvantaged students who come from poor socio-economic status (SES), and have a history of a family with no college experience contribute to lower college enrollment.

"High school graduates are wandering around between youth dependency and adult dependence, 2016 marked the first time that the nation stumbled to reach a 90 percent high school graduation rate by 2020 (Wong, 2016 pg. 3)." Pre-college and development education programs have shown student participants how to make the connection between the value of a college degree and their position within the economy. For example, the Texas University system developmental programs have provided evidence of the value of a college degree.

Developmental Program: Texas University System

Summer bridge or developmental programs are designed to help unprepared students build competencies over the course of several weeks before entering college. Unfortunately, there has been minimum rigorous empirical research conducted on the effectiveness of summer bridge programs (Ackerman, 1990; Garcia, 1991; Myers & Drevlow, 1982; Santa Rita & Bacote, 1997). In 2009, the National Center for Postsecondary Research (NCPR) launched an evaluation of summer programs at eight sites in Texas to assess whether they reduce the need for developmental coursework in the fall semester matriculation and improve student outcomes in college.

Barnett et al (2012) conducted an impact study of eight developmental summer bridge programs in Texas. The study's experimental design had two groups: the program group, students who participated in the developmental summer bridge program and the control group, students who used any other services the college provided. The common feature of accelerated instruction in the developmental program was math, reading, writing, academic support "college knowledge component".

One of the main findings from the study was that the programs had an impact on first college-level course completion in math and writing that was evident in the year and a half following the program and on average, students in the program group passed their first college-level math courses at higher rates than students in the control group during this period. The authors concluded that pre-college/college developmental programs are needed because they prepare youth for higher education. Traditionally, program participants receive instruction in literature, composition, mathematics, and science. The COE (2008) reported that there were 964 Upward Bound programs in operation throughout the United States; and 77 percent of all students who participated in these programs immediately attended college in the fall of 2005; following their high school graduation 91.2% of Upward Bound students who participated in the program three years or longer and 93 percent of those who participated through high school graduated and enrolled in a postsecondary program immediately following high school persisted in college (Department of Education 2009).

There have been expansions of federal education programs providing resources for disadvantaged students such as the addition of TRIO programs to two original programs, Upward Bound and Student Support Services as well as myriad state and local initiatives. However, the Trump Administration proposed cutting the TRIO programs by 10 percent, from \$896 million in FY 2017 to \$808 million in FY 2018 because of their "limited effectiveness" in improving student outcomes (McCann, et al, 2017). These well-known college access programs are at-risk threatening grants to nonprofits, institutions, and other organizations to help disadvantaged students enroll in and complete college. This move by the current administration and past conservative congressional members is perplexing given the fact that in 2008 Congress banned TRIO programs from conducting random assignment of students for the purpose of evaluation. Since then, there have been other types of evaluations from some the TRIO programs which revealed potentially modest positive effects of student support services (McCann, 2017).

CHAPTER IV Methodology

Background and Purpose

Based on the evidence from research and practice, experts from all levels of education (pre-K to postsecondary education) agree that students need to take specific courses to be ready for college. Spence (2009) noted that this core curriculum may include courses in reading, writing, and mathematics and other academic courses such as those in the sciences and social sciences. Research evidence has long described what is needed for college readiness in U.S. educational systems. However, many students still graduate from high school ill- prepared for college academic rigor.

Research Design and Protocol

This section outlines the research processes used to explore the research questions in this dissertation study. Mixed method design was used for this study. "Mixed methods" refer to an emergent methodology of research that advances the systematic integration, or mixing of quantitative and qualitative data within a single of investigation or sustained program of inquiry (Wisdom and Creswell, 2013). This can also be seen as triangulation which can substantially increase the credibility of research findings (Greene, Caracelli, and Graham, 1989). The research design employed three components. The first component was comprised of classroom observations of both program A and program B. The second component was a quantitative analysis of data collected from program B, and the final component involved interviews with program participants from B only.
Mixed methods were chosen to assess the complex interventions of programs A and B, specifically using convergent design. This design involves the collection of both types of data at the same time and separately analyzing both data types. For example, the researcher gathered qualitative data to assess the personal experiences of former program B participants through individual interviews while at the same time, gathered data from datasets and used statistical software to measure program participant success (i.e., college degree attainment). The two data types provided some validation for each other and also created a foundation for drawing conclusions about the interventions of teaching styles and learning environment of programs A and B.

Two education programs were assessed for this study. Program A (a pre-college program) provides comprehensive support to low income, first-generation, and/or underrepresented students in their preparation for college entrance. The program provides opportunities for participants to succeed in their pre-college performance and ultimately in their higher education pursuits. Program B (a college developmental program), is tailored for students who did not meet regular college admission requirements (i.e. SAT scores, high school GPA, etc.) at the University. Prospective students are admitted to the University only through the educational development program and required to attend a six-week summer program. Successful completion of the program is required for admission to the University. Admitted students continue to receive program services throughout their undergraduate career at the University.

	Specific Method	Research Question Examples
Quantitative	Secondary or retrospective data analysis of Program B outcomes	What factors (parent education, gender-race categories, SAT scores, etc.) predict English and math grades in program B?
		What factors (gender, race, parent education, high school GPA, etc.) predict college persistence/degree attainment?
Qualitative	Classroom Observations of Program A and B	What were the peer relations like for the participants in group activities?
		What types of strategies did program A and program B math and English instructors use to assist participants in their learning, and are these teaching styles in math and English similar or different for the two programs?
	Individual Interviews of former Program B Participants	<u>Academic Self-Concept</u>
		How would you describe your academic and social skills currently?
		In what ways has this program helped you improve your academic/learning skills?
		Peer Support Systems
		Are tutors and counselors available for both the summer program and regular semesters (fall and spring)?

Table 4.1. Table Summary of Study Questions

	Method	Sample (n)
Quantitative	Cohort data	1,400 program participants from 2002 -2013 years (Program B)
Qualitative	Classroom Observations	English and Math course components of programs A and B
	Individual Interviews	Eight former program B participants -4 males /4 females (Program B)

Table 4.2. Sample Table of Research Methods

Component One: Statistical Analyses of Student Academic Progress and Performance

Subjects/Sample

The sample consisted of 1,400 participants who were admitted by Program B from summer 2002 through summer 2013. The population for this study was identified with the assistance from the Program B's Office and the University's Office of Institutional Research.

Data Sources

Secondary data/pre-existing data were used for this study. Program B's department provided most of the program information from their existing data files by cohort year (i.e., gender, race, SAT scores, high school GPA, graduation yr., etc.), reports, and other relevant materials for this study.

Demographic data on program B participants from 2002-2013 includes the following information: date of birth, race/ethnicity, gender, first-generation college student, economic status, parent/guardian education level and graduation year. Academic data

were also obtained from program B and the University's Office of Institutional Research: high school GPA, SAT scores (verbal and quantitative), degree attainment, grades in math, and grades in English.

Statistical Analyses

Data cleaning was conducted before analysis. A thorough review of the file was conducted for duplicate cases. An inspection of the range of values for each variable was done by running various frequency procedures in SPSS.

A series of statistical analyses were conducted using these data. Models were created using logistic regression to predict degree attainment of program B participants. The study also examined the rates at which these participants, persisted and/or graduated, from college.

Logistic regression was used to predict the English and math academic performances and degree attainment of program B student by using variables gender, race, parental education, high school GPA, SAT verbal scores, and SAT math scores. Logistic regression is used because the dependent variable is dichotomous or binary, and the researcher was interested in controlling for several covariates while investigating the association of a given independent variable with the dependent variable.

Limitations

The researcher was only able to acquire program B data and not program A because program A did not have available specific data requested at the time of this study. In addition, the programs have similar goals but are designed differently as program A focuses on high school students and program B are high school graduates in a college developmental program.

Component Two: Student Interviews

Component three was comprised of interviews of program B cohort participants. The aim of this component was to assess how the program may make a difference in student learning/skill comprehension by influencing the academic self-concept and the motivation of students. Did the developmental program encourage or motivate participants' learning? If so, in what ways did this occur (study time, tutoring, other educational activities, etc.)? What type of skill sets or tools are being implemented by the program instructors to enhance the program B participants' comprehension, specifically in the math and English/Composition components? Does the summer program inspire participants with a new way of thinking about themselves as students and their educational future? Are there differences or similarities between male and female summer program (program B) participants when it comes to their educational aspirations, study habits, group learning, course comprehension, etc.; also, if there were differences or similarities among racial/ethnic groups?

Subjects/Participants

The in-depth interviews took place at Program B's office. Of the twelve students who met the interview requirements, eight participants (4 males and 4 females) were available to be interviewed with the following questions, Demographic, Program Climate, Academic Self-Concept and Motivation Questions during summer 2014. The participants were a program B cohort who *completed* the program.

Data Collection Procedures/Sources

A letter of permission was provided by the program B directors to conduct the study. Participants were recruited by an advertisement of the study that was e-mailed by the program B office to students who had completed the summer program in the last two or three years. The potential participants contacted the researcher directly. A consent form was developed for the participants and/or their parents/guardians to sign for permission to be a part of the study. To submit the consent form to the researcher, a private brown envelope/mailbox under the researcher's name was available at the program B office.

Program B provided a classroom on campus to conduct the interviews with the participants. The researcher had permission to interview each participant separately and confidentiality was upheld. Core questions were developed to provide a framework for the student interviews (Appendix 4). Interviews ran 45 minutes to an hour per participant and were audio-recorded, when acceptable to the student. The NVivo software was used for analysis. NVivo is a qualitative data analysis software package used to organize, analyze, and transcribe field notes and other textual sources for patterns or themes from the student interviews.

Overall, the research goals conducted were an intensive analysis of both the precollege program and the developmental program. Through mixed-method analyses, the researcher was able to identify factors associated with collegiate success and understand Program B students' perspectives and the program's influence on them.

Component Three: Classroom Observations

Participants

The researcher conducted classroom observations (Appendix 5) for both programs (A and B). The observations were conducted in 2013 for Program B and during the summer of 2014 for program A. Although the researcher was not able to obtain quantitative data and interviews with students from program A, program A (pre-college program) was included and the researcher was able to conduct classroom observations on ways high school participants learn prior to college. The intention of the researcher was to capture information on what skill sets in core subjects such as mathematics and English/Language Arts are learned before students enter college. The researcher observed both the Program A math and English components and also the Program B math and English components. The researcher also investigated whether the educational curriculum that was provided to the participants reinforced key concepts in the math and English components in program A and B math and English.

Data Collection Procedures/Sources

The goal of these unobtrusive observations was to understand the culture and setting from the perspectives of the classroom participants. The researcher was granted permission by the directors and program instructors of both programs (A and B) to observe the two course components (math and English). The pre-college program was observed for six weeks. Because classes ran concurrently each week, the researcher not only observed different lessons but also different groups in these lessons for about five hours two days each week.

Program B was observed for a semester for both the English and math components. The researcher was allowed to observe one group for the English and math component each week for one hour for the semester. In addition, key questions were developed to provide a framework for the classroom observations (Appendix 5). For example, what were the activities that the participants engaged in when working on an assignment independently? What were the peer relations like for participants in group activities? What types of strategies did program A and program B math and English instructors use to assist participants in their learning, and are these teaching styles in math and English similar or different for the two programs?

Permission to conduct classroom data collection was granted by the directors of both programs and program instructors to observe and evaluate the English and math course components. The researcher scheduled a full day to observe both components for each program.

All English and math classroom observations were conducted from fall 2013 to summer 2014 semesters; and were visited each week for both programs. Program A consisted of predominately African American/Black female participants, while program B consisted of diverse racial groups, the majority of participants were again of African American/Black descent. In both observations, three of the instructors were males of color and one female instructor of color. A series of field notes were collected and transcribed; also collected were math and English course examples (course syllabus, lesson plans, readings, tests, quizzes, etc.) or any other relevant material/information to supplement the observation. In all the classroom observations, the researcher was always seated away from the instructor and students to conduct a more unobtrusive assessment of instructor's teaching strategies and how the students learn.

CHAPTER V. Overview of the Pre-College and College Developmental Programs

To have a better sense of the academic college readiness programs in this study, descriptions are outlined in this chapter to discuss the history, goals, and activities of program A (pre-college program) and program B (college developmental program).

Case Study One: Program A

History

Program A was the first Achieve Success Program (pseudonym) and remains the largest of programs in terms of annual funding allocations. The Achieve Success program began with the Economic Opportunity Act of 1964 which authorized over a dozen program A academic services in the 1960s. By 1966, Program A was expanded from 18 pilot programs to over 200 programs.

The primary purpose of program A has been to assist low-income students and first-generation students enrolled in high school, the key academic/social skills necessary for college enrollment and success. According to the U.S. Department of Education (2004), "the primary objective of program A is to increase and maintain the academic performance of eligible students in completion of secondary education."

Program A used for this study was established at a four-year, mid-Atlantic University in 1999. The program is housed at the University to serve the needs of the students as it allows for the provision of practical support and state-of-the art resources. Program A currently serves grades 9 through 12 from five high schools. To be eligible for the program, participants must be currently enrolled in one of program A's target schools; a student in grades 9 through 11; the ages of 13 and 19; completed eight years of elementary education; a U.S. citizen or national, permanent resident of the U.S. or other as designated; a potential first-generation college student; in academic need; intend to extend education beyond high school; and have a 2.50 overall high school grade point average (GPA).

Two-thirds of project participants must be low-income (defined as taxable income, less than 150 percent of poverty level, i.e., the income level for a family of four is approximately \$24,600 in 2017 –see Table 5.1) and potentially first-generation college students. "Potentially first-generation college students" mean that neither parent has completed a bachelor's degree. The remaining one-third of participants must be either low-income or potentially first-generation college students (Program A data, 2014).

Persons 48 Contiguous		Alaska	Hawaii	
in Family	States and D.C.			
1	\$12,060	\$15,060	\$13,860	
2	16,240	20,290	18,670	
3	20,420	25,520	23,480	
4	24,600	30,750	28,290	
5	28,780	35,980	33,100	
6	32,960	41,210	37,910	
7	37,140	46,440	42,720	
8	41,320	51,670	47,530	
For each additional person, added	4,180	5,230	4,810	

Table 5.1. 2017 Federal Poverty Guideline Example

Source: Federal Register, January 31, 2017, https://federalregister.gov

Program Goals

Program A's objectives are: to achieve the enrollment of sixty eligible students that will gain assistance from supplementary courses and individual resources (i.e., college guidance, career planning) to aid successful high school completion and college transition; prepare high school seniors for their transition into a four-year academic institution by providing supplementary instruction, tutorial services, SAT preparatory seminars, financial aid workshops , etc.; increase key assessment levels in mathematics and reading; a 70 percent retainment of students throughout high school with additional core subject instruction in the Summer Institute, Saturday Academy, mentoring, and other academic services; ensure about 80 percent of graduating seniors will enroll in postsecondary education; and that approximately sixty-five percent of participants who enroll in college will attain a degree within the six-year timeframe.

Along with the application, the applicant must submit a 1040 tax form, evidence of AFDC public assistance school lunch program participation or other documentation of low-income status to be considered for the program. Applicants must complete an agreement form that requires them to participate in the six-week summer program, developed to simulate the college-going experience and an academic-year program. Another part of the program agreement is that participants are expected to or must agree with the following requirements each year they are in program A including: 1) attend a minimum of 10 Saturday Academy sessions 2) participate in all college visits and campus tour series 3) if tutorials are mandated, comply with 90 percent participation 4) attend at least one Summer Residential Institute – 100 percent attendance, and 5) commit to attending at least seven meetings and conferences. Overall, through the academic-year programs, students continue to receive academic and college preparation support services, offered on weekends or after the regular school day. Parents are also expected to read and sign this program agreement. The program also developed several essay questions in which students can choose one question from the list to answer with 250 to 650 words. For example, discuss the path that has led you to pursue placement in the program as the next step in your high school career and/or personal development.

Lastly, the applicant must submit at least two recommendation forms to the program. The person who recommends them must be a teacher, counselor, or extracurricular activity advisor at their high school. The applicant may also give the form to a community member or employer who knows whether the student has a commitment to college entrance and success. The recommender rates the student's academic skills and potential for success.

Program Activities, Requirements and Consequences

All participants are required to attend the Saturday Academy twice a month. The purpose of the Academy is to provide academic instruction and cultural activities that focus on the critical skills needed for successful completion of high school and matriculation into a four-year university.

Time	Type of Course
9:30am -10:30am	1 st Class Session
10:35am -11:35am	2 nd Class Session
11:35am -12:05pm	LUNCH
12:10pm -1:10pm	3 rd Class Session
1:15pm -2:15pm	4 th Class Session
2:20pm -3:15pm	Scheduled Workshop/Activity

Table 5.2. Example of the Saturday Course Schedule

Source: "Program A background", (2013), Office of Institutional Research: University B

The Saturday courses usually begins late fall and ends in May. The courses focus on the following subjects: math (Algebra/Pre-Calculus), Laboratory Science, English & Composition (Literacy Awareness), and a Foreign Language (Spanish). Mandatory tutorials and workshops are also held on selected Saturdays. All students must attend the mandatory workshops. Overall, program A provides additional educational enrichment with college tours/visits that are coordinated by the program staff throughout the year. Participants are required to attend all college tours/visits unless otherwise noted.

Several core services were created during the regular school year to assist participants' development of college-ready skills. For example, the SAT prep sessions are required for program juniors (sophomores can attend on space availability). Juniors are required to attend this prep class twice a week after school for an hour and thirty minutes. The SAT Prep sessions are administered by a professional SAT prep organization in the spring semester to better prepare students for the test. In addition, diagnostic testing is administered throughout sessions.

Monthly tutorials are another requirement for students. Tutorials supplement courses taken by the students and serve as a combination of lectures and/or labs. They provide opportunities for students to ask questions, discuss course/reading materials, and receive additional assistance. These tutorials are for current students with a grade point average (GPA) below 3.0 and/or a "C" or below in a core course. These students must attend twice a week after school. Qualified undergraduate students from the University assist program A participants by helping them to grasp information they have difficulty with in their high school courses. Students bring their academic materials (i.e., homework, projects, etc.) and are expected to be prepared to discuss a particular area of concern with the tutor. Tutorials are mandated for students who are having difficulty maintaining a GPA of 3.0 or above or are receiving below a "C grade" in core subjects. The participant's Individual Learning Plan (ILP) is modified so that participants can achieve success in his/her academic endeavors. All students required to attend tutorial sessions are noted in their student program records.

There are also consequences if participants do not follow program regulations. For example, all participants must maintain an overall high school GPA of 2.50 to be eligible to participate in the university program (program A). Participants not holding at least a 2.50 GPA will be allowed two academic quarters to raise their overall GPA to 2.50. Failure to achieve this GPA will lead to academic probation or program dismissal. All current participants must attend the Saturday Academy and one unexcused absence from the Academy will result in probation. Furthermore, poor academic performance in the Saturday Academy or in any college preparatory course, and a recommendation from an instructor can result in academic probation and if academic progress does not improve on the Academic Advisor's recommendation, the student/participant will be dismissed from the program.

Case Study Two: Program B

History

Program B is a federally-funded program that began as a part of the Higher Education Amendment in 1965. By 1968, the program was authorized by the Higher Education Amendments and, like program A, formed under the umbrella of a series of educational opportunity programs. Over the years, the Academic Success programs have been expanded and improved to provide a wider range of services and to reach more students who need assistance. Program B is the second largest of the Achieve Success Programs in terms of the number of students served. Chaney (2010) stated, "the program increased from over 100 projects and about 30,000 participants in 1970-1971 to nearly 950 projects and over 198,000 participants in 2007-2008." Chaney (2010) added that participating academic institutions comprised of about 22 percent of four-year and twoyear colleges/universities serving U.S. freshman students.

The program B used in this study can be traced back to the late 1960s as a pilot program. In 1972, the University was awarded several other developmental programs. In the 1990s, program B expanded its services into five academic programs. The program is housed at the public, four-year mid-Atlantic University and is headed by an executive director, associate director, and is comprised of about a dozen academic coordinators and advisors.

Program Mission and Goals

Program B's philosophy at the University, test scores and GPAs do not always present an accurate picture of student's academic potential. Program B offers a pathway for students who have not met the University's regular admission requirements but may have the potential to succeed access to the institution. The primary goals of program B is to administer academic and counseling assistance to maintain retention and degree attainment of at-risk students. In addition, program B provides a college orientation seminar during the summer the students are admitted. Overall, program B provides undergraduate students with academic instruction in skills enhancement, academic tutoring and counseling support necessary to improve retention and degree attainment rates.

The program is developed to help students in both their academic and social transition to the University. The program is required of all participating students be admitted to the University through enrollment in the program. To participate in program B, high school seniors needed to complete the *Accuplacer* exam for reading, writing, and math five months prior to applying for the program. Accuplacer is a combination of computer-adaptive assessments that determine one's knowledge comprehension of math, reading and writing as students prepare to enroll in college-level coursework. "Accuplacer is used to identify strengths and weaknesses in each subject area and help improve student's skills. The results of the assessment, in conjunction with the student's academic background, goals and interests, are used by academic advisors and counselors to place the student in appropriate college courses that meet their skill level" (College Board, 2013). The Accuplacer system is used by more than 1,300 secondary and postsecondary institutions to place students in appropriate courses where they can confidently meet classroom requirements.

Program Requirements

Admission into the summer program requires some of the following: 1) verification form, 2) parents or guardians current tax year 1040 tax form, 3) the

University's Application for Admission, 4) diagnostic testing (English, math, reading), 5) two recommendations (one from an English or math instructor), and 6) high school transcripts (ACT, SAT, GPA, etc.). Generally, about 115 to 125 students participate in the program each summer, comprised of over 50 percent African American, 22 percent Hispanic, close to 20 percent white and 8 percent Asian.

Over a six-week period, students 1) participate in a 3-credit university core class, 2) enrolled in a college orientation class, 3) attend workshops in study skills, English and math, 4) attend tutoring workshops, and 5) attend weekly individual and/or group counseling sessions. Students participating in program B receive academic counseling, support during their two-year commitment to the program. Each student must complete five program course areas each semester of their first year. For example, the math course component purpose is to improve problem solving skills in learning core components for mathematic lectures at the university. Students are tested and placed in the appropriate skill level math class at time of participation. In addition, the English/writing course component prepares students with the analytical and writing standards of the university. This component focuses on writing style, development, reading, organization and other forms of communication.

CHAPTER VI. Academic Performance and Degree Attainment for Program B Students

This chapter describes the academic performance of program B students and what factors may attribute to their academic persistence and success as first-year college students. The goals of the quantitative analyses were to understand the possible associations or trends between college academic factors and how these factors relate to the progress of the program's student participants in core academic components (i.e., math, English), whether these academic factors relate to program B student participants obtaining a college degree within six years; and the overall effectiveness of program B's academic standards.

These factors include (gender, race, parent education, high school grade point average, English grades, math grades, SAT math and verbal scores) that may predict college persistence and degree attainment. Several analyses were conducted using longitudinal data collected on Program B cohorts from 2002-2013.

Variable Name	Description
Dependent Variable	
GRAD4	Program B students attained a college degree or no college degree in four years. The responses were dichotomized to $1 =$ yes and $0 =$ no.
GRAD5	Program B students attained a college degree or no college degree in five years. The responses were dichotomized to $1 =$ yes and $0 =$ no.
ENG1	Students earning a high or low English grade during their participation in program B with $1 = A$ or B and $0 = less$ than A or B
MATH1	Students earning a high or low math grade during their participation in program B with $1 = A$ or B and $0 = less$ than A or B

Variable Table 6A: Overview of Dependent and Independent Variables

Independent Variables GENDER	Male or Female
RACE	Asian/Pacific Islander, African American/Black, Latino, and white
ParED (Parent Education)	The proportion of the sample of parents with a college degree or below (dichotomized to $1 =$ college degree and $0 =$ high school degree, GED, or lower education.
COHORT	Students categorized by the year they entered program B from the 2002 to 2013 years.
GPA (HS Grade Point Avg.)	Cumulative graduating high school grade point average of program B students
SATM	SAT Mathematic scores of program B students
SATV	SAT Verbal scores of program B students

Program B Student Population

Information on Program B's student population of 1,400 (578 males and 822

females) were requested and obtained from program B's office and the University's

Office of Institutional Research.

Characteristics	Ν	%
Gender		
Male	578	41.3
Female	822	58.7
Ethnicity		
Asian/Pacific Islander	228	16.3
African American/Black	648	46.3
Hispanic	263	18.8
White	187	13.4
Other	16	1.1
Multiethnic	33	2.4

Table 6.1 Demographics of Program B Participants

Missing	25	1.8
Parent Education		
College Degree	163	12.3
No College Degree	1160	87.5

Table 6.1 shows the majority of the students (46.3%) were of Black/African American descent. Approximately, 60 percent of the student households were low-income, and most parents or guardians held a high school degree or less.

	Mean	SD	Q_1	Media	n Q3
Math SAT	483.2	67.0	440	480	530
Verbal SAT	473.2	60.0	430	470	510
GPA (high school)	3.20	.397	2.94	3.21	3.47

Table 6. 2. Descriptive Statistics on Interval Variables

Table 6.2 shows the means, standard deviations and three quartiles (i.e., 25, 50, and 75%) of the dependent and predictor variables. The data show that the lower 25 percent of the program B participants had a graduating high school grade point average of 2.94, while the top 25 percent earned a 3.47 GPA.



Source: Program B Data, 2013 and University A: Institutional Research Office, 2017

Figures 6.2 through 6.4 shows three quartiles (i.e., 25, 50 and 75%) of SAT scores and GPA.



Figure 6.2 Math SAT Scores by Cohort Year (n=1,321)

Figure 6.2 shows SAT math scores for program B by cohort year (2002 to 2013). The lower 25 percent of the program B participants' in the 2002 to 2007 years SAT math scores remained at similar averages of 460. However, the 2008 cohort and especially the 2009 cohort showed a sharp increase in SAT math scores with an average score of 520.



Figure 6.3. Verbal SAT Scores by Cohort Year (n=1,321)

Figure 6.3 shows the SAT verbal scores for each cohort year of program B participants. The lower 25 percent of the SAT verbal scores hovered around 473 for the 2002 to 2007 program cohorts. A significant increase occurred in the 2009 and 2011 cohorts with an average or median verbal score of 501, however decreased slightly with the remaining cohorts.

Figure 6.4. Graduating High School GPA by Cohort Year



Figure 6.4 data shows the program B participants had an average graduating high school grade point average of 3.20 from 2002 to 2013 and grade point averages rose for each cohort year.

Furthermore, SAT score comparisons were made between program B and incoming freshman from the 2002 to 2013 cohort years. The data showed that first-time, degree-seeking freshman with higher combined SAT scores (math and verbal) averages of 1,283 than program B students, slightly over 300 points higher. However, the same cohort data also showed an uptick of SAT scores for program B students starting from the 2009 and 2011 cohorts. These cohorts entered program B with combined SAT score averages were slightly above 1,000. Figure 6.1 displays that the 2009 program B cohort had the highest SAT score average of 1,030 and the 2011 cohort showed a combined SAT score average of 1,003 respectively.

In addition, starting from the 2006 cohort, most students entered program B with higher graduating high school grade point averages each cohort year afterwards. A chi-square was conducted to investigate differences between the gender and the race/ethnic groups that entered program B. Table 6.3 shows that the chi-square results indicated no significant difference between the race and gender of the students in terms of the year they entered program B [$\chi^2(3) = 2.74$, p=.433].

Variable	n	Race/Et Asian	hnicity Black	Hispanic	White	χ^2	Р
Male	549	103	258	106	82	2.74	.433
Female	776	125	390	157	105		
Totals	1325	227	648	263	187		
<i>p</i> <.05.							

Table 6.3. Chi-Square Analysis of Gender and Race by Cohort Year

ANOVA was used to compare the mean high school GPA and SAT scores by racial/ethnic groups and parent education. The researcher posed the question, "Are there differences among final grade point averages in high school, SAT math scores, and SAT verbal scores in regard to program B cohort groups?"

Variable	Ν	М	SD	F	Р
HSGPA				12.24	.000***
Asian/PI	223	3.33	.39		
Black	633	3.15	.37		
Hispanic	258	3.21	.37		
White	182	3.23	.47		
Total	1296	3.23	.40		
ParEDUC				12.18	.000***
Asian/PI	227	1.91	.31		
Black	648	1.83	.38		
Hispanic	263	1.96	.20		
White	187	1.88	.28		
Total	1325	1.90	.29		
SATM				36.47	.000***
Asian/PI	221	513	68.20		
Black	616	470	64.34		
Hispanic	255	471	65.51		
White	181	507	60.00		
Total	1273	490	64.51		
SATV				5.51	.001***
Asian/PI	221	458	62.11		
Black	616	473	61.02		
Hispanic	255	478	61.42		
White	181	479	55.00		
Total	1273	472	60.80		

Table 6.4 Analysis of Variance Summary Table of Program B participants by Race/Ethnicity on Final Grade Point Averages in High School, Parent Education, SAT Math Scores, and SAT Verbal Scores

Notes: * p <.05; **p <.01, ***p <.001

Tables 6.4 analysis of variances (ANOVA) were significantly different by race/ethnicity on final high school grade point averages, F (3,1296) =12.24, p=.000; parent education, F (3, 1325) = 12.18, p =000; SAT math scores, F (3, 1273) =36.47, p=.000; and SAT verbal scores, F (3, 1273) =5.51, p=.001.

In terms of racial groups, Asian American/ Pacific Islander participants had higher graduating high school grades point averages compared to the other racial group participants. Asian American/Pacific Islander and white participants entered program B with higher SAT math scores compared to African American and Hispanic students, and Hispanic and white students entered program B with higher and virtually the same SAT verbal scores compared to the other racial/ethnic groups.

Student Academic Performance

Chi-square statistics were conducted to examine if program B students were likely to earn low or high math and English grades during their participation in the program. The chi-square analysis was used to answer if there were statistically significant relationships between gender, race and English and math grades (high or low). The results indicated there were no significant differences in English grade by gender and race (Table 6.5). In addition, there were no significant difference in Math grade for Asian, Black and White students, but Hispanic male and female students were significantly different in earning math grades, ($\chi^2(2) = 6.92$, p=.031).

English Grades		n	Male	Female	χ^2	р
Asian/PI					1.40	.237
	Grade of A or B Less than A or B	191 33	83 18	108 15		
Black	Total	224	101	123	.827	.661
	Grade of A or B Less than A or B Total	549 83 632	219 35 254	330 48 378		
Hispanic				105	.681	.711
	Grade of A or B Less than A or B Total	227 35 262	92 14 106	135 21 156		
White						
	Grade of A or B Less than A or B Total	167 16 183	71 8 79	96 8 104	2.93	.231

Table 6.5 Chi-Square Analysis of High and Low English Grades by Gender and Race/Ethnicity

Notes: * p <.05; **p <.01, ***p <.001

Math Grades		п	Male	Female	χ^2	р
Asian/PI					.423	.809
Black	Grade of A or B Less than A or B Total	180 41 221	80 20 100	100 21 121		
	Grade of A or B Less than A or B Total	510 111 621	197 52 249	313 59 372	2.58	.276
Hispanic	Grade of A or B Less than A or B Total	209 48 257	76 26 102	133 22 155	6.92	.031*
White	Grade of A or B Less than A or B Total	144 35 179	64 13 77	80 22 102	1.93	.381

Table 6.6	Chi-Square Analysis of High and Low Math Grades by Gender and
	Race/Ethnicity

Notes: * p <.05; **p <.01, ***p <.001

Logistic Regression Analysis

Eight models of the four binary logistic regressions were conducted to examine

and discuss the relationship of the academic performance (English and math

performance, and graduation) with predictor variables gender, race, parent education,

high school grade point average, SAT math scores, and SAT verbal scores. The first model was conducted with gender, race, parent education, high school grade point averages, SAT math scores, and SAT verbal scores to predict math performance. The second model was conducted with gender, race, parent education, high school grade point averages, SAT math scores, and SAT verbal scores to predict English performance. The next two models were conducted with gender, race, parent education, cohort, high school grade point average, SAT math and verbal scores to predict whether program B student graduate in four or five years.

If the models show significance and significant goodness-of-fit, individual predictors were assessed using the Wald statistic and the odds ratio [exp (b)]. The Wald statistic tests the statistical significance of each coefficient (β) in a model (Menard, 1995, Agresti, 2007). McHugh (2009) stated the odds ratio is used when two events or outcomes are measured and also a causative factor. The logistic regression model included model evaluations. Overall models of significance for logistic regressions were determined by the effect of the independent variables with χ^2 coefficient. The R-squares (Cox & Snell square and Nagelkerke square) were examined to address the maximum percentage of variability by each model.

Variable Correlation Results

Before logistic regressions were conducted to answer the research questions, a Pearson correlation matrix was used to detect multicollinearity between the variables in this study. Woo et al. (2014) states when covariates in a model are not independent from one another, there will be collinearity or multicollinearity problems (i.e., $r \ge .70$) in analysis. The correlations did not present a multicollinearity issue, as a result, logistic regressions were conducted with the variables. The Pearson correlation results are displayed in Table 6.7 below.

	GPA	GENDER	RACE	ENG1	MATH1	SATV	SATM	ParEDUC	COHORT	GRAD
GPA	1									
GENDER	0.13	1								
RACE	-0.04	0.00	1							
ENG1	0.02	-0.02	-0.01	1						
MATH1	-0.06	-0.06	0.03	0.25	1					
SATV	-0.05	0.00	0.10	-0.04	-0.04	1				
SATM	0.02	-0.24	-0.01	-0.02	-0.02	0.18	1			
ParEDUC	0.06	-0.06	0.08	0.03	0.02	-0.00	0.02	1		
COHORT	0.33	0.02	0.02	-0.01	-0.12	0.29	0.17	0.03	1	
GRAD	-0.01	0.09	-0.02	0.03	0.12	-0.19	-0.11	0.00	-0.47	1

 Table 6.7.
 Correlation Matrix of Study Variables

Models 1 and 2: Math Academic Performance

The first logistic regression model was conducted with variables (gender, race, parent education, high school grade point average, SAT math scores, and SAT verbal scores) to predict math grades or math academic performance of program B participants. Table 6.8 shows that the overall model was significantly predicted math grades, χ^2 (8) = 11.10, p = .196. Overall, using all the predict variables only accounted for 1.5 percent of the variance for math academic performance (Nagelkerke $R^2 = 0.015$). A Hosmer-Lemeshow goodness-of-fit test was conducted to determine if the math academic performance models were a good fit for the data. If the result of the Hosmer-Lemeshow test is not significant, then the model has a good fit for the data. However, the Hosmer-Lemeshow goodness-of-fit test was statistically significant (χ^2 (8) = 17.8 p = 0.02) for model 1, indicating that there was significant difference between the observed data and the expected data predicted by the model. This suggests that the model was not a good fit for the data.

When examining the predictor variables separately, only SAT verbal scores showed significance with p = 0.029 and the odds ratio suggests the students that entered program B with certain SAT verbal scores had 1.003 higher odds of earning mostly a math grade of B or better.

The second logistic regression model utilized adjusted variables by race and gender (i.e., gender-race: Hispanic male, Asian female, etc.) to predict the outcomes for math academic performance. The overall model was not significant, χ^2 (8) = 11.10, p = .269. The Hosmer-Lemeshow goodness-of-fit test was not statistically significant (χ^2 (8) = 2.54 p = 0.96), this result indicating that there was no significant difference between the observed data and the expected data predicted by the model. This suggests that the model was a good fit for the data.

By examining the predictor variables separately in model 2, like the model 1, only SAT verbal scores show significance with p=0.028 and the odds ratio suggests the students that entered program B with certain SAT verbal scores had 1.003 higher odds of earning mostly a math grade of B or better.

Variable		011-	050/ CI	
Variable		Oaas	95% CI	p-value
		Ratio		
Gender	Female (Ref: Male)	1.288	.950 -1.747	.103
	``´´´			
Race	Black (Ref: White)	1.141	.733 - 1.778	.559
	Asian	1.137	.677 – 1.910	.627
	Hispanic	1.141	.688 – 1.891	.609
Highest Parent Education	No College (Ref	877	541 – 1 421	594
Inghest I went Education	College Degree)	.077	.5 11 1.121	
	Conlege Degree)			
Crada Daint Avaraga	High School	1 202	<u>201 1 274</u>	177
Glade Follit Average	nigh School	1.292	.091 - 1.074	.1//
	Math	1 001	1 000 1 005	(2)
SAI Scores	Math scores	1.001	1.000 - 1.005	.034
	Verbal scores	1.003	.998 – 1.003	.029*

Table 6.8 Logistic Regression Model for Math Academic Performance

Notes: * p <.05; **p <.01, ***p <.001

Variable		Odds Ratio	95% CI	p-value
		Rano		
Race/Gender	Black Male (Ref: White	1.136	.783 – 1.649	.501
	Male)			
	Asian Male	.850	.382 – 1.892	.691
	Hispanic Male	1.070	.480 - 2.388	.868
	Black Female	.810	357 - 1.842	.616
	White Female	1.300	.558 - 3.028	.543
	Asian Female			
	Hispanic Female	•		•
Highest Parent	No Degree (Ref: College	.873	.542 - 1.406	.576
Education	Degree			
2000000	2.8.00			
Grade Point	High School	1 342	932 - 1 932	114
Average		1.542	.)52 1.)52	.114
Tweldge	Math acores	1 000	009 1 002	000
	Math scores	1.000	.998 – 1.002	.888
SAT Scores	Verbal scores	1.003	1.00 -1.005	.028*

Table 6.9 Adjusted Logistic Regression Model: Math

Notes: * p <.05; **p <.01, ***p <.001

Notes: The final output did not have data for Asian and Hispanic females

Models 3 and 4: English Academic Performance

The third and fourth logistic regression model was conducted with variables (gender, race, parent education, high school grade point average, SAT math scores, and SAT verbal scores) to predict English grade or the English academic performance of program B participants. Table 6.10 shows that the overall model was not significant, (χ^2 (8) = 6.86, p = .552). Furthermore, using all the predict variables accounted for only 1.0 percent of the variance for English academic performance (Nagelkerke R² = 0.010). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant (χ^2 (8) = 6.94 p = 0.54), this result indicating that there was no significant difference between the observed data and the expected data predicted by the model. This suggests that the model was a good fit for the data. When looking the predictors separately, there were no predictors significantly predict the English grades.

The fourth logistic regression model utilized adjusted variables by race and gender (i.e., gender-race: black female, Asian male, etc.) to predict the outcomes for English academic performance. Table 6.11 shows the overall model was not significant $(\chi^2 (9) = 15.99, p=.067)$ and using all the predict variables accounted for 2.4 percent of the variance for English academic performance (Nagelkerke R² = 0.024). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, $(\chi^2 (8) = 7.63, p = 0.47)$. This outcome suggests there was no significant differences between the observed data and the expected data predicted by the model. This suggests that the model was a good fit for the data. By examining the predictor variables separately, Asian male students showed significance of p=.047 and an odds ratio of .23.

Variable		Odds Ratio	95% CI	p-value
Gender	Female (Ref: Male)	1.161	.816 -1.652	.407
Race	Black (Ref: White)	.651	.364 - 1.163	.147
	Asian Hispanic	.650 .619	.340 – 1.243 .329 – 1.168	.193 .139
Highest Parent Education	No College (Ref: College Degree	.827	.466 – 1.468	.516
Grade Point Average	High School	.744	.476 – 1.162	.193
SAT Scores	Math scores Verbal scores	1.000 1.001	.998 – 1.003 .999 – 1.004	.834 .324

Table 6.10 Logistic Regression Model for English Academic Performance

Notes: * p <.05; **p <.01, ***p <.001

Variable		Odds	95% CI	p-value
		Ratio		-
Race/Gender	Black Male (Ref: White	1.008	.650 - 1.562	.972
	Male)			
	Asian Male	.226	052978	.047*
	Hispanic Male	.406	.092 - 1.786	.233
	Black Female	.238	.054 - 1.051	.058
	White Female	.402	.089 – 1.813	.235
	Asian Female	•		
	Hispanic Female	•		
TT 1		007	460 1 461	512
Highest	No Degree (Ref:	.827	.469 – 1.461	.513
Farent	College Degree)			
Education		760	404 1 172	214
Grada Doint	High School	.700	.494 - 1.172	.214
Average	Tilgii School			
riveruge				
SAT Scores	Math scores	1.000	.998 – 1.003	846
	Verbal scores	1.001	.998 - 1.004	.396

Table 6.11 Adjusted Logistic	Regression Model:	English
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Notes: * p <.05; **p <.01, ***p <.001

Notes: The final output did not have data for Asian and Hispanic females

Model 5 and 6: College Graduation in four years

Model 5 (table 6.12) shows that the overall model was significant to predict graduating in four years, (χ^2 (14) = 39.78, p = .000). Overall, using all the predict variables accounted for 7 percent of the variance for degree attainment in four years (Nagelkerke R² = 0.070). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, ((χ^2 (8) = 5.07, p = 0.75) which suggests the model has a good fit for the data. When examining the predictor variables separately, female students showed significance with p = 0.017 and the odds ratio suggests program B female students had 1.49 higher odds of graduating college in four years. Hispanic students also showed significance with p = 0.019 and the odds ratio suggests program B Hispanic students also had 0.53 higher odds of graduating college in four years.

Model 6 (table 6.13) shows similar results as model 5 even when using adjusted variables (i.e., gender-race: black female, Asian male, etc.). The overall model was significantly predicted program B students graduating in four years, (χ^2 (15) = 33.86, p = .004). Overall, using all the predict variables accounted for 6 percent of the variance for degree attainment in four years (Nagelkerke R² = 0.059). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, (χ^2 (8) = 4.57, p = 0.80) which suggests the model has a good fit for the data. When the predictors were examined separately, none of them significantly predicted program B students' graduating in four years.

Model 7 and 8: College Attainment in five years

The final logistic regression models were conducted for each of the variables (gender, race, parent education, high school GPA, SAT math scores, SAT verbal scores, and cohorts) to predict college degree attainment in five years. Table 6.14 shows that the overall model significantly predicted graduation in five years, (χ^2 (14) = 51.07, p = .000). Overall, using all the predictor variables accounted for 13 percent of the variance for degree attainment in five years (Nagelkerke R² = 0.132). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, (χ^2 (8) = 5.82, p = 0.67) which suggests the model has a good fit for the data.

Further examination of the predictor variables separately, the 2005 program B cohort showed significance with p = .009 and the odds ratio suggests the 2005 cohort had .21 odds of graduating from college in five years.

The final model with adjusted variables (i.e., gender-race: black female, Asian male, etc.) significantly predicted program B students graduating in five years, (χ^2 (15) = 53.59, p = .005). In using all the predictor variables, this accounted for 14 percent of the variance for degree attainment in five years (Nagelkerke R² = 0.138). The Hosmer-Lemeshow goodness-of-fit test was not statistically significant, (χ^2 (8) = 6.35, p = 0.61) which suggests the model has a good fit for the data.

Further examination of the predictor variables separately, black male students showed significance (p = 0.007) and the odds ratio suggests program B black male students had 2.3 higher odds of graduating college in five years when compared to program B white males. The 2005 program B cohort also showed significance with p =
0.012 and the odds ratio suggests the 2005 cohort had .23 odds of graduating college in five years when compared to the 2002 cohort.

Variable		Odda	05%/ CI	n value
variable		Daas	95% CI	p-vaiue
		Ratio		
Cohort	2003 (Ref: 2002)	.701	.384 – 1.281	.248
	2004	1.271	.701 - 2.302	.430
	2005	.720	.394 – 1.316	.286
	2006	1.633	.922 - 2.891	.093
	2007	1.596	.901 2.826	.109
	2008	.990	.525 -1.867	.976
Gender	Female (Ref: Male)	1.486	1.073 - 2.057	.017*
Race	Black (Ref: White)	.805	.508 – 1.274	.354
	Asian	.754	.443 - 1.283	.298
	Hispanic	.527	.308900	.019*
Highest Parent Education	No College (Ref: College degree)	1.507	.915 – 2.483	.107
Grade Point Average	High School	1.354	.885 – 2.071	.163
SAT Scores	Math scores	1.000	.997 – 1.002	.807
	Verbal scores	1.002	.999 – 1.004	.217
	1	1	-	

Table 6.12 Logistic Regression Model for Four-Year Graduation

Notes: * p <.05; **p <.01, ***p <.001

Notes: The data output stops at the 2008 cohort

Table 6.13 Adj	usted Logistic	Regression	Model, Fo	our-Year	Graduation
J	0	0			

	Variable	Odds Ratio	95% CI	p-value
Race/Gender	Black Male (Ref: White Male)	.897	.620 - 1.298	.564
	Asian Male	.716	.269 – 1.905	.503
	Hispanic Male	1.015	.384-2.685	.975
	Black Female	1.029	.383 - 2.762	.955
	White Female	.843	.311 - 2.284	.737
	Asian Female			
	Hispanic Female	•		

Highest Parent	No College (Ref:	1.428	.873 – 2.336	.155	
Education	College degree				
		1 400	0.05 0.001	050	
Grade Point Average	High School	1.483	.985 – 2.231	.059	
SAT Scores					
	Math scores	1.000	.997 – 1.002	.677	
	Verbal scores	1.002	.999 – 1.004	.169	
Cohort	2003 (Ref: 2002)	.701	.385 - 1.28	.247	
	2004	1.319	.729 – 2.39	.360	
	2005	.744	.407 – 1.36	.338	
	2006	1.701	.959 - 3.02	.069	
	2007	1.577	.894 - 2.78	.116	
	2008	. 988	.526 - 1.86	.970	

Notes: * p <.05; **p <.01, ***p <.001 Notes: The final output did not have data for Asian and Hispanic females Notes: The data output stops at the 2008 cohort

Variable		Odds Ratio	95% CI	p-value
Cohort	2003 (Ref:2002)	1.426	.689 – 2.952	.340
	2004	.635	.268 - 1.506	.302
	2005	.214	.068–676	.009 **
	2006	.565	.236 – 1.355	.201
	2007	.940	.432 - 2.044	.876
Gender	Female (Ref: Male)	1.026	.625 – 1.686	.918
Race	Black (Ref: White)	1.371	.660 - 2.850	.398
	Asian	.498	.172 - 1.440	.198
	Hispanic	1.377	.609 – 3.114	.442
Highest Parent	No Degree (Ref:	1.132	.502 - 2.554	.765
Education	College degree			
Grade Point	High School	.773	.401 – 1.490	.443
Average				
SAT Scores	Math scores	1.001	.997 – 1.004	.649

Verbal scores	1.001	.997 – 1.005	.777

Notes: * p <.05; **p <.01, ***p <.001,

Notes: The data output stops at the 2007 cohort

Variable		Odds Rat	io 95% CI	p-value
Race/Gender	Black Male (Ref:	2.304	1.255 - 4.230	.007*
	White Male)			
	Asian Male	.448	.103 – 1.953	.285
	Hispanic Male	.531	.129 – 2.180	.380
	Black Female	.332	.080 – 1.383	.130
	White Female	1.257	.315 - 5.017	.746
	Asian Female		•	
	Hispanic Female	•	•	•
		1 0 0 0		
Highest Parent	No College (Ref:	1.089	.487 – 2.435	.835
Education	College degree)			
Crada Daint				
Grade Point	High School	<i>2</i> 00	262 1 200	255
Average	Figh School	.000	.502 - 1.509	.233
SAT Scores				
SAI Scoles	Math scores	999	996 - 1 003	747
	Verbal scores	1 001	997 - 1.005	.747
	verbar seores	1.001	.))7 = 1.005	.037
Cohort	2003 (Ref:2002)	1.507	.724 3.138	.273
0011011	2004	.628	.264 - 1.495	.293
	2005	229	072 - 728	012*
	2006	.580	.240 - 1.401	.226
	2007	1.037	.476 – 2.257	.928
			,	

Notes: * p <.05; **p <.01, ***p <.001, Notes: The final output did not have data for Asian and Hispanic females

Notes: The data output stops at the 2007 cohort

Profile: Quantitative Outcomes of the 2013 Program B Cohort

During the program B data collection period in 2013, the researcher was able to obtain additional quantitative data on fall 2013 participating students in both the pre-English, a University Freshman English course, and math courses.

Although Program B participants were not accepted through the regular admissions process because of the SAT scores and grade point average requirements, program B students exhibited academic potential when compared to first-time, degree seeking university freshman. For example, all 106 Program B participants from the 2013 summer program qualified to continue and were admitted in fall 2013 at the university (Program B Data, 2014).

In the same year, the program B cohort entered the university with an overall 3.43 grade point average compared to the incoming, first-time freshman class with a 3.5 grade point average.





Source: Program B Data, Fall 2013

The data also indicated that program B student participants were from diverse racial/ethnic groups (i.e., Hispanic, white) but African American/Black students

continued to be the majority for each cohort year of the sample data. In addition, black female students were more likely to be a participant in program B than the other racial/ethnic group and gender in the program.

From 2003 to 2011, Hispanic female students were also likely to be a program B participant however there was an uptick for Hispanic male students in the 2012 cohort, accounting for 60% vs. 40% within the same race of students. In 2013, male and female Hispanic students were virtually the same in participation that year.



Figure 6.6 Program B Hispanic Students by Gender and Cohort Year

Source: Program B Data Sample, 2013

Asian female students outnumbered their Asian male peers from 2002 to 2008 however in 2009; Asian male student numbers steadily increased. In 2012 and 2013, while there was an increase of Asian male students, there was a sharp decrease of Asian female students.







Source: Program B Data Sample, 2013

Program B English Component Data Outcomes

Based on the 2013 summer program B evaluations, students either qualified for the University freshman English course or were placed in the Pre-English component (a continuation in the development or strengthening of student English/composition skills) during fall 2013.

The fall 2013 demographic data for the pre-English course show that 54 students participated, while 52 students enrolled in the university freshman English course. Overall, the data showed 56 percent were male and 44 percent female. In terms of the race/ethnicity, 18 percent Hispanic/ Latino, 20.4 percent Asian/Pacific Islander, while a larger percentage were African American (53.7 percent) and 7 percent white. Females comprised, 33.3 percent African American, 5.6 percent whites, 3.7 Hispanics/Latinos, and 1.9 Asian/Pacific Islanders. Male students comprised, 20.4 percent African American, 14.8 percent Hispanics/Latinos and only 1.9 percent whites.

The researcher was also able to obtain outcome data in this study for the University's freshman English course during the end of the 2013 fall semester. The data showed that fifty-two program B participants were enrolled in the University's freshman English course. At the same time, 351 non-program students (university undergraduates) were taking the same course. The figure below shows that program B students performed at similar academic levels compared to non-participants (university freshman) and more likely to earn a letter grade of B or better in the freshman English course.



Figure 6.8 Fall 2013 Freshman English Course Final Grade Outcomes (Program B and University Freshman English Students)

Source: Program B data, Fall 2013 term

Program B Math Component Data Outcomes

During the summer program and based on their individual Accuplacer scores, students were placed in three types of math courses which included a basic mathematics Course/developmental math, pre-math 1/elementary math models, and pre-math 2 and pre-calculus 3 and an individual course, if a student or students tested above pre-calculus. According to the summer program data, 45 students were placed in developmental math and 61 were placed in pre-math 1 and 2. By October 2013, 74 students were now placed in the other math courses as compared to 32 students still placed in developmental math, a 13-percentage point improvement.



Figure 6.9 Program B Mathematic Course Testing Level Changes

Source: Program B data, Fall 2013 term

Of the 45 students placed in developmental math in the summer, as of fall 2013, 32 participants were currently in the developmental math course. A high percentage of the students were overwhelmingly female (72%) compared to only 28 percent male in basic math. This was the same case when it came to male and female participants by race. African American, Hispanic, and white females were more likely than males to be placed in developmental math. There were no Asian female students in this course. In addition, African American females were the majority in the course compared to all other races. Overall, students in developmental math were more likely to earn a B (35.3%) compared to 22 percent of students earning an A.

Changes and Improvements in Math Testing Levels

Students had the opportunity to re-test in math and twelve students were able to test out of developmental math into other math levels. As a result, the math courses with the highest concentration of students were in College Algebra & Trigonometry (CAT) and Pre-Calculus (CAL).



Figure 6.10 Improvements in Mathematics Testing Levels (All Program B Students, Oct. 2013)

Females performed better in the course CAT than their male counterparts with a midterm grade of A or B, however in CAL, males performed better than females. Almost 30 percent of males in CAL received a letter grade of A compared to 9 percent of females with a letter grade of A. In terms of race/ethnicity, the results of course CAT showed that all racial groups received an A (from A+ to A-). However, there were differences among the groups. African American (58 percent) were the majority in course CAT; however, Asian/Pacific Islander students outperformed all other racial groups with 71.4 percent earning an A in the course. Other ethnic groups earning a grade of A were 46.7 percent African American, 33.3 percent white, and 8.3 percent Hispanic/Latino.

In terms of college persistence and degree attainment, first-time undergraduates and program B student data comparisons were limited and the university freshman student cohorts were much larger than the program B cohorts to conduct comparisons. The researcher was able to obtain a 2005 cohort data comparison of degree attainment in the four, five, and six-year timeframes to serve as an example. The researcher believed it was important to show data on black students and black female student comparisons with the university black student data because African Americans/Black students were the majority in the 2002-2013 Program B sample used in this study to compare with other racial/ethnic groups.

The following figures below provide a snapshot of the graduation rates for the fall 2005 program B and university undergraduate cohorts. The data show that all university students were more likely to graduate at higher rates in the six-year timeframe than program B students, however the data also show program B student graduation rates increased by the sixth year.

In viewing the race and gender graduation rates in figure 6.12, the comparison of all black program B and black undergraduate students showed similar graduation rates by the sixth year. Figure 6.13 displays the fifth and especially the six-year graduations rates were "virtually the same" (77% vs. 79%) for both black female program B students and black female undergraduate students.

Figure 6.11 Graduation Rates: All Students, Fall 2005 Cohort



Figure 6.12 Graduation Rates: All Black Students, Fall 2005 Cohort



Figure 6.13 Graduation Rates: Black Female Students, Fall 2005 Cohort



Sources: Program B Data, 2014 and University A: Institutional Research Office, 2017

According to the overall program B data outcomes, the participating students showed similar positive graduation rates as first-time, bachelor degree-seeking students overtime when compared to the U.S. average graduation rate of first-time, bachelor degree-seeking university students. It is the accepted standard in American higher education to measure graduation rates at four-year colleges and universities on a six-year time frame (Complete College America, 2014).

A 2018 National Center for Education Statistics report shows that 60 percent of first-time, full-time bachelor degree-seeking undergraduate students completed the degree in 2016. Also, in 2016, the six-year graduation rate was 59 percent at public academic institutions (IES: NCES: The Condition of Education, 2018). Program B shows about 93 percent of participants return as sophomores, a higher retention rate than the university's general population of sophomores. For example, Table 6.16 below indicates the fall 2005 program B cohort and freshman cohort showed very similar college retention rates, particularly after both group's first year. In addition, two-thirds of program participants earn their degrees compared to the 40 percent average for students from low-income families in four-year colleges.

Retention Rates					
Fall 2005 Cohort	Cohort Size	After 1 yr.	After 2 yrs.	After 3 yrs.	
Program B Students	108	93.5%	85.2%	77.8%	
University Undergraduates	4,192	91.7%	87.2%	85.1%	

 Table 6.16
 Retention Rates (Program B and University Undergraduates), 2005

Source: University A: Institutional Research Office, 2017

The quantitative outcomes in this study showed positive results in degree attainment for program B participants. The outcomes provided partial evidence of student success in terms of the quantity of students retained in college and the number of student degree attainment.

The researcher discovered from these analyses that for program B to better collect, similar data between program B and university freshman students is to obtain data during the regular semester terms such as in the fall and/or spring semesters. Both semesters are when both groups (program B students and university freshman) would be taking the same courses at the same time. A possible program B data analyst/coordinator could be responsible for working with a university department and/or professors of certain college courses (i.e., math, English, psychology, etc.) in order to capture stronger data and analysis on program B student academic persistence and progress compared to similar university students (freshman) for analysis with similar sample sizes, student classification, courses, and grade outcomes.

The logistic regression model for English academic performance (model 3) was not significant, however the adjusted model for math performance indicated students who entered program B with higher SAT verbal scores had better chances of earning a math grade of B or higher in college. The adjusted logistic regression model (model 4) for English academic performance showed Asian male students statistically significant with p=.047 and the odds ratio suggests that Asian male students have 2.3 higher odds of earning mostly an English grade of B or better when compared to other race and gender groups. Both English academic performance models were a better fit for the data according to the Hosmer-Lemeshow test. Although the logistic regression models' variances were very small (6% and 7%) for four-year graduation outcomes in models 5 and 6, program B female students were significant and their odds ratio suggests program B female students had 1.49 higher odds of graduating college in four years; Hispanic students also showed significance and their odds ratio suggests program B Hispanic students had 0.53 higher odds of graduating college in four years.

The logistic regression models (models 7 and 8) indicated that five-year graduation outcomes displayed more variance (13% and 14%) in predicting that program B students were more likely to earn a college degree in five years than the four-year graduation models. In model 7, when the predictor variables were examined separately, the 2005 program B cohort had two times (2.1) higher odds of graduating in five years compared to the other program B cohort years in the study. In model 8, program B black male students had 2.3 higher odds of graduating in five years compared to their peers and once again, the 2005 cohort showed a slightly higher odds of a 2.3 chance of graduating in five years. Overall, cohort 2005 showed the highest odds compared with other cohorts, which indicates this cohort having the highest college degree attainment in five years.

The college graduation outcomes showed some similarities to the U.S. college graduation rate trends overtime such as higher rates of female college graduates than male college graduates. For example, the logistic regression models for degree attainment in four years result showed that program B female students were more likely to graduate college earlier (i.e., in four years) than their male peers. The data also showed that African American program B male students were more likely to graduate in five years and beyond. This data outcome suggests that academic environments, such as program B, with key elements of academic rigor, supportive staff and peer environment may benefit and align African American male students slightly more on the pathway towards college degree completion than their program B male student peers in other race/ethnic groups.

Additional data collected from the program B and the institutional research office showed findings similar to the logistic regression models in the study. The fall 2005 program B cohort in the figures 6.11-6.13 displayed even better six-year graduation rates when disaggregated by racial/ethnic group and gender (i.e., African American female students). Program B student graduation outcomes increased by the six-year timeframe. Table 6.16 shows by the sixth year, the general university student graduation rate showed no significant percentage increase while program B student graduation rates continued to increase.

The overall data outcomes determined that program B students showed similar college, at times higher retention rates and similar college degree attainment in six years when compared to the general university student population.

CHAPTER VII: Program B Interviews: Student Perceptions

Purpose

This chapter describes the former developmental program B participants and their students' program reported experiences and opinions through interviews, and how effective the program was for them. The goal of the student interviews was to gain insight into how program B (college developmental program) may have made a difference with these former academic skills by influencing their academic self-awareness, peer support systems, motivation/encouragement, and cultural awareness.

The study was conducted at one institution in order to understand the perceptions of the students in this particular case. All of the program B staff support was located in one main building on campus, with several offices and classrooms on the same floor of the building, the students had great access with staff making student interactions better and convenient. Broadly structured questions guided the study in order to understand the perceptions of participants on a variety of developmental issues:

- 1) Did the developmental program encourage or motivate participants' learning? If so, in what ways did this occur (study time, tutoring, other educational activities, etc.)?
- 2) Did the summer program inspire participants with a new way of thinking about themselves as students and of their future educational pursuits? and
- 3) Were there differences or similarities concerning gender and racial identity of program B participants when it came to their educational aspirations, study habits?

Participant Backgrounds

The student interview population included twelve students of color who completed the developmental program (program B), and who were at least in their sophomore or junior year at the institution. The decision was made not to include firstyear students because they did not have enough time in the program environment to develop perceptions about the program.

A total of twelve students met the interview criteria i.e., second or third year in college), and eight students agreed to participate in the study (see Table 7.1). Students' race and ethnic background consisted of one African student, four African American students, one Asian/Pacific Islander student, and two Hispanic/Latino students. The graduating high school grade point average (GPA) of the interviewees varied. Male students had a higher graduating high school grade point average and college grade point average (at time of interview) compared to their female peers. All interviewees' current college GPA were slightly lower (B or B- average) than their graduating high school GPA and male students' GPA were still a bit higher compared to their female counterparts.

All of the participating students were classified as either sophomores (3) or juniors (5) in college. The participants resided mostly in areas around the mid-Atlantic. Furthermore, during the interviewees' participation in the summer program, they were more likely to commute than live on campus.

One of the characteristics shared by most of the interviewees was the fact that they were raised in single-female headed households with or without a sibling. They came from various racial/ethnic and socio-economic backgrounds. However, the majority of the participants were African American/Black and in their junior year of college. The students came from a diverse high school background. The information from their high school background showed that both male and female participants were very involved in various academic and social activities. The majority of students attended public high schools and one attended a private high school. A Hispanic female student (participant 4) stated she was a member of her high school newspaper and the Spanish Honors society. One of the African American female students noted she was a cheerleader and a track and field athlete. The male participants were just as active in high school as female participants. An African American male interviewee (participant 6) stated that he played football, a member of his high school's science club and also mentored students particularly in a program for black males.

Pseudonym	Gender	Classification	College Major
Andy	Male	Sophomore	Criminal Justice
Carter	Male	Sophomore	Sociology
Cindy	Female	Junior	Community Health
Danny	Male	Junior	Physical Science/Geology
Helen	Female	Sophomore	Psychology
Jay	Male	Junior	Sociology
Jennifer	Female	Junior	Community Health
Summer	Female	Junior	Family Science

Table 7.1. Interview Participants

Theoretical patterns were identified to describe the experience and the learning environment of the interviewees in program B. The four patterns were Motivation/Encouragement, Academic Self-Awareness, Peer and Social Support Systems, and Cultural/Ethnic Awareness.

Student Description of their Academic Selves

While Tinto's theory of student persistence remains an important piece in the education field, the theory has however, received some criticisms over the years. One of the criticisms touches on the need to recognize the impact of student motivational orientation on student persistence decisions. Stage (1989) noted that Tinto's theory places strong emphasis on student commitment but fails to describe the motivational orientations that lead to academic commitment. Reason (2009) added the need to better understand relationships between student motivation and academic outcomes is to increase the understanding of the college persistence puzzle. This section examines the relationships of motivational orientation.

Motivation/Encouragement

The student interviewees exhibited several types of motivation during their participation in program B, as a result, the researcher developed two primary categories with key components for each of the two categories. The first category was Self-Motivation with the components of proactive learner and student self-accountability, and the other category was Motivation from Program Staff for students with the reinforcement and student encouragement components.

Self-Motivation

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Self-determination theory or SDT is a theory of motivation, personality, and development that proposes that intrinsic motivation or motivation derived purely from the satisfaction inherent in the activity itself and more conducive to learning (Guiffrida, Lynch, Wal, and Abel, 2013). SDT has three primary psychological needs that when satisfied, foster intrinsic motivation (a) autonomy, occurs when students choose to become engaged in learning because the subject and activities are closely aligned with their interests and values (b) competence, which is the need to test and challenge one's abilities; and (c) relatedness is the need to establish close, secure relationships with others.

Biehler and Snowman (1986) stated psychologists believe that motivation is a necessary ingredient for learning. Lawler (1994) described "motivation as goal directed" and Denhardt (2008) added motivation is "what causes people to behave as they do." Campbell and Pritchard (1976) defined motivation as being the set of psychological processes that cause the initiation, direction, intensity, and persistence of behavior. Denhardt et al. (2008) continued to note that motivation is an internal state that causes people to behave in a particular way to accomplish particular goals and purposes.

The researcher discovered that this component included how students interacted with classroom peers, collaboration, initiative, and/or drive. The following are the responses from program B participants concerning their academic and social motivations. When asked, "how would you describe your academic and social skills currently?" Andy noted, "I improve every day. I have been exposed to a lot of things academically; it has given me that drive or tenacity." Andy also stated, "While in high school I was shy, an introvert, but I knew I had to open up to people. The summer classes helped me to open

up more to people and be open-minded with peers." A female interviewee, in her junior year, added, "I take more initiative with things." Cindy, a college junior, said "I follow my own path. I have learned how to multi-task and I realized the most how to prioritize and learned how to adapt to certain things." A male student said, "Even after no longer being a part of Program B because I declared my major, I still took advantage of the tutoring services especially when it came to chemistry courses." Another component the researcher discovered from the interviews was student self-accountability. Self-student accountability was important to include because the interviewees' responses revealed the expectations they had for themselves which included their attitudes and behaviors while in the program. Summer, an Asian student, expressed "I am adamant about my education. I have always known education is important even though my parents did not attend college." A female interviewee said, "It is important to succeed in college and pass this on to others. I love psychology. I don't just go by the book but apply what I am learning in real life and share with the world not just educating yourself." A male interviewee stated, "I take charge of my education." Another interviewee noted, "I organize my study habits and manage my time." Jennifer, a Community Health major, explained, "Even after no longer being a part of the program, after declaring my major, I still took advantage of the tutoring services, especially when it came to chemistry courses." A student stated, "In high school, I did not seek counselors so I was not use to this when I got to college. I am confident in asking more questions, seeking out help, and staying after class to obtain additional services from program. "Another interviewee also expressed, "The program has helped me learn how to structure my time."

Motivation/Encouragement from Program Staff

The student motivations were also reinforced by the assistance and encouragement of program instructors and staff. Reinforcement of new skills involved program B staff promoting or advancing attitudes, behaviors, and values in pursuit of educationally purposeful activities (i.e., studying). Andy, a Hispanic male, stated, "The program helped to reinforce balancing academics and social life, the program helped me manage other aspects of my life." Another male student said, "To get away from procrastination, the program introduced a goals course, which is a lot about time management and with focus about our goals we would like to make attainable." A female sophomore stated, "I think the study skills course instructor really helped me understand my college courses more, and helped me read and understand my textbook and concepts more closely...I did not learn this in high school; it is mandatory in college." A female interviewee said, "Yes, I do. It is important to succeed in college and pass this on to others. I love psychology. I don't just go by the book but apply what I am learning in real life and share with the world not just educating yourself." In addition, an African American male interviewee noted, "The tutors helped to facilitate and encourage discussion or dialogue with groups that they tutored."

Program staff showed students they were capable of success and aided them in their educational pursuits. A male interviewee emphasized, "The program staff did help with my personal and professional development for me to become a well-rounded, versatile person. It helped me realize other facets in my life, not just academics." Another student added, "The program has helped me learn how to structure my time." A male sophomore stated, "counselors were good at organizing and mapping out what I needed to do. They helped me organize my study habits and manage your time." Cindy said, "my counselor is great. He provides good advice to me and was understanding when I became overwhelmed. When asked, "do you think you are proactive in your education since participation in program B?" A black male student, in his junior year, said, "Yes, for sure. People fall off during the semester; the program makes sure to put students back on track by staying on top of the student's progress. He also added, "I have positive relationships with the counselors and tutors of the program and I want to give back." The researcher posed another question, "Was the program staff helpful to you?" A Hispanic female emphasized, "The staff was good. My advisor was always patient with me. He was flexible and advised me in a good way and continued to encourage me, a lot of moral support. All of the counselors were good, so I felt comfortable." Participant 6 described his experience: "Without Program B (PB), I would not be in college. I was a stubborn high school student and when I applied to top schools, I got into one but not the others and chose to go through program B...I made the right decision because it has been a great experience for me because I am goal-oriented, self-motivated and have a hunger for success."

All the interviewees stressed how their path was an intensive and arduous journey but at the same time turned out to be a rich and positive experience. A female interviewee named Summer (pseudonym) stated, "the resources are good because there was a time I did not have money for a summer course and because they had extra funding, they helped me pay for it." Again, I am not good at math, there was a time I took a statistics course and the math tutors helped me with this." Another female interviewee discussed both academic and social supports, "I liked the guidance because my math skills are not the strongest. I sought extra help and the one-on-one or smaller groups were helpful...I learned from this because I was able to speak up and ask questions."

A male interviewee added, "I improve every day. I have been exposed to a lot of things academically; it has given me that drive/tenacity." Jennifer, a community health major, noted, "Even after no longer being part of program B because I declared my major, I still took advantage of the tutoring services especially when it came to chemistry courses, and I care much more about school. In high school, I did not seek counselors, so I was not use to this when I got to college. The same female student continued to state, "I am confident in asking more questions, seeking out help, and staying after class to obtain additional academic services from the program."

Academics

Over the years, studies of the relationship between self-concept and achievement in educational settings have been a key focus of research and theory (Hamachek, 1995; Hattie, 1992; House, 1996; Marsh, 1987). Okeke et al. (2009) defined academic selfconcept as certain perceptions individuals hold about their academic knowledge and abilities. In addition, research evidence has supported the belief that there are persistent and significant relationships between self-concept and academic achievement (Marsh, 1992; Marsh and Craven, 1987).

In investigating academic self-concept, the researcher asked, "In what ways has this program helped you improve your academic/learning skills?" A Hispanic female interviewee stated, "I noticed that people put more effort in their school work. I saw there were different levels of education know-how and saw that I needed to work a bit harder. I observed peer relations and conversation showed that other students were more informed about college." An African American male interviewee said, "I believe the program played a role in refining my academic skills." Another female student stated, "I learned how to multitask and I realized the most how to prioritize." A student stated, "at first, I was a bit nervous in speaking and now I am more confident. It was mandatory to take a communications course. This class helped with presentations and critiquing myself more." In addition, a Hispanic male, stated "I have been disciplined academically since high school. The program helped to reinforce my college study skills which helped me to balance my academics and social life. The program helped me manage other aspects of my life."

When interviewees discussed their experience in program B during the summer, the students described the program as a positive, intense, and competitive environment that pushed them to do their best where all students were striving for the same goals of persisting and graduating from college. Helen, a sophomore said, "I liked the counselors/teachers. They provided different support such as helping me navigate my way around the university. I was new to the campus so I felt the pressure to learn for myself also." When asked, "what academic skills did you learn from the program?", a student stated, "These types of skills were not taught in high school. I took AP courses in government, biology and English but I had an issue with studying. Math is still an issue for me. The college study skills course helped me understand how to study and create a timeline for that." Academic self-concept for program B participants involved a variety of other academic elements (i.e., tutoring) to steer them towards the pathways of college success. Helen, a psychology major, noted, "Part of the summer program, we had to take a university college course. I chose psychology 100 and a program B tutor was assigned to the course also. The tutor not only taught us the basics of the course but she wanted the students to think about the concepts in psychology on our own. She wanted us to create examples to help us think more critically and analytically." Summer found, "tutoring services are the most helpful." Another student explained, "tutors help to facilitate and encourage discussion." Cindy summed up this point by stating, "tutoring is pretty ongoing. I liked that the college study skills course had an open lab, you could go and sit there and catch up with work all day. It was helpful for me when I took my American Government and Politics class."

Tutoring was also helpful in the program B math and English components. A female, in her junior year, claimed, "I found the math tutoring course to be most helpful because I learned the basics again and this made me quicker in Calculus." Another student noted, "the English course helped me pay attention to my paper more (i.e., grammar and reference books helped), the English section is helpful. This has made me become more consistent with details in my writing skills."

Peer and Social Support Systems

While academic self-concept/integration is imperative for college persistence and graduation, research evidence also shows that social support systems are also key to student success, particularly for students of color. Tinto (1975) discussed the terms

academic integration and social integration in his work on college student retention. According to Tinto (1975, 2004), persistence occurs when a student successfully integrates into the institution academically and socially. Integration, in turn, is influenced by pre-college characteristics and goals, interactions with peers and faculty, and out -ofclassroom factors (Jensen, 2011). Museus & Quaye (2009) and Museus (2011) emphasized the conceptual framework with their development of an intercultural theoretical framework of minority student persistence that includes the importance of both collective agents (school majors and programs) and individual agents (peers and faculty).

The interviewees felt not only a part of program B but also the university. For example, Danny, a male student in his junior year, noted "I liked how the program connected me to other people even before I got into the university. Danny also added, "The program prepared me for university classes such as Greek Mythology, math and English. Unlike my brother, when he attended another university as a freshman, he did not know anyone. This program exposed me to many people during the summer." A Hispanic female made a similar comment, "I like the summer program meetings with peers. I have good friends from the program. It was helpful to be a part of the program because it helped me prepare for the fall semester and the layout of the campus." In addition, a female sophomore stated, "The tutors helped us get to know the school and classmates. I learned to work a lot more with other people in the program. In the college reading sessions, we were always in small groups and that gave me a chance to talk to my peers and slowly this helped me move out of my comfort zone… the summer program was like a second home." When asked, "Are you more confident in your participation and speaking abilities as a program B participant?" Andy, a sophomore, stated, "While in high school, I was shy, an introvert but I knew I had to open up to people. The summer class I took helped me to open up more to people, I need to communicate more and the class provided this opportunity to share my opinions and be open-minded with my peers."

Individuals create or construct their own new understandings or knowledge through the interaction of what they already know and believe the ideas, events, and activities with which they come in contact (Cannella and Reiff, 1994; Richardson, 1997). Danny, an African American physical science major, stated, "I am still close with my summer program friends, we all live on campus. Danny provided an example of his close friendship with fellow peers. He added, "My friends from the summer program and I actually formed a group to make sure everyone in our group graduates." Jay, a junior at the university, added, "most of my friendships were through the summer program. My college roommate was in the summer program, we lived in the same residence hall. We still have some connection, by lunch, social media, etc." Carter, a sociology major, stated, "I met my two best friends in the summer program; we have been very close for two years. I was a roommate with one of them and we support each other. I feel fortunate to have developed a strong bond with them, like family-oriented."

Other academic and social supports were evident in student-faculty interactions. When asked, "What kinds of educational services (i.e., workshops, seminars) were available to you during your program participation and did the services help you? If so, how?" One student stated, the staff was always a motivation and inspiration." Carter described faculty and staff as amazing and motivational and continued to state, "They did help with my personal and professional development, for me to become a well-rounded, versatile person; and helped me realize other facets in my life, not just academics."

Cultural and Ethnic Awareness

Another theme that emerged from the interviews was the importance of education with the students' awareness of their ethnic and cultural identity and a feeling of cultural responsibility. Although, the majority of interview participants were African American, one student originated from Africa, another student was Asian American and the other was a Hispanic male interviewee. A black male participant seemed confident about his campus experience and emphasized the importance of helping with uplifting the black community. "I currently participate in the black male initiative. The Black Male Initiative is a club on campus dealing with issues people of color are facing. It is more a brotherhood environment and we discuss a range of very comprehensive topics, i.e., from modern politics to the Congo of Africa." The researcher asked, "do you take more initiative in consulting with program instructors if more assistance is needed with projects?" "Currently, as a junior, I do not consult with the program advisors as much. I got a lot of help from my math instructor and I felt connected to him as another black man on campus." African American male students expressed the pride of having other African American male professionals helping them with their courses. Other student of color interviewees (i.e., Hispanic, African) felt the importance of doing well in their education and succeeding in their career in order to give back to their country in the future. When asked, "do you see yourself continuing school after college (i.e., pursuing a masters, doctorate, and/or professional degree (MD, JD, etc.)?" A female interviewee

stated, "Yes, I would like to pursue a master's degree in Kinesiology and a doctorate in Physical Therapy. I would like to return to my country of Nigeria after I complete my education. It is important to go back and give back to my country."

The following were compelling comments made by the African American male interviewees. The black male students were succeeding by being in college and some even in the direction to graduate education (i.e., masters, doctorate, etc.,), they still thought about their siblings' future and the young black males left behind in low-income communities with low or non-existent education, careers and a future. The African American male interviewees were articulate about their educational perspective by discussing their academic aspirations and cultural responsibilities. For example, one of the African American male interviewees stated, "Yes. I see how it is important as a black male to succeed in college; it is a family responsibility to me. I have a little brother and I have to be an example. Of course, I am doing this for myself also, I need a higher education." Many of the males were raised in single-female headed households in mixed income environments of the mid-Atlantic. County A (pseudonym) is predominately African American/Black descent and the dominant area in which most of the interviewees were raised.

Viewpoints on Cultural & Ethnic Awareness

The interview participants felt at times different from the traditional university population of students. They knew they were a small group, mostly students of color, on a predominately white campus. The interviews also revealed some of the students had a somewhat difficult time adjusting to the demanding and intensive schedule during their

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time in program B as opposed to a high school schedule. However, they eventually transitioned into their new academic demands as pre-undergraduate students and eventually as a first-time freshman both academically and socially.

Program B practiced cooperative and collaborative learning environments where student learning, peer group staff interactions, and other supports further enhanced the student participants. The students who were accepted into the program already possessed the determination and expectation to succeed in college. Student peer supports served as a vital element of the student's ongoing academic and social development. Most of the interview participants mentioned how they benefited and contributed from the summer program into their college academics and beyond.

Based on the interviewee responses, program B also helped to foster better student-faculty relationships that made interactions not so intimidating for first-year undergraduates (i.e., program B students required follow ups with academic advisors, developed friendships with fellow peers in the summer program) as compared to nonparticipant program B first-year undergraduates. In addition, program B served as a snapshot during the summer of what the continuing participants would expect during the regular university semester terms. These students of color felt they had to succeed against all odds particularly with continued academic and racial disparities in American higher education institutions. This idea is not new but apparently still relevant. Pitre and Pitre (2009) noted "African American, Latino, Native American, and low-income students have completed high school and enrolled in college at repeatedly lower rates than their White and economically advantaged peers" (pg. 98). Sommerfeld & Bowen (2013) added about forty percent of Latino and African American college students graduate with a four -year degree, as compared to over fifty-five percent of white and Asian students graduate nationwide.

Our nation is also dealing with high levels of racial/ethnic tensions and this ideology has resurfaced in the American education system, particularly in our colleges and universities. In a 2016 USA Today article entitled, "Racism on College Campuses", black students at California State University in Los Angeles were consistently made the targets of racist attacks by fellow students, faculty, and administration. Similar protests at the University of California -Berkeley resulted in the launch of the African American Initiative. The African American Initiative was developed by the university's Division of Equity and Inclusion as a comprehensive effort to address the under-representation of African American students, faculty, and staff at UC Berkeley, and improve the climate for current and future black populations at the University. A study by Massey et al. (2003) also shows that many students of color admitted to selective universities underperform compared with their pre-college achievement.

Program B seemed to help counter student non- college preparation by consistently providing most of the academic and social elements for student success in college and beyond. Research evidence shows participation in college readiness programs (i.e., program B) help first-generation college students in their pursuit of college. "Federally-funded TRIO Programs and non-profit Advancement Via Individual Determination (AVID) are examples of programs that provide first- generation college students preparation (i.e.., tutoring) to ease the transition between high school and college (Pitre & Pitre, 2009)." Overall, involvement in these college preparation programs increases opportunities for first-generation, underrepresented students to learn to develop social and academic skills necessary for college. PrAlspero et. al (2012) added, "intervention from culturally competent programs that focus on difference in achievement, motivation among diverse racial minorities provide valuable education support" (pg. 5). At the same time, most U.S. colleges and universities have not necessarily followed what program B has been able to practice at a predominately white academic institution.

In recent years, there has been an effort for American colleges and universities to conduct comprehensive institutional restructuring and transformation. Cabrera et al. (1999) suggested practices to improve the campus racial climate such as encouraging acceptance of diverse groups, collaborative classrooms, and a multicultural curriculum. Museus (2008) stated institutions can foster stronger connections and collaborations among groups, programs, and services if they can maximize the resources to which students of color experience easier access of integrating college students of color into the mainstream cultures of their campuses. Rendon et al. (2000) also stated the retention of students of color posited the transformation of higher education institutions was essential to become more inclusive. The authors further explained that such inclusiveness and transformation, in which campus culture both validates and reflects the communities that produce students of color, are driven in part by a greater understanding of the cultural complexities faced by those who enter predominately White colleges and universities.

Conclusion

This study examined the academic and social experiences of participants who completed a college developmental program (program B). The participants were lowincome, first-generation and underrepresented students of color at a selective, research intensive, predominately White institution in the mid-Atlantic area. The researcher used qualitative methods (i.e., in-depth interviews) specifically to explore the experiences of former program B participants at the university. The study also asked students to describe their present academic and social development (i.e., academic self-concept, motivation, peer and social support systems, and cultural awareness) as college students since completing the program. The eight students of color provided interesting insight on their collegiate journey while in program B. Some patterns emerged from the researcher's questions.

First, there were some mixed results about the program climate. When accepted into the summer program, the participants expected it would be a change from high school but many stated they had no inclination that the transition would be quite academically intensive. All of the students disliked that they were on campus all day from 9 am to late evenings; however, they credited their self-determination and staff /peer motivation to help them through the weeks of the program. Overall, across gender and all racial lines, participants stated their academic experiences were positive in various ways. For example, the data showed that the majority of male and female interviewees had more positive attitudes than negative during their time as participants in the developmental program.

Another finding from the interviews is that there is a clear misalignment between high school curriculum and college curriculum. The interviewees agreed that program B helped them to develop and enhance their academic and social skills. A female interviewee acknowledged that although she took advanced placement (AP) courses in English, biology and government in high school, she really did not know *how to study* and high school did not teach her this concept. She learned this from the PB's Study Skills course more. Many of the students agree that the study skills course helped them get to know their peers by participating in small groups and learn with each other especially in understanding time management - how to prioritize their time both academically and socially. Seminars and workshops also contributed to the interviewees' learning.

In terms of academic integration, the interviewees agreed that program B provided much assistance. The students stated they liked the fact of being on campus and feeling like a true college student. They learned key concepts in understanding how to study from the college study skills course which includes note-taking, time management, etc. These skills helped the students with their mandatory courses in English, math, and tutoring. The students also reported that the program staff including instructors, counselors and tutors, were helpful in PB and continued to provide ongoing assistance. Once a student declares of a major, the student is no longer a PB student and officially a student at the university. Participants must declare their major by their second year in the program. However, they were always welcomed to use many of the tutorial services available at the facility; many students have taken advantage of these services.

Deyhle (1995) and Tierney (1992, 1999) emphasized the importance of "cultural integrity" and focused on the affirmation of students' cultural identities propelled by programs and teaching strategies that engage students' racial/ethnic backgrounds in a

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positive manner; also, toward the development of more relevant pedagogies and learning activities (p.84). In addition, the importance of cultural integrity illuminates how racial/ethnic minority college students benefit from being secure in their own cultural heritages (Dehlye, 1995; Helm, Sedlacek & Prieto, 1998; Museus, 2008; Tierney, 1992).

Overall, perceived commitment from the institution is critical for student social integration (Braxton, Hirschy, & McClendon, 2004). Webber et al. (2013) also added many scholars report that when students actively participate in curricular and cocurricular events, they make friends, become oriented to campus quickly, get to know faculty, and make important gains in critical thinking. When the interviews were conducted, the participants were in their second or third year at the university. Most of the students especially the African American male students reported how they identified strongly with their ethnicity and all of the students strongly emphasized how program B helped their peer and social supports benefited their academic and social development and may have connected them to greater ethnic/cultural awareness of themselves and motivated future academic pursuits.
CHAPTER VIII. Classroom Observations

Classroom Observation Results

Classroom observations were conducted for both programs; program B during the fall 2013 semester and program A during summer 2014. Both program B's math and English components and program A's math and English components were observed. The goal of these unobtrusive observations was to understand the culture, setting, or the social phenomenon being studied from the perspectives of the participants. Student perspectives were observed by how they were taught by the instructors, engaged in their learning through student reactions, classroom discussions, and peer and instructor interactions.

Methods

Permission to conduct the data collection was granted by the directors of both programs and program instructors to observe and evaluate the English and math course components. The researcher scheduled a full day to observe both components for each program. These observations were conducted during semesters lasting between three to four months. All English and math classroom observations were conducted from fall 2013 to summer 2014 semesters; and were visited each week for both programs. Program A consisted of predominately African American/Black female participants. While program B consisted of diverse racial groups, the majority of participants were again of African American/Black descent. In both observations, three of the instructors were males of color and one female instructor of color.

A series of field notes were collected and transcribed; also collected were math and English course examples (course syllabus, lesson plans, readings, tests, quizzes, etc.) or any other relevant material/information to supplement the observation. In addition, key questions were developed to provide a framework for the classroom observations. For example, what are the activities that the participants engage in when working on an assignment independently? What are the peer relations like for the participants in group activities?

Program B Fall 2013 Classroom Observations

The primary goal for the all the classroom observations was to view possible behavioral patterns of the program A and B participants in certain situations to obtain information about how and what participants learn from both programs in the English and math course components where the classrooms serve as naturalistic or real-world environments.

Program B: English Component

The classroom observations began in the pre-English component of Program B. This observation was conducted for four months. The instructor was informed about the observations during the semester and the researcher was seated at the side of the classroom; this helped to gain a full-view of the classroom. The classroom was well-lit and had three computers and three large shelves for files. The classroom also had a large projector screen for teaching and roundtable style seating for students. The instructor soon began class and asked students to sign the attendance sheet. He told students they would be responsible for signing in every day for the semester. He then instructed them to take out their notebook for today's assignment.

There were a couple of topics discussed in the session: active and passive voice in different tenses; and the argument inquiry project. Some students wrote this down in their notebook, while other students typed this on their own laptops. The instructor began

to cover the university's freshman English standard which the students needed to know as they are expected to transition into the regular university English course by spring 2014. An example of the active and passive voice activity was visible on the screen in front of the classroom and he told the students to make sure they copy this in their notebook. The instructor reviewed a number of exercises and example sentences with this chart style (see in Appendix).

The instructor began to randomly choose students for answers to the questions he posed. When he moved on to the present progressive and then to modal auxiliaries, there was a sentence concerning the U.S. government abolishing the death penalty and this seemed to spark a discussion among the students. The students seemed excited and engaged with the government topic. Most of the students began debating this point. The teacher gave them a brief time to discuss their opinions on this topic and then reiterated that active voice is often required in college course papers. In fact, he reminded the students that they would have a quiz on this subject in the next week. In the last topic for the day, the instructor provided an example of the university English course, Argument of Inquiry Project. He explained that this class project goes by the University's English course standard. He provided an example that the students could relate to as possible topics for them, such as, "Why do students need or wear school uniforms?"; or "why do students have to take the SAT?" The instructor reviews in detail what students needed to do for the project. Here, students took the initiative to ask a series of questions concerning the paper, such as the paper format, guidelines, deadline, etc.

In between the observations of the pre-English component, there was the opportunity to observe program B's lab support for the freshman English course. Of this 2013 cohort that completed the summer program and based on their evaluation and test, 52 students were enrolled in the university English course. The lab support had the same pre-English instructor but also had a graduate assistant from the University's English department. The session observed consisted of six students (four females, two males). The pre-English instructor and the university graduate assistant worked together to plan out the assignments for these students. The purpose of these fifty-minute classes was for students to develop their paper topics for the university English course.

Most of the students had their own laptops, while one student worked on the classroom computer. Some students were researching topic ideas by using the university's library database and other research tools, while other students were reading literature on topics and trying to develop their thesis statement. The graduate assistant walked around the classroom to see what each student was working on and if they had any further questions or concerns. A student asked a question to the graduate assistant, her topic was the "Costs of College." Both the pre-English instructor and graduate assistant took turns in advising the student on how to pose her argument based on key research words and reference materials. The graduate assistant also told the student to review materials and articles on this topic by reading major newspapers, journals such as the New York Times, the Washington Post, Education Week, etc. Another student had questions about "Animal Rights." Again, the graduate assistant helped the student by having them think about what has already be found (research evidence) on the topic and new ongoing studies. Furthermore, the graduate assistant added that the students should

use data to help them gather information in order to support their position on the paper topic. Students continued to work quietly and intensely on their laptop or class computers for research and study sources until the class ended. The graduate assistant dismissed the class and reminded the students about his office hours for further assistance.

In the last two sessions of the pre-English course, the pre-English instructor reviewed the assignment on the Argument for Inquiry Project, which was due at the end of the semester. Again, the teacher provided examples for the paper project including, "should the SAT be eliminated and does the test determine student success in college?" The instructor reviewed the project for a brief time and then transitioned into the student PowerPoint presentations. The purpose of this assignment was for students to address some of their writing weaknesses. Each presentation was between five to ten minutes for four students but this study will discuss one of the presentations. One of the students gave a presentation on two issues he had with writing, independent/dependent clauses also subject/verb agreement. The student defined each term and presented examples on how to correct the problem. He had a couple of examples of incorrect sentences and asked his classmates how they would correct the examples. Two students shared their answers with the class. The student presented and then provided to the class a variety of ways to correct the sentences.

Students sat quietly and attentively with focus on the student presenter. The students showed their classmate respect by raising their hands to ask or respond to questions he asked. In addition, the students continued their support or encouragement by clapping their hands each time a student presenter completed their presentation. Overall, his peers seem to enjoy the presentation and being active participants with the student presenter. All the student presenters remembered to cite the source(s) for their information at the end of the presentations. The instructor thanked all the students for their presentations and their classmates showed appreciation and support by participating.

Program B: Mathematics Component

Like the pre-English component, the researcher observed the program's math component. According to the program, the mathematics component is geared towards high school seniors whose college entry test scores and grade point averages did not meet the requisite admissions criteria of the University. The mission of the math component is to enhance the chances of students' success in a basic level math course at the university by exposing the students to the materials and topics prior to the time they take the course. Furthermore, the goal and purpose of the math component is for the improvement of the students' mathematical skills before they complete at least 30 college credits. Overall, the students are classified in accordance with their level of understanding mathematics.

One of the observations was a developmental math courses (DMC). The DMC curriculum begins with arithmetic skills and then transitions into elementary algebra. The curriculum covers math skills needed to perform well in the elementary algebra section of the math placement test given to the students for the opportunity to be placed in an advanced math course (i.e., Algebra/Math Models) for the fall semester. The classroom had six computers in the back of the classroom; there were about four large shelves for filing; two white boards for writing on each side of the classroom. Unlike the pre-English class, the math classroom had six tables with four chairs positioned in two rows. The instructor had the students sign the attendance sheet each week. Because of the unique seating arrangement in the classroom, the researcher observed from the back of the

classroom, this provided a better assessment of the instructor and students working. All of the students had their own graphing calculator and three students possessed their own laptops. Students were free to use the classroom computers if needed.

The instructor used a basic college mathematics textbook (mostly algebra, word problems, etc.) that is part of the My Math lab course. This website coincided with the course itself. The Course Compass online textbook is a Pearson MyLab Math designed to improve the results of all higher education. This includes online homework tutorials and assessment products. The textbook had several features such as assignable exercises where at the end of the section exercises, instructors have a large collection of assignable questions that address each problem type; also mathematically-speaking vocabulary check assignments to assist students in understanding and mastering mathematical terminology. Another learning aid used was a chapter test video pre-loaded on the website which covers key definitions, procedures and concepts from the section by working through examples, exercises from the textbook and other additional tips. With these interactive learning/teaching tools, the instructor was able to build, edit, print and administer quizzes and tests using a computerized bank of math problems to cover the concepts from the class. The software is algorithmically-based allowing the instructor to create multiple but equivalent versions of similar math problems or questions. Furthermore, the instructor used this online program to stay updated measurable gains in student learning outcomes, retention, and course success.

During the first session, the instructor distributed an algebra assignment. This activity serves as a practice for an upcoming test. The instructor asked if students had any questions and students stated no and began their work. He continuously walked around

the classroom to check if the students were on track and to see how the students were working through the math problems. While working through the problems, the students took the initiative to ask questions and take notes during the session. When the students had a question, the instructor would review the problem on the board for the students to follow. For example, the teacher worked through the slope and intercept math problem. Students were discussing the problem with each other, students were trying to probe ideas from one another (i.e., positive peer relation). The instructor began to show students an example of several mathematical concepts to help with their practice exercise as displayed below.

The students seemed engaged in learning and understanding the components of the problems and the teacher reminded them to continue practicing on their own. In each of the math sessions, the instructor always provided students with a number of practice math problems; students were mostly responsible for continuous practice. All in all, there was not a lecture, the instructor assisted if needed. For example, while working through one of the problems, a student stated she was confused. The instructor stated he could assist with the math rules but not with the answer. He provided some examples of the math rules/principles and went into more detail by explaining a math problem concerning absolute values. $-a \le x < a$ and $|x| \ge a$ or x = -a.

Near the end of the class, the teacher corrected any steps in the math problem with students. However, with all the sessions, the instructor prefers students to find any mistakes or errors on their own so they can understand the problems better than just him working through the answers with the students.

Program A Summer 2014 Classroom Observations

Program A has similar goals of college readiness for their participants as Program B but is designed differently. During the summer of 2014, classroom observations were conducted on program A. The target population for the program is high school students from urban high schools in the mid-Atlantic area. Students joined the program mostly through recruitment by their high school teachers and/or the program. The 2014 summer cohort was comprised of twenty students, with the majority female (17) and only three males. All the students were of Black/African American descent.

The classes were held at the one of the University's departments on campus. Classrooms were always well-lit and located in a small lecture hall with advanced technology for teaching. The classrooms also had white boards for the instructors and students to write on. The main office for the program was also in the building and located near the classrooms as well, where students and/or instructors can go from time to time in case they had questions or concerns for the program's core staff (i.e., program coordinator). The program's main office also was a guide for the students; the main office had the schedule posted on its door for the six weeks so students knew exactly where they needed to be. There were four courses in the summer program which included English, mathematics, Spanish, and drama. The focus was to observe the English and math components. All the courses ran concurrently and the researcher had the opportunity to participate in classes either in the morning or the afternoon observing different student groups.

Program A: Pre-College Mathematics Course

The purpose of the course is to prepare high school students for mathematics before entering college for further studies. The math course was taught by a graduate student attending the University that houses program A. Her background is in engineering and mathematics. During the summer program, the instructor provided a review of key mathematical components. Throughout the observations, the instructor provided interactive math examples. She reviewed numbers and operators, algebra, geometry, measurement, data analysis, and some statistics for students to gain more knowledge and for them to be prepared for the SAT examination. The classes were mostly four to five female students and only one to two male students. Adaptive learning with the use of technology was quite apparent in this course as was in program B observations. Educators have defined adaptive learning as an instructional strategy where a teacher alters his or her instruction in class to meet the needs of students (Horn, 2016). This method is commonly used in mathematics because it has been found to enhance student learning. In the first session of the course, the math instructor believed it was imperative to have all students take a brief exam in basic mathematics to assess where the students' mathematical strengths and weaknesses lie. The test (see Appendix) encompassed a variety of mathematical concepts or mix of algebra, fractions and word problems. The analysis of the test results helped the instructor determine areas she would need to help the students the most.

In one of the sessions, she focused on algebra and word problems. The students had graphing calculators (provided by program) because these would be needed when the students enter college and beyond. The students would need to understand how to use the calculator now so they can be more comfortable with the applications later. Most of the students began working on the math problems while one or two students were not as engaged in the class. The instructor consistently walked around the classroom to check how the students were progressing. With the word problems, she incorporated the importance of reading comprehension and math skills. In this part of the course, there was quite a bit of dialogue with the students. For example, the instructor reviewed what an algebraic question was with the following example,

"2 is double times x ... which is Jake's age (13 * 2=26) minus 4=22. The instructor told the students to carefully read the word problem first; she emphasized the need to translate the word problem into an equation *before* you find the solution in a step-by-step process. The students took the initiative to work through the problems on the white board. The instructor went around the classroom to make sure that the students were calculating the problems correctly. She provided other sets of word problems to help the students understand that order is important in any math problem; here she was trying to enhance and challenge the students' critical/analytical skills.

Another session focused on geometry or geometric figures. Interactive teaching was a common factor in each lesson. The instructor began the lesson by using a touch screen monitor. This was a slide presentation of formulas and definitions for cylinders, the surface of a triangular prism and other geometric figures. She used her hand on the monitor or sometimes the keyboard to show students the step by step process for each part and how to solve the problems. For example, the instructor reviewed the area of a circle, A= π r2. Here, she teaches the students how to recognize, use numbers, and how numbers can represent symbols in algebraic form such as 2 (π rh) = 2 π r² + 2 π rh. She provided a definition of surface area of a cylinder. Students began writing these key

points in their notes. To really get the students thinking about these symbols, the instructor provided them with a practice question, "What is the difference between a radius and a diameter?", also what is the radius?

Once the students completed this and the instructor checked the answers with the class, she gave them accolades and their classmates seemed supportive as well by saying 'very good' or 'good job'. In the last part of the session, the instructor presented the surface of a triangular prism. Here, the instructor transitioned into an educational video for the class to understand triangular prisms more. It was a brief musical video that assists students in comprehending what each part of the figure represented. At the end of the lesson, the instructor provided more examples for the students to work out on their own with an explanation included. The instructor wanted the assignment completed by the next week.

In the last two weeks of the summer program, the math instructor focused on not only practice problems but key mathematical problems for the SAT. The SAT is a globally recognized college admission test that provides colleges an assessment of what skills students know and how they apply that knowledge. It tests one's knowledge of reading, writing, and math, and other key subjects taught in high school classrooms. Most students take the SAT during their junior or senior year of high school. Overall, research evidence shows that the combination of high school grades and SAT scores is the best predictor of a student's academic success in college.

Math sessions were now held in one of the larger classrooms on campus so all the program A students can participate in pre-SAT practice sessions at once and to help them with further questions or concerns about the SAT. Some students were in the audience

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taking notes or were in the front of the classroom at the board solving math problems. Most of the program A participants were in their first year as a high school senior or were going to complete their senior year by the end of fall 2014. The instructor reviewed word problems (i.e., line and pie graphs, percentages) and Venn Diagrams more heavily. The student group in this session seemed more behind in understanding these concepts than the other groups observed. The instructor started with the basics with this group, and she had to go step by step with this group on Venn Diagrams. This included the instructor reviewing key terminology such as the definitions of intersection, union, complementary and universal set for Venn Diagrams.

Program A: Pre-College English Course

The English course was taught by a male college graduate. He is also an elementary school teacher in the mid-Atlantic area. The instructor's teaching style was a combination of both lecture and classroom discussion. The core focus of the course was topic ideas, writing/composition, and creative thinking. The classroom had advanced technology for teaching. The instructor often used PowerPoint slides for his lectures. In one of the sessions, the instructor began to discuss the process of writing and uses script writing as an example. Instead of students writing notes, the teacher had them freely discuss their project with each other. Here, the instructor is teaching them to think freely and use their imagination. He provided key questions as a guide for students such as, "What is the story/script about/? genre? and the objective of each character?" To really have students be in charge of the lesson, the instructor asked one of the students to begin typing the story ideas on the classroom computer. Meanwhile, several students began to

discuss their story idea. They chose particular genres (i.e., horror/thriller) and created characters.

The instructor then asked what makes a story a thriller. The students created a back story (how did the characters come about and what were the issues?) The students continued to develop their story with the title, the characters, and the setting. As they were developing their story further, the instructor challenged the students to delve into the environment/setting (i.e., location, type of area, time period). Overall, the final product of the project was that the instructor would create the students' idea with a short film. Furthermore, the students would be responsible for creating a brief script as a group and turn in the final project to the instructor for the semester. To further their skills in the writing process, the last two sessions of the summer program focused on the students developing a short research paper along with a PowerPoint presentation of their analysis and results.

The instructor began each class by showing PowerPoint examples and rules of the APA Writing Style and Mechanics. The instructor explained to the students that APA stands for the American Psychological Association and how this writing style is commonly used to cite sources along with the Chicago writing style. He showed examples for the general format of APA research papers, in-text citations, endnotes/footnotes, and the reference section. He further stated the students could view APA paper styles on their own at various educational websites (i.e., the university's library). The instructor stated that their assignment was to write a paper on a specific topic. One student stated she would be writing about teen depression and another student stated that her paper will be about peer pressure among teens. The first activity was for

students to create an outline because this provides a guideline in developing their paper. In addition, he told the students that they would need to conduct research on their topics, such as what was reported before on these topics (i.e., research-based evidence).

Next, the instructor asked several questions such as, "How would you research topics?" A female student responded by saying they would look up the information in books. The instructor agreed with the students, but added that book information tends to provide outdated findings over time and stated there are many other sources. Another student said the internet is a source as well, the instructor agreed, but made sure to emphasize to the students not just any website; professional websites such as health, education and other social science journals, not Wikipedia, as it is not a professional source. The instructor then spoke about the purpose of an abstract. The instructor asked the students, "What an abstract was?" Some students guessed that this is a summary of a paper's content. The instructor agreed, but stated an abstract is more than a summary and provided the students with the definition of an abstract. The instructor provided an example of a paper for students to view in front of the classroom; the teacher used the touch screen to scroll through each section of the paper to discuss the body of the paper. The teacher emphasized that the key is to have supporting details/information for their paper, to cite key references and have a reference list at the end of their paper.

The overall idea that the instructor emphasized was when gathering information for any research study, there must be an understanding of what the writer wants his or her reader/audience to gain from a chosen topic. For example, the student proposing to write about peer pressure, the instructor asked, "Will your paper be from a behavioral, health or environmental perspective?" It seemed as though the instructor is pushing the students to begin thinking in a scholarly manner in order to conduct professional research, something they will be expected to know and perform in college and beyond.

Classroom Observation Findings and Conclusion

The English component and the math component in both Program A (pre-college program) and Program B (college developmental program) made use of educational software for participants to gain a better understanding of core English/language skills and mathematical rules and concepts. The role of adaptive learning is a key method in developmental education. Adaptive learning is defined as a method that takes advantage of data and analytics in order to enhance a student's learning pathway. "The goal of adaptive learning is to improve student understanding of the content by presenting the student with recommendations to help them successfully navigate their learning pathway as successfully as possible while ensuring that the student gains a full understanding of the material (Jordan, 2013)."

Technology, such as continuous adaptive learning- a teaching method premised on the idea that the curriculum can adapt to each student and assist students by strengthening their skills. Adaptive learning technology can personalize each student's experience and help professors and instructors identify a student's type of learning. Horn (2016) uses the term "digital adaptive learning" as education technologies that can respond to a student's interactions in real-time by automatically providing the student with individual support (pg. 15). These types of teaching methods were observed in Program B's English and math courses in the fall semester of 2013. The instructors in the semester developmental courses often had an understanding of a student's academic strengths and weaknesses from a test called *Accuplacer*. *Accuplacer* is a suite of tests that determines a student's knowledge in math, reading, and writing as they prepare to enroll in college-level courses. It is used to identify strengths and weaknesses in each subject area and to help improve student's skills through interactive online learning tools. However, tests often do not provide an entire profile of a student. In the developmental English and math components (Program B), the Socratic Method was implemented to understand where the student's academic weaknesses may lie and how to work through these issues to help them fill the gaps in their learning.

The Socratic Method

The Socratic Method is based on the Greek philosopher, Socrates. The method is a dialogue between the teacher and students by questioning by the teacher. It is a way to examine the underlying beliefs that shape the student's view and opinions. Most Western pedagogical tradition from Plato and beyond is based on a dialectical method of questioning. According to a 2003 article by the Stanford University Center for Teaching and Learning, the classroom experience is a shared dialogue between teacher and student in which both are responsible for engaging dialogue through questioning. The article further stated the "teacher" or leader of the dialogue asks probing questions in an effort to expose the values and beliefs which frame and support the thoughts and statements of the participants in the inquiry. The students ask questions as well, both of the teacher and each other (pg.1). The Socratic method of teaching has received criticism over the years; however, the method is still a foundation of Western pedagogical tradition. In addition, those who practice the Socratic Method do not necessarily use products such as PowerPoint slides. The classroom group follows the dialogue where it goes, without a lesson plan.

During the fall 2013 classroom observations, this type of teaching method was apparent in the program B math course. For example, the math instructor did not have a detailed syllabus for the course and only handed out the daily assignments each week for students to work independently and collaboratively with their peers in the classroom. Most of the time students worked on the math problems on their own. If most of the students seemed to have an issue with a math problem, the instructor would review the problem and math rules with the students on the two white boards on each side of the classroom. Part of helping the students learn mathematics better, the instructor incorporated the Socratic component of using questions to examine the value, principles, and beliefs of the students.

As stated in the first rule of the Socratic Method, the instructor wanted students to know facts but the instructor also wanted to focus more on what the students thought about these facts. The method was often witnessed in program B's math component where the instructor often asked students how to solve a specific math problem (i.e., concept of the slope and intercept or basic Algebra). The students responded by taking the initiative to ask questions. In most of the observations there was positive peer collaboration. For example, the students did not wait on the instructor at times, the students 'reversed roles' with the instructor by becoming the leader in discussing the math problems with each other and probing for ideas. Some of the students even went to the board to engage, discuss, and eventually solve the problems with their classmates.

The instructor checked from time to time to see if the students were on track in solving the problems correctly. Program B's pre-English component possessed some of the Socratic methods but the math component was quite strong in this teaching style. Overall, Socratic instruction aims to expose the values and beliefs which frame the thoughts and statements of the participants in the inquiry.

Adaptive Learning

Like the Socratic Method, adaptive learning follows this similar path in student learning (i.e., dialogue-based learning). This concept has been embraced in today's developmental education curriculum. The math component in program B used Pearson educational products to support student learning further. Pearson products specialize in this adaptive technology in the developmental education sequence. For example, to supplement the course, the math instructor incorporated a textbook which includes software that students use to continuously to teach themselves the math problems with quizzes, homework problems, videos on math concepts, and terminology reviews. The math instructor views this as continuous learning in and out of the classroom; furthermore, the instructor views these learning techniques as a way for students to become more proactive and confident in their learning and comprehension, not just for mathematics but for any college course.

The pre- English component encompassed the Socratic concept more in several ways. In program B's English course, the classroom setting had circular, roundtable seating where the English instructor could view all students and each student could

engage more in dialogue. The instructor treated the class like a small community of peers by knowing each student's name by memory. Each lesson was interactive with the instructor using PowerPoint and having more discussion with the student about the topic or lesson of the day.

Adaptive learning has several traits. The purpose of the developmental courses observed was to capture how instructors help students strengthen their skills in English and math. The courses are tailored for students to not only memorize certain rules in English and math but to actually apply those skills hands-on in their writing or learning how to solve math problems, strategies the participants were not able to grasp at the high school level. In one of the English observations (Program B) during fall 2013, the instructor reviewed "active and passive voice in different tenses," this activity was important to refresh the students' skills on key grammatical rules in language and writing; and from this refresher they would be able to apply this in their writing. The instructor integrated class discussion with technology many times throughout the observations. For example, in observation # 7 (see in Appendix), the instructor emphasized the issue of correlative conjunctions to students and showed a video clip discussing, "What is Faulty Parallelism?"

The key mission of adaptive learning is to engage students in academic activity that absorbs instruction which reinforces a student's understanding. In the active/passive voice lesson and other lessons, the instructor often chose students randomly for answers to questions he posed. This was quite evident in the lessons where student-teacher dialogue and also peer-to-peer discussion were found to enhance collaboration in classroom learning. For example, students were not only responsible for developing a presentation on key areas to improve their writing skills but also in creating a PowerPoint slide presentation for their instructor and peers. Some of the grammar and writing issues included in these presentations were 1) better thesis development, 2) incorporating more evidence-based supportive details, and 3) independent/dependent clauses and subject/verb agreement.

The independent /dependent clause presentation was particularly interesting because not only did the student present but also displayed some examples of incorrect sentences and asked his classmates how they would they correct these (i.e., two students shared their answers with the class). The students seem to enjoy the presentations more because they participated and felt apart of the presentation. In addition, the idea or point from these presentations is that the English instructor not only desired for students to learn how to improve their grammar and writing skills but to learn presentation skills, and to have an interaction with an audience. In conclusion, research evidence has shown first-year writing courses strengthen students' writing abilities and play a critical role in orienting students to postsecondary study (Sturtz et al., 2012). As found with the classroom observations of the both programs' English courses, the students had more one-on-one interaction with both the instructors and peers. They seem to have learned more about their writing strengths and weaknesses.

Another point is that these English courses are key for both pre-college and college developmental programs in this study when developing metacognitive skills. Metacognition is defined as the ability to reflect on one's own thinking and increases student access to academic achievement. Negretti (2012) added that the development of metacognitive awareness is critical in developing the ability of students to transfer knowledge from and to differing and diverse educational experiences. Negretti (2012) also noted that students who struggle with generalizing from (or thinking metacognitively about) and using known writing strategies tend to be more unaware of their rhetorical and discursive choices in writing. A number of high school students as witnessed in the precollege or Program A participants tended to be used to the five-paragraph theme. The five-paragraph theme is an essay format with five paragraphs. The first is the introductory paragraph, then three body paragraphs with supporting details and development, and one concluding paragraph (Koch, 2007). The program A English instructor provided students with pre-college first –year writing lessons. In one of the observations, the instructor tried to have the students think beyond this theme into more of how to address a framework to help the reader understand what the writer is saying, form an argument, and the purposes for writing in different genres or contexts.

The shift from high school writing themes into complex college domains of writing was more prevalent in the developmental program (program B). As Gorzelsky (2009) added, for first-time college students, who must negotiate unfamiliar and complex writing tasks, first-year writing courses provide students with the time, space, and pedagogical support to take control of their writing. The English courses in both programs of this study served as a stepping stone for students to gain the core intellectual skills and behaviors to succeed in college and eventually to help transition these same skills and behaviors into career preparedness and achievement.

In terms of the math course observations, research has shown that elementary /secondary schools are now incorporating higher-order learning for better college and career preparedness for the technological and economic transformations. A 2011 report

defined higher-order thinking as a situation that one has not encountered before and is generally recognized as some combination of certain characteristics. The National Research Council (1993) synthesized theories about higher-order thinking, non*algorithmic* represents paths of action for solving problems that are not specified in advance (creative problem solving) and *complex* involves problem solving where multiple solutions are possible. For example, higher-order thinking is a method of problem solving, in the case of mathematics, this means going beyond the memorized solution. Nitko & Brookhart (2007) stated the problem to solve is how to reach the main goal and because a student cannot readily recognize the way to reach the desired goal, he/she must use more than one higher-order thinking processes called 'problem solving' (pg. 215). Teachers know that graphic organizers are critical ways of assisting students to understand complex ideas. For example, program A students often engaged in higherorder learning/thinking when they visualize a problem by diagramming it. Drawings and diagrams engage visual learners; they display relationships, clarify concepts, and facilitate communication. The program A (pre-college) math instructor taught this concept greatly with the use of Venn Diagrams and other geometric figures.

Overall, the classic Venn diagram (with symmetrical figures or three circles) was developed by the English philosopher and mathematician John Venn in 1881. The Venn diagram is a good example of this higher-order thinking. According to Walbert (2006), adapting and building on the simple Venn diagram or "double circle chart" can encourage students to recognize complex relationships between items and characteristics. These diagrams are used in a number of courses (i.e., literature, science but Venn Diagrams are more popular in mathematics and statistics; and research has shown that identifying these similarities and differences may be the most powerful strategy for student learning.

CHAPTER XI. Discussion and Conclusion

The objective of each of the research questions is to assess programs A and B college readiness and completion academic strategies and whether the programs were effective in assisting student participant learning skills, college persistence, and degree attainment. Mixed methodologies were used in this study because using measures of only high school academic performance to predict readiness does not provide a complete assessment of student academic preparedness. For program B, a longitudinal data set of 1,400 participants who entered program B from 2002 to 2013 was used for this study. The data included student variables of race/ethnicity, gender, parent education, final high school graduating grade point averages, and SAT math and verbal scores. The variables were used to predict whether program B was effective based on the student participants' English and math academic performances, college retention, and degree attainment. Qualitative outcomes (i.e., classroom observations and interviews) complimented the program B data sample with an understanding of student participants' education and learning backgrounds, motivations, and academic endeavors.

The effectiveness predictions focused on program B data outcomes from students' English and math academic performance showed in figures 6.8 and 6.10. Furthermore, the logistic regression models (Tables 6.8 to 6.15) estimated the odds that program B student participants showed positive effects in English and math academic performances, college persistence, and college degree attainment based on different high school indicators, such as high school grade point average, SAT math and verbal scores.

Both programs A and B are designed to provide academic services to help with the enhancement of student development through various academic components (i.e., counseling, study skills, math). Both programs' philosophies are that standardized tests and GPAs do not necessarily provide a complete assessment of a student's academic potential. The philosophy of both programs in this study recognize that because GPA, ACT, and SAT scores are weighted criteria in admission decisions at a university; and as a result, a number of potentially successful students are denied the opportunity of college enrollment. The aim of this study was to determine the effectiveness of two academic programs (pre-college and a college developmental program) and the college readiness of students who participated in these programs.

Mixed method design was implemented and triangulation was used as there was a convergence of results from both quantitative and qualitative research methods. The findings revealed that African American students (male and female) were predominant participants in both education programs. Next, the programs provided ongoing skill attainment (i.e., tutoring, peer mentoring) even after the student participants completed the summer programs and/or declared their college major. The combination of logistic regression results, qualitative data collected and analyzed, showed that the college developmental program (program B) students were more likely to earn a college degree in five years and beyond compared to the university's general student population based on a six-year degree attainment timeframe.

In terms of the quantitative research questions, which examined the contributing factors that led to college degree attainment, the results of this component of the study builds on the work of some of the researchers and literature reviewed in Chapter 3. Many

of the studies characterized that evaluation results of pre-collegiate programs positively impacted postsecondary education progress and persistence. The concept of program effectiveness was present in multiple quantitative analyses for program B, however quantitative data was not available for program A at the time of the study, as discussed in Chapter 4. Based on the quantitative results in Chapter 6 from the study of program B, it is important that students continue to do well in college math courses. A series of logistic regression models in the study showed math grades as significant in predicting college persistence and degree attainment. Although the quantitative outcome explained a small part of the effectiveness of these programs, the model showed an effect. One of the researcher's suggestions is to possibly create a model with a stronger effect, program B could begin to collect more data on specific math courses (i.e., algebra, calculus) taken by student participants overtime so the information could be comparable data with nondevelopmental program participants (general university freshman population) who took similar math courses.

In Chapter 7, the themes of Motivation, Academic Self-Concept, Peer and Social Support Systems, and Cultural/Ethnic Awareness for college readiness and persistence comprise of the practices within program B. The themes show interconnections of the elements of practices and strategies in program B. The interviewees (a small representative sample of program B) expressed that their motivation increased as they strengthened their knowledge through the key components/courses (i.e., math, English, or a university course).

There were a number of connections between Academic Self-Concept and Peer and Social Support Systems. Particularly, the relationships that students developed with faculty, staff and peers supported in their college curriculum transition. As a result,

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students learned by taking initiative and developing better study and time management skills. The program staff effectively engaged students to address their academic and social needs; also made sure their efforts led students in making successful transitions (i.e., college readiness, persistence, and degree attainment). The qualitative analyses from the interviews show that because the staff possessed a proactive nature and their understanding of program B's mission, this further enhanced student confidence and accountability especially for students of color. The results of Chapter 8, in the investigation of the qualitative component questions, examined the features of both academic programs (programs A and B), particularly the teaching styles of the English and math instructors and the engagement of program participants by a series of classroom observations. Tutoring was a consistent theme from the interviews and classroom observations.

For example, Program B's English tutoring objective is to provide solid writing skills at the university English course level. Students learn how to write coherent and well-developed essays in language that observes the conventions of Standard American English, in addition, read and critically analyze essays that serve as models for written discourse. Program B's math objective in tutoring is to instill mathematical concepts which will lead students to improve in math problem-solving capabilities and to reduce math anxiety with the help of peer tutoring and mentoring. Also, if a participant took a psychology course, program B advisors assigned a tutor for the course. Tutors were either university graduate assistants or former PB students. An African American female participant found tutoring, math and English components most helpful. The English

instructor reviews and critiques any class paper a program B student may have. The math instructor also reviews any of the math problems in (i.e., algebra, calculus, statistics, etc.) step-by-step.

A tutoring variable should be developed in program B by incorporating how many times students used tutorial services with a math course to better monitor student achievement and used in logistic regression models like the ones developed in Chapter 6 of this study. Peer tutoring seems to be imperative in higher education, and rightly so, when it came to academic self-concept and motivation themes in Chapter 7. Peer tutoring is defined as students teaching other students. Program B involved not only peer tutoring but instructor tutoring as well. Peer tutoring programs have been developed and combined with traditional program services to help meet the call for stakeholders, including administrators, teachers and students (Colvin, 2010; Miller, 2000; Mino & Butler, 1997; Topping & Ehly, 1998).

In the interviews, most of the students stated how they felt privileged with not only having tutoring coupled with their classes during the summer but also in their first two years in program B. Students were permitted to ask for tutoring as often as they needed it. The students appreciated tutoring by the instructors but more so from peers (i.e., graduate assistants.). Other studies indicate student peers are a core component of undergraduate education, more often than advisors and teachers (Duch et al, 2001; Ender& Newton, 2000; Fortney et al., 2001; Garside, 1996; Newcomb & Wilson, 1996). Colvin (2010) added the theory behind peer tutoring involves similar social group education when one peer provides more expertise to another peer, also an interchange of sharing information in social settings. From the interviews, the researcher discovered tutoring was not just a part of academics but the tutors also served as beneficial counselors/advisors. For example, participant 7 stated, "the tutors were helpful because they took the course before and had an extra advantage in helping students; and good at organizing and mapping out what I needed to do." In addition, the peer tutor involvement increases social interaction and transforms learning from a private to a social activity.

With the addition of interviews of former program B participants and classroom observations, this study provided an in-depth understanding of these educational programs. Program B cohorts overall showed that although they did not qualify for traditional admission into the university, they still displayed academic potential (i.e., all cohorts earned a B or better from high school and in the summer program). Research evidence has often linked high school GPA and SAT scores as predictors for college success or degree attainment. The data showed that this is partially true and their test taking skills and other critical /analytical skills were some of the factors in the comprehension of college curricula and the need for their participation in program B. In Program B's student interviews and both program A and B classroom observations, several other trends became apparent.

Gender, Race, and Mathematics

While young women have made significant gains in attending college and acquiring their degrees, a number of black female students start their college journey in remedial courses. Why aren't black females performing close to the levels of their female peers in other racial/ethnic groups? Research evidence often noted black female students are taught the fundamentals of math and science, however are not further challenged academically in these subjects. Van Lagen & Dekkers (2005) stated though AP (advanced placement) courses by definition offer a higher degree of rigor but *not all high schools* provide AP courses at a higher, academically challenging level. Farinde & Lewis (2012) added inadequate academic preparation is the issue; and African American female students tend to internalize this and as a result show poor performance in mathematics and science. This was noted in the program B pre-math classroom observation, with many of the black female students in basic or developmental math. Ladson-Billings (1997) added to this point by stating that schools with a large population of African Americans are plagued with less rigorous mathematics programs which limits student exposure to high-level college preparation courses.

Programs A and B seem to be helping to combat this issue with unlimited tutoring in mathematics as well as in other subjects, practice assignments, and the opportunity for students to test into higher mathematics in which the data showed a slight improvement with about a dozen program B students who started in basic math in August 2013 tested into either pre-math (College Algebra & Trigonometry) or pre-math (Calculus) in October 2013. Overall, female students, especially African American female students, have had long disadvantages. For black female students, it has been the intersection of race, class, and gender. These issues have hindered female students of color academic performances in math and the sciences.

Programs A and B's effectiveness is that they have taken all of these issues and structured the programs to help correct for these learning deficiencies, and in turn, helped

change the way all participating students think about themselves especially students of color. Both programs encourage success, like program B classroom observations instilling and incorporating higher-order level thinking questions. For example, the programs often had learning groups either during class time or in tutoring groups where students brainstormed with one another on how to solve certain math problems by sitting in a group, going to the blackboard to illustrate some of the problems or working closely with math tutors; also providing supplemental materials. Both program A and B always provided extra learning materials/aids to students in order to reinforce their learning. Program A's pre-college math instructor not only used practice math problems but also incorporated math videos into the lessons so students could be more interactive with the lessons. In addition, students worked on the math website and learned on their own. With these components, both programs have helped to build strong student-teacher academic relationships and have encouraged retention and academic achievement.

In conclusion, female students have made significant strides in higher education however more work needs to be done to help female students especially low-income, females of color continue to make sure they obtain better training in the areas of mathematics and science (STEM) so they too can secure future STEM positions that are highly sought by major research, business organizations, and technical corporations.

The Importance of Mathematics Education

In the past twenty years, Algebra has become a vital mathematical component for students to master in the nation's schools. Research evidence discovered in this study from the regression model and often cited in major research publications, performing well in college mathematics is one of the most important factors leading to college persistence and degree attainment. Algebra continues to be the gatekeeper defined as a math course that students must comprehend in order to gain access to advanced courses in high school to non-remedial, non-credit math courses in four-year colleges, universities and technical careers. Although more and more students are partaking in this rigorous math coursework which is a key debate of K-12 education and the Common Core Initiatives, not all high school students are enjoying these accomplishments. There are more advanced algebra courses, however these courses are still not offered at certain high schools especially urban schools with predominately low- income students of color (i.e., African American, Hispanic).

A June 2016 report by the U.S. Department of Education's Civil Rights Data Collection office, high rigor coursework (science, technology, engineering, and mathematics or STEM courses) access is not a reality across a majority of our nation's high schools. Forty-eight percent of high schools offer calculus, and 60 percent offer physics. When controlling for race and ethnicity, STEM learning rates among students of color particularly for blacks and Latinos become even less accessible. Research evidence shows 48 percent of high schools with high black and Latino student enrollment offer physics, compared to 67 percent of high schools with low black and Latino student enrollment. Furthermore, only 33 percent of high schools with high black and Latino student enrollment offer calculus while 56 percent of high schools with low black and Latino student enrollment offer calculus.

This maybe the vital reason that pre-college and the continuation of developmental programs at colleges/universities are providing a second chance for

participants in the attainment of these imperative skills needed for key subject areas such as college mathematics and beyond.

This issue was apparent in the math classes of both programs. In program A's (pre-college) math class, the instructor focused on concepts in algebra and geometry. The students seem fine with some of the geometry problems but many other students had a difficult time understanding certain concepts. Research evidence shows that US students' geometry performance remains far below the performance of most their international peers. Part of what could be the issue may stem from the theoretical frameworks of the Van Hiele Model. In fact, Saad and Davis (1997) stated two areas, spatial ability and Van Hiele levels of geometric thought, may be essential for both students and teachers because of the potential for improving both mathematical comprehension and pedagogy. The Hiele Model is comprised of five levels: visual, analysis, abstraction, deduction, and rigor.

Spatial ability is defined as the generation, retention, retrieval and transformation of visual images. Two specific types of spatial ability are spatial orientation and spatial visualization: 1) spatial orientation is described as a measure of the ability to remain unconfused by changes in the orientation of visual stimuli and involves only a mental rotation of configuration and; 2) spatial visualization measures the ability to mentally restructure or manipulate the components of the visual stimulus and involves recognizing, retaining, and recalling configuration when the figure or parts of the figure are moved.

Geometry also has been a staple of the U.S. high school mathematics curriculum. However, research shows high school students have issues learning at certain levels needed to transition into and understand advanced mathematics. The Van Hiele Model

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has been utilized to possibly explain student difficulty in geometry and high order cognitive processes. The Van Hiele Theory originated in 1957 by Pierre van Hiele and his wife, Dutch researchers and teachers from the University of Utrecht. The model is described as five ordered levels of understanding a person must comprehend to gain (scientific knowledge) into geometry. By high school, it is expected students to understand geometric figures with visualization (level 1), analysis (level 2), abstraction (level 3 – or informal deduction, reasoning) and deduction (level 4 - or formal deduction). Research evidence shows that most students have a difficult time at the informal deduction level; as a result, are not able to comprehend level 4 - formal deduction. Informal deduction is defined as students perceiving relationships between properties and figures and able to provide an argument to justify their reasoning. For example, the program A math instructor incorporated many geometric math activities and especially Venn Diagram explanations; however most of the math class observations showed the high school summer participants still had a challenging time in these activities. Usiskin (1982) & Senk (1989) stated past studies have shown that students who have not attained a van Hiele level 3 before taking secondary school geometry course have a low probability of success. According to a study in the Journal of Research in Education, the goal of high geometry is the progression to level 4 (deduction) where students can give deductive geometric proofs and are able to understand mathematical definitions, theorems, axioms and proofs. However, some of the high school students observed were not at the expected level four of geometric understanding.

There is a long-standing assumption that the completion of college prep math courses with good or better grades would mean high school students are prepared for college level mathematics. Loveless (2013) emphasized that teachers assume that students who have completed Algebra I must be ready for Algebra II; colleges and employers assume that students who have completed Algebra II and at good academic standing know the subject, but this is not necessarily the case. For example, a program B African American male interviewee stated, "In the math component, I had to take a test to assess my skills, I tested in pre-Calculus. I was shocked to be in pre-calculus, I thought I passed this already because I was an AP Calculus student in high school. My high school experience in Calculus was different from college. It was not what I expected but a good thing in order to improve on my skills. I feel there is a gap between high school and college classes."

Overall, this was the same case with participants in pre-college program (program A) and the developmental program (program B) where students stated they took advanced placement (AP) classes in high school but still experienced academic difficulties as witnessed in the various classroom observations and interviews conducted in this study.

Conclusion

This study offers suggestive evidence of how technology has become a consistent pattern in the assessment of both programs. The emergence of technology has well surpassed all imagination in the last few years. As a result, higher education has now embraced the digital age much more. The education field is changing the learning landscape and creating a need for educators to adapt and evolve new learning styles for all students.
This digital age has also welcomed discussion on the way students are being taught. In the classroom observations of both programs A and B of Chapter 8, technological tools were often used, such as classrooms consisting of large screens in the front of the classes that projected several lessons or interactive screens where the instructors could click lessons using their laptops or use their hands on the screen. These lessons were often developed with PowerPoint presentations, educational videos, and students using either the classroom computers or their personal laptops to conduct interactive assignments (i.e., practice quizzes, tests, games, etc.). Woodson (2010) stated online and social media demand today's learners to use these innovative and collaborative online technologies to be more informed. Furthermore, students are demanding more from their textbooks and the ways they can access them as an interactive, personalized content and access to these tools from a myriad of devices. Technology is now a part of the concept of college readiness and is involved more often in classrooms today.

The classes observed in both programs showed that students must understand certain academic software in order to become better prepared at university-level courses and future career opportunities. In the observations of program A (pre-college) classes, it seems as though the program has been a step ahead in making sure students of color especially African American male high school students, like those in urban areas, obtain the educational skills needed to succeed in higher education and beyond. Today, more black males especially in secondary education are at-risk and have been shown to be more susceptible to a plethora of issues before even thinking about higher education. School suspensions and expulsions have been a major issue. Skiba et al. (2006) noted the Zero Tolerance Task Force of the American Psychological Association (APA) stated that schools with high suspension rates tend to have lower academic quality, and receive lower ratings of school governance measures. Lamont (2013) emphasized that fiscal implications of suspensions and expulsions were detrimental to not only their income but also to their health and social well-being. The author stated students who experience out-of- school suspension and expulsions were more likely to drop out of high school. For example, a high school dropout will earn \$400,000 (\$485,000) for males, less over a lifetime than a high school graduate (Shore, 2012). In terms of health outcomes, a 2003 report by the National Institutes of Health noted the average high school dropout experience worse health than the average high school graduate, in addition has a life expectancy that is 6 to 9 years shorter (Wong et al., 2002).

Although the researcher was not able to secure quantitative data on program A, however, the qualitative data from the classroom observations provided a rich understanding of the issues program A students face attending underserved, urban high schools and how this connects to college readiness. Kamenetz (2015) described from a 2015 U.S. Education Department report that the high school graduation rate increased to 80 percent. Although 80 percent of high school seniors received a diploma, still less than half of those are able to proficiently comprehend or complete math problems. The National Assessment of Educational Progress reported that less than forty percent of graduating seniors mastered reading, math, and were unprepared for college and career (Kamenetz, 2016). Lynch (2015) added students passed to the next grade are at a disadvantage and have an increased chance of falling behind and dropping out of college.

Many of the students that program A serves attend high schools in low income, challenging communities. General teachers in these high poverty schools have reported having outdated textbooks and computers, and other kinds of outdated technology. In the age of STEM, these same schools also have inadequate or nonexistent science equipment, materials, and labs. Hudley (2013) stated a combination of deficient materials and opportunities to learn is another characteristic of high poverty schools that lessen student engagement and achievement. Hudley also noted high poverty school conditions are often viewed as developmental risk sites rather than competent spaces to enhance student academic and social development.

Programs like program A that specifically serve these at-risk high school students are needed and could counter, narrow, and eventually eliminate these issues particularly for low-income and underrepresented groups because these students tend not to continue, leave high school, and lower their chances of college and career possibilities. Furthermore, if these students don't return to high school, most of them would be so far back in their learning, key skills would be lost and if they return, it would be difficult for them to learn again in a short amount of time. These students may graduate but they tend to be less prepared for a college curriculum.

Although African Americans have made significant gains in past decades as professors, engineers, mayors, and business leaders, gaps still remain in the education, economic, and social sectors when compared to more advantaged groups. For example, statistics continue to show that nearly one million of the 2.4 million Americans in prison are black. African Americans suffer double-digit unemployment in America's inner cities. In addition, there are "sharp differences between whites and blacks in high school and college graduation rates, in mortality rates, access to health care, and salary differences with comparable education (Glaude, 2016)." While research evidence shows African American and the Hispanic working class have beaten the odds, however the truly disadvantaged still have a difficult time, particularly in education. According to Powell (2013), the education system operates as a systematic barrier to college for many minorities who complete high school unprepared for college. The postsecondary system mimics and magnifies the racial and ethnic inequality in educational preparation inherited from the K-12 system and then projects this inequality in the labor market. The goal must be to foster structures that support life outcomes untainted with racial resentment or anxiety.

This issue is so vital that urban school districts like the District of Columbia Public School (DCPS) system, implemented a new effort to increase the success of Pre-K to 12 for African American and Latino male students.

DCPS plans to work with the community, school and district leaders to identify strategies to elevate the student experience, increase achievement, and prepare males of color for college careers and life beyond DCPS. The school system's administration recognized the urgent needs facing males of color and outlined three key objectives to *engage, improve,* and *innovate* this target population of students. The first objective, *engage,* is described as students, families and the community researching solutions that ensure the long-term success of males of color. This would include the recruitment of mentors for literacy and partner with community-based strategies. *I*mprove and expand research-based strategies that are underway within the District- with an emphasis on equity. These strategies include award grants to schools with promising approaches to

improve outcomes; and *innovate* means to challenge DCPS's approach to problems and reflect on policies that have constantly made an impact on the academic achievement and development of males of color with the implementation of the "Make Early Learning, Effective Learning Initiative." This objective focuses on opening a single gender high school designed to support males of color.

This idea sounds similar to one of key goals of program A by approaching all of their program activities from a creative, out-of-the-box standpoint to encourage students' interest and participation, and also help familiarize Program A students with educational experiences outside of the students' comfort zones. The program would like to improve on their efforts to encourage student participation on an on-going basis from year to year. For example, to recruit more males especially males of color in the program; the program began outreach efforts at high school sports programs. Program A staff believes they are most successful in educational programming with educated and motivated staff from various educational backgrounds with the key goal of helping their students succeed. Prior Program A participants also try to maintain long-lasting professional relationships with staff and other alumni. Many of the alumni have returned to serve new cohorts as tutors, mentors, and residential advisors during the summer session.

According to program A staff, they are constantly improving upon their programming services to offer better services to their participants on a yearly basis. Additionally, this program would like to submit a proposal in the near future to create an annual scholarship for selected high achieving high school seniors to be funded by an outside partner. Financial aid continues to be a major obstacle for many of the Program A students; and program staff would like to not only provide information for students but also ensure that students receive the necessary funds to make their educational dreams attainable.

Some main concepts used in this study discussing student academic and social integration were by Tinto (1975, 1993), Bean (1983), and Tierney (1992). These concepts proved to be useful in the description of themes (i.e., academic self-concept, peer and social supports, cultural awareness) captured in the student interview data of Chapter 7. Furthermore, Chapters 6 and 7 seem to show evidence of various assertions of Tinto in the voices of the program B participants. Most of the college developmental program (program B) participants practiced camaraderie with their peers and this continued throughout their college career. From the interviews, a former male participant (program B) in his junior year stated, "my friends from the summer program and I actually formed a peer group to make sure everyone in our group did well in their school work and graduate. I am still close with my program friends; we all live on the campus."

Another degree of effectiveness is the programs' ability to extend their services beyond academics were with a variety of workshop/seminars for college and career preparedness. Program A (pre-college) incorporated workshops for the participants such as SAT Prep sessions which are targeted towards Program A juniors. The SAT Prep sessions are administered by a professional SAT prep organization during the spring semester to better prepare students for the college-entrance exam; diagnostic testing is also administered throughout the session. Program A also has college tours/visits that are required for all participants to attend. Program B also had services that extend beyond academics. For example, the program's mission is not only for participants to gain college readiness skills but also to obtain better networking and career skills. Program B has introduced certain skills to participants earlier (during freshman/sophomore year) compared to non-participant traditional college students that likely discovered these skills during their junior or senior year instead. Through the interviews in program B, the researcher discovered that students were able to gain insight of the career world by having students take a simulated software program test for job interviews. Students are required to complete these sessions to gain better knowledge about the interview process/strategies; they also had a chance to undergo practice interviews with a software program and were assessed at the end of the session (s). One of the male interviewees stated how this interview practice was beneficial because the job market today is very competitive and expects it to be even more in the future.

Program B also provided their participants with hands-on learning with networking activities. Each semester students are expected to participate in what the program in a fictitious cocktail/business workshop event in which students are required to complete. The students are expected to dress professionally for the evening event. These events entail some program B staff, deans, and/or other professors around the University. The purpose was for students to learn how to successfully network and how to meet other professionals outside of their comfort zone (i.e., people outside of the program B circle). Students are then assessed or critiqued after the event for helpful feedback. Overall, the objective is to teach students some of the critical skills in business (i.e., networking) that would not be necessarily learned often in the classroom. Program B strives for students to gain interactive, real-world skills in order to understand how to get ahead in career and in life. These are key skills that most non-participants (general student population) would not be exposed to until late in their junior or senior year, especially non-participant students of color unless they have joined an academic group/club or sorority/fraternity on campus. Program B integrate academic services that have helped strengthen participants' ongoing college core components of English/writing, mathematics, and study skills.

Overall, the triangulation of the quantitative and qualitative methods used to evaluate program B showed positive effects of students' academic progression. The qualitative methods such as the classroom observations and interviews demonstrated students with the combination of lectures, tutoring, and additional educational technology showed academic progression. For example, the fall 2013 cohort showed program B participants were enrolled in the university freshman English course at the same time with non-program participants (university-wide freshman). Program B students performed at similar academic levels compared to non-program B participants and were more likely to earn a letter grade of B or better in the freshman English course.

These data outcomes can be attributed to program B instructors' teaching strategies and lessons. Strategies such as the Socratic method, student higher-order skills, and adaptive learning. Adaptive learning is a key method used in developmental education (i.e., program B) and is defined as enhancing a student's learning pathway. Both program B's English and math courses integrated skills and concepts with technology where students reinforced their skills with additional math worksheets, exercises, quizzes, and tests at their own pace. This adaptive learning educational resource personalized each student's learning and helped program B instructors identify a student's type of learning. Second, the interviews with former program B participants showed positive attitudes during their participation in the developmental program. The themes/patterns (i.e., peer and social supports, cultural awareness) developed from the interviews showed that peer and social supports of instructors, staff, students, and their self-determination enhanced the interviewees academic motivations. Furthermore, most of the interviewees agreed that the study skills and tutoring components helped them understand how to study in college and manage their time academically and socially in core college courses such as English and mathematics.

The quantitative data outcomes for program B showed that although logistic regression model for English academic performance was not significant, the adjusted model for math academic performance indicated that students who entered program B with higher SAT verbal scores was a better predictor of earning a math grade of B or better. This finding suggests that because the SAT verbal section is reading intensive, these same skills maybe transferable for these students so they can better grasp college mathematic courses because college mathematic courses tend to entail challenging mathematical rules, word problems, and analytical concepts. The quantitative outcomes in this study showed positive results in degree attainment for program B students. The outcomes provided partial evidence of student success in terms of the quantity of students retained in college. The fall 2005 program B cohort and university freshman cohort showed very similar or higher college retention rates. Program B students exceeded the general student population retention rate (93.5% vs. 91.7%). The same 2005 cohort also showed black female program B students and the black female university population graduated in six years with virtually the same percentage (77% vs. 79%).

The degree attainment in five-year logistic models showed that when the independent variables were examined separately, the 2005 program B cohort was significant, (p = .012) and program B African American male students showed

significance with (p = .007) and the odds ratio suggests program B black male students had 2.3 higher odds or were twice as likely of graduating in five years when compared to program B white male students.

Higher Education Programs and Social and Cultural Capital Theories

The findings in this study support the continuing need of pre-college and developmental education programs in higher education. The academic and social inequities are still an ongoing issue today in the American education system, particularly among secondary schools and colleges/universities. The problem is experienced with the lack of college readiness among low-income and underrepresented students of color (i.e., African-American and Hispanic) who most often stem from high poverty public high schools, disadvantaged families, and communities.

This lack of academic and social preparedness is not a new phenomenon in the U.S. education system. Chapter two (conceptual framework) in this study outlined these educational inequalities and other barriers based on the scholarly works of James Coleman and Pierre Bourdieu and how these theorists' concepts of social and cultural capital relate to the study findings.

James Coleman's studies, The Adolescent Society (1961) and Equality of Educational Opportunity/EEO (1966) examined these educational inequalities. Coleman described three kinds of U.S. schools; where public high schools were described as having the largest groups of students with no intergenerational ties to the community, and no capital. In the EEO study, Coleman found family background and race were very important factors when it came to student achievement and the public-school students tended to score the lowest on verbal and math scores compared to the more advantaged schools, similar to the current education achievement statistics. For example, the lowincome and underrepresented students entered program B with lower SAT scores and/or grade point averages and were likely first-generation, students of color college students compared to the non-program students (general university population). Coleman continued to state that the traditional function of community creates inequality of achievement 'inside school' because family status will be more or less reproduced in school and teachers may be influenced by their attention to and evaluation of students.

According to Ritzer (2003), Coleman states each kind of community affects schools differently but as a general trend, the dynamics of status achievement of mobile communities and cumulated advantages of families as major sources of inequality in school achievement, unless there are strong countervailing force (pg.98). Coleman describes common values and norms as social capital. Coleman continued to state that status and stigmas from the local community tend to carry over into school and reinforcing the effects of family background that reproduce the community status order in terms of achievement. Children from disadvantaged families are confronted with the fact that their lack of support at home is not compensated but matched by the school.

Pierre Bourdieu expanded on Coleman's points on capital and status within the U.S. educational system. Bourdieu & Passeron's 1971 study, Education, Society, and Cultur*e* and Bourdieu's 1972 study, Outline of a Theory in Practice emphasized the concept of capital and describes capital as an analysis of differences in forms of capital and dynamics of conversion. Bourdieu's theory is the analysis of differences in forms of capital and dynamics of conversion between them (Ritzer, 2003, pg. 299). For example,

in addition to material property (economic capital), families may accumulate networks of connections (social capital) and prestige (cultural capital) by the way in which they raise children and plan their marriages. In addition, this accumulation has to be reproduced in every generation/intergenerational reproduction of capital or it is gone. This statement is true when it comes to lost future educational and employment capital due to school/education inequalities, racial discriminations, low-income and disadvantaged neighborhoods.

Coleman added that common values of teachers and families are not enough to reduce the impact of a community's status order of achievement especially for disadvantaged students and it is necessary for parents and the school to form a functional community (Ritzer, 2003, pg. 100). In this study, the pre-college and especially the college developmental program serve as the functional communities for the disadvantaged/underrepresented student participants. As Coleman (1961, 1966) stated, the interaction among families, students, teachers, and schools is crucial to whether enough strength is given to the values to counteract the effect of the community status order. The findings in this study showed that program B students, regardless of their family and academic background, income, and/or race/ethnicity have the ability to become college-ready and succeed in higher education. The qualitative and quantitative data outcomes suggested that academic environments (i.e., program B) with key elements of academic rigor, supportive staff, and peers may benefit and align program B participants, particularly program B black male participants slightly more on the pathway towards college enrollment, persistence, and degree attainment.

Programs like these have long provided imperative entry points into higher education for underrepresented populations. "TRIO programs are essential networks that are helping to counterbalance the legacy of exclusion (Evans, 2007)." From the findings, the study demonstrated how effective and needed both programs have become as opposed to remedial, non-credit courses for disadvantaged populations that would not have an academic, social, and economic route in understanding and learning the academic benefits and challenges of a college curriculum and beyond.

Data Collection Limitations

Some issues arose during the data collection. Program A data outcomes were unobtainable because specific requested data were not available at the time of the study. However, the collection of classroom observation information demonstrated various ways program A instructors and staff have reinforced the college readiness concept. Program A instructors showed their assistance with high school participants' learning skills and concepts with various teaching strategies and lessons including adaptive and participatory learning, and higher-order level skills in both English and math components.

Although twelve participants qualified for the interview component, eight former program B students were able to participate in the study. As a result, the researcher had to become more specific with the questions posed to the interviewees in order to collect richer, in-depth accounts with a smaller cohort. The overall completion of the interview component took a bit longer than expected because students were interviewed during a regular semester term which caused quite a few scheduling delays and scheduling conflicts between the researcher and the interview participants. Another data collection limitation was with the sample data set used for the quantitative component. The college developmental program possessed limited data in certain areas requested. For example, the program's data was coded in various ways than what the researcher expected. One example was instead of having specific data on parental education (i.e., bachelors and beyond), the data were coded as first-generation students meaning a parent (s) did not possess a college degree. Recoding the data to tailor the study was a challenge and also the program's cohort by year data were small as well (i.e., between 120 to 135 participants each year). The researcher had to include additional cohort years for a moderate sample size in order to control for the risk of reporting false-negative findings (Type II error). In addition, the data sample was limited in comparing with a sample of non-program participants (general student population) because both the college developmental program and the university's Institutional Research office did not collect this type of comparable data.

Recommendations

Based on these findings, the following points are recommended:

- Better data availability and data samples are needed from both programs A and B to help future researchers develop various statistical models (quantitative and qualitative) in order to test student college persistence, attrition, and academic progress in core college courses (i.e., math, English, etc.), graduation rates, and to make comparisons between similar education programs and/or similar groups within a general college/university student population.
- For pre-college programs (Program A), program officials may need to work closely with urban school districts and create a data system to better track potential at-risk students for possible program A participation, so students can be academically prepared from at least the start of middle school (6th or 7th grade).
- Both academic programs could test or incorporate certain math concepts (i.e., the Van Hiele model) to assess students more before entering high school especially

in urban area schools. Students will have a better grasp of geometric thought and higher order thinking that can transcend into other types of math, i.e., algebra, function, calculus and other advanced mathematics as well as English, writing and science courses.

- Make sure math instructors/teachers at the high school level are well-prepared to teach students by possessing certification and/or credit in high level mathematics at the bachelor's and master's degree level. A reassessment of teacher professional development may need to be explored.
- Provide more funding for both programs (Program A and B) in terms of outreach efforts for students of color especially concerning at-risk African American middle and high school males; efforts such as these will help this population towards higher education and beyond.
- Continued funding from the U.S. Department of Education and other grant-based funding to produce more mixed-method research studies on these types of programs and to assist both programs in the creation of more academic-to-career courses as demonstrated in Program B's simulated job interviews/assessments and business networking activities.

Contributions to Research

My study has provided two contributions to the literature on postsecondary to college learning programs since research in this area of related literature is still limited. First, most of the interview participants were students who already participated in the summer program and in their junior year at the university. The students were able to provide rich reflections of their experiences after completing the summer component of the developmental academic program. This also contributed to a deeper understanding of their academic development process as first-year, degree-seeking undergraduate students in a higher education environment.

Second, my investigation of the college readiness concept increased the originality of this study. Although pre-college and college developmental education studies have been published from the 1970s to today, however many of the studies were

often quantitative research designs. Horn & Chen (1998) noted research evidence shows that any type of outreach contributes to high school graduates enrolling in a four-year college or university. However, limited funding has halted more rigorous evaluations (Hagedorn &Tierney, 2002). My study incorporated more rigorous, mixed methodology such as, student interviews to gain insight into how program B (developmental program) may have made a difference with the students' academic skills by influencing their academic self-concept, peer support systems/social integration, motivation, and cultural awareness.

Therefore, it is my hope the findings from the study will attract attention to the progress made by these college readiness programs with the enhancement of core learning skills in higher education components such as math, English, study skills and other courses for student retention and degree attainment as opposed to remedial, non-credit courses. At the same time, address the many challenges these programs are still facing with the lack of rigorous research studies and underfunded federal and state support.

Researcher's Reflection of the Study

The process of this research study has been both a life changing and positive learning experience. I already had an idea of what the research process encompasses; however, this experience has shown me the gift of patience and tenacity. I really learned from this study how sometimes chaotic the nature of the research process can be. However arduous and frustrating as it was, I felt a sense of great reward and a gain of new knowledge and insight. The research study also provided some guidance in examining my own professional and future research practices. My intentions will be to further explore the impact of academic programs on at-risk students in higher education and even delve into K through 12 academic programs that are trying to create positive differences in education for at-risk students (i.e., low-income, first-generation, students of color, etc.). Although I have prior classroom teaching experiences, I now fully appreciate the dedication and challenge shown from the programs in this study. The instructors, tutors, advisors of both programs brought a sense of value to the classrooms and the role that affective factors may play in relation to the student participants' experiences.

The research process also encouraged me to view the non-traditional student population (i.e., adult learners), student retention, and attrition in the wider educational field and provide myriad resources which education professionals can learn from in order to improve the quality of faculty development, student self-regulation, institutional, and community engagement.

1Courses with numbers are not the actual names and numbers (pseudonym).

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