

**THE ROLE OF HIGHER EDUCATION IN  
PRECOLLEGE PREPARATION FOR  
UNDERREPRESENTED STUDENTS**

**BERNADETTE BRUNHUBER TIERNAN**

Fairleigh Dickinson University, Master of Arts, 1980  
Merrimack College, Bachelor of Arts, 1973

Mentor

Carolyn A. Brown, Ph.D.

Readers

Thanos Patelis, Ph.D.

Toby Tetenbaum, Ph.D.

DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF DOCTOR OF EDUCATION IN  
THE GRADUATE SCHOOL OF EDUCATION  
OF FORDHAM UNIVERSITY

NEW YORK  
2015

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## **ACKNOWLEDGMENTS**

I am grateful to my husband, Bill Tiernan, for his understanding, insight, and excellent humor that always keeps me grounded. Also, my deepest gratitude to Katherine and Brendan McCahill, Billy Tiernan, and Caroline Tiernan for offering encouragement whenever I needed it most. I am sincerely grateful to my mentor, Dr. Carolyn Brown, for her inspiration, dedication, and tremendous personal courage. This study would not have been possible without the support and dedication of my colleagues and leaders at William Paterson University who helped our team in Continuing and Professional Education explore and expand all of our precollege academic programs on campus. Thanks also to the New Jersey Aim High Academy program directors and students who assisted in the design, distribution, and completion of the research survey. Finally, I would like to acknowledge the importance of the role of the New Jersey Office of the Secretary of Higher Education in providing funding for the Aim High Academy Program at six universities, and for this opportunity to serve the next generation of New Jersey's college students.

## **DEDICATION**

I dedicate this work in memory of Regina and Bill Brunhuber, my parents, who encouraged me and my three sisters to become first-generation college graduates, treasuring our journey, cherishing our accomplishments, and supporting us through our challenges every step of the way.

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Abstract

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Bernadette Brunhuber Tiernan

Fordham University, New York, 2015

Mentor: Carolyn A. Brown, Ph.D.

Low-income students who are the first in their family to attend college face extraordinary challenges, forcing many to drop out. This study examined research about the impact of income inequality on precollege youth, and the effects of poverty on their academic and economic success. Current higher education intervention programs, including College Access Challenge Grants (CACG) and summer bridge programs, were reviewed. The study analyzed the impact of the New Jersey CACG program Aim High Academy on college enrollment and persistence. Results indicated that college enrollment rates were higher for students who attended Aim High Academy than the average college enrollment rates for students from all high schools that participated in the Aim High Academy program. Results also indicated that college persistence rates for Aim High Academy students were higher than the average rates of college persistence for the New Jersey colleges who participated in Aim High Academy. This analysis indicated that opportunities for underrepresented youth to achieve success in college can be improved with summer interventions in junior year, before these students graduate from high school.

## **CHAPTER 1**

### **THE PROBLEM**

The U.S. Department of Education created a stir among higher education institutions when it announced its intention to implement a new “College Scorecard” to measure four-year graduation rates, the debt and earnings of graduates, and other factors by 2018 (Compton, 2012). This scorecard will be designed as a guide for parents and educators; the rating system will also be used to prioritize federal grant awards to higher education institutions that provide the greatest “value” to their students. If this college scorecard is implemented as planned, higher education institutions will face increased pressure to insure that the majority of their students acquire a degree in four years (Executive Office of the President, 2014). Research indicates that the students who have the greatest difficulty finishing in four years frequently come from low-income families where neither parent has attended college (Executive Office of the President, 2014). As a result, college access and retention of these underrepresented high school students have become the focus of a nationwide conversation about our expectations for higher education.

#### **Background of the Study**

High school students from low-income households where neither parent has attended college are often challenged by their level of academic and social preparation, major financial constraints, and insufficient parental support (Berliner, 2013; Blank, 2011; Hicks, 2003). In addition, low expectations influence their decisions about applying to college as well as their chances for acceptance into a two- or four-year higher education institution (Hicks, 2003). These complex inter-related factors also impact their ability to remain in college and successfully graduate (Berliner, 2013; Blank, 2011; Hicks, 2003). Those students who cannot adapt to college

and feel compelled to drop out often incur significant financial debt that is difficult to repay without the benefit of a degree when they enter the job market (Attewell & Jang, 2012).

College access and retention issues are not unique to one or more racial groups; these issues are specific to low-income students across races (Keller, 2010; Stiglitz, 2012). Poverty is the dominant inequality that has the greatest impact on education, beginning with the lack of high-quality prekindergarten facilities, aggravated by inadequate healthcare and nutrition, compounded by over-crowded low-performing K-to-12 schools, and leading to lack of preparation or vision for achieving a college education (Berliner, 2013; Stiglitz, 2012). Those individuals who apply to college and enroll often remain challenged by their lack of adequate preparation during high school and leave college after one or two years (Attewell, Lavin, Thurston, & Levey, 2006; Ishitani, 2006).

Research indicates that individuals who successfully break the cycle of poverty by completing high school, applying to college, and acquiring a two-or-four year degree have lower rates of unemployment and higher levels of earnings than individuals who fail to complete high school (Executive Office of the President, 2014). Because achievement of a college degree has been shown to have a significant impact on an individual's ability to secure and retain a job with a decent earnings potential, higher education has been determined to be the best way to ensure expanded economic opportunity and reduce the inequality of opportunity created by poverty (Equality of Educational Opportunity, 1966; Keller, 2010; Stiglitz, 2012; Willms, 2003).

Many higher education institutions have addressed retention of their incoming low-income, first-generation college freshmen through on-campus programs that begin in the summer following high school graduation (Contreras, 2011; Hicks, 2005; McCurrie, 2009; Raines, 2012; Stolle-McAllister, 2011; Wathington, et al., 2011). These programs include "summer bridge"

programs before freshman year, noncredit basic skills courses, first-year experience support services, and supplemental financial aid (Contreras, 2011; Hicks, 2005; McCurrie, 2009).

Summer bridge programs can improve academic and social skills for students when they arrive in college but cannot completely compensate for deficiencies in their high school preparation (Attewell, Lavin, Thurston, & Levey, 2006; Ishitani, 2006).

### **Statement of the Problem**

For the children of college-educated parents, the summer before senior year of high school is a crucial time for precollege preparation, characterized by researching highly competitive colleges that might be considered a “reach”, and less-competitive colleges that might be considered their “safety” schools. College-educated parents will also set up campus visits, register their children for SAT preparation courses, explore scholarship opportunities, and investigate loan packages (Hicks, 2005). For low-income students whose parents did not attend college, the summer before senior year will be a challenging time, often characterized by inadequate parental support, insufficient financial resources, and lack of guidance from their teachers about the college application process (Berliner, 2013; Blank, 2011). Without adequate support from family, community, and school advisors, many of these students will lose hope or interest in acquiring a college education, as they succumb to pressure from their families to try to find a job quickly and contribute to support of their home (Berliner, 2013; Blank, 2011). To achieve President Obama’s national goal to increase college enrollment by over 50% and to have the highest proportion of college graduates in the world by 2020, underrepresented students must *quickly* be added to the ranks of higher education (Executive Office of the President, 2014). This goal cannot be achieved without large-scale implementation of *new* highly effective programs and strategies (U.S. Department of Education, 2011). The Federal TRIO Programs (TRIO), eight

outreach and student services programs designed for disadvantaged individuals, are *not* quickly scalable and require years of preparation (U.S. Department of Education, 2014). New College Access Challenge Grant (CACG) programs, however, may have the potential to provide more expedient options to reach this goal, as indicated by preliminary research about the percentage of students who apply to college after completing different CACG programs (Gullatt & Wendy, 2003; Hocker, Centore, Virella, & Ramirez, 2013; New Jersey Higher Education, 2011; Reddick, Welton, Alsandor, Denyszyn, & Platt, 2011).

Although preliminary research was conducted about the impact of CACG programs on the rate of college applications and acceptance for underrepresented students, this research did not provide information about academic achievement or persistence in two-or-four year postsecondary institutions (Hocker, et al., 2013). Outcomes of short-term precollege CACG summer programs for high school students were not tracked to assess the long-term impact on college persistence rates for underrepresented economically disadvantaged students. In addition, outcomes of CACG programs had not been compared to college enrollment and persistence rates for students who did not participate in these programs. If CACG summer programs such as New Jersey's Aim High Academy have a significant positive effect on college admission and persistence, a new scalable model can be available for higher education institutions to assist underrepresented high school students quickly.

### **Purpose of the Study**

This study examined the rate of college enrollment, level of academic achievement, and rate of persistence in college for a sample of high school students who completed the New Jersey Office of Higher Education's CACG program Aim High Academy in 2011, 2012, and 2013. The outcomes for these students was compared to the average college enrollment and persistence

rates for the New Jersey high schools and colleges who participated in Aim High Academy to determine if there was a difference between these groups. The independent variable for this study was attendance in the Aim High Academy Program. The dependent variables were college enrollment, academic achievement, and persistence in a two-or-four year college or university.

### **Research Question**

This quantitative research study examined the relationship between high school students' participation in the New Jersey CACG program Aim High Academy (AHA) and their subsequent enrollment, academic achievement, and persistence in college. What were the rates of college enrollment academic achievement, and persistence for students who participated in AHA?

### **Research Questions**

Specific research questions that were addressed during this study were:

1. What was the rate of college enrollment for high school students who participated in Aim High Academy in 2011, 2012, and 2013?
2. Was there a difference between the college enrollment rate for AHA participants in 2011, 2012, and 2013 and the average college enrollment rate for students from all high schools that participated in AHA?
3. What was the level of college academic achievement for Aim High Academy participants in 2012 and 2013?
4. What was the persistence rate of current college students who participated in Aim High Academy in 2011, 2012 and 2013?
5. How did the persistence rate of AHA participants compare to the average persistence rate for students from all New Jersey colleges who participated in this study?

## Summary of Methodology

College acceptance, enrollment, and persistence rates for a sample of students who completed Aim High Academy were compared to the average college acceptance, enrollment, and persistence rates for all New Jersey high schools and colleges who participated in AHA. The level of academic achievement in college was also examined for the Aim High Academy students in program years 2012 and 2013.

The independent variable for this study was attendance in Aim High Academy in 2011, 2012, or 2013. The dependent variables were:

1. College enrollment (accepted/not accepted; enrolled in 4-year, 2-year, less than 2-year, or not enrolled).
2. Academic achievement (college grades, GPA).
3. College persistence (Fall 2014 class level; full-or-part-time enrollment; number of courses enrolled in).

This study used an online survey instrument posted through the platform SurveyMonkey to gather information about AHA participants' college enrollment, academic achievement, and persistence. AHA program directors distributed this survey to their past program participants using email requests and cell phone text messages containing the SurveyMonkey link, as well as notices on their respective Facebook, Twitter, and Instagram pages.

To compare AHA student outcomes for college enrollment to the average college enrollment rates for high schools who participated in AHA, data was gathered from the State of New Jersey Department of Education *New Jersey School Performance Report 2012-2013* for Overall College Enrollment, 2-Year College Enrollment, and 4-Year College Enrollment (New Jersey Department of Education, 2014). To compare AHA student rates of persistence in college

to the average persistence rates for all colleges who participated in this study, data about average 4-year and 6-year college graduation rates was gathered from the United States Department of Education Institute of Education Sciences (IES) National Center for Education Statistics website “College Navigator” (U.S. Department of Education, 2014). This resource serves as a guideline for universities nationwide to compare their graduation outcomes to their peer institutions.

Survey responses were examined in SurveyMonkey and SPSS. Descriptive statistics, frequencies, percentages, and correlations were examined for AHA students and compared to data gathered about high school and colleges who participated in AHA.

### **Conceptual Framework and Theoretical Overview**

This study addressed the fundamental issues of poverty and income inequality in relation to college access and success, using the conceptual framework of human capital theory. Theodore W. Schultz’ pioneering work in defining *human capital* expanded the macroeconomist view of capital formation from financial and physical capital investments to include investments in education, training, and healthcare that strengthened human capital through acquisition of knowledge, skills, and well-being (Schultz, 1960, 1961). Schultz (1961) used macroeconomic principles to analyze the effects on society and the national economy of investments in human capital. Schultz was the first economist to put a factor for education into the formula for national economic success. He believed that investments in human capital were more likely than investments in conventional (nonhuman) capital to be the cause of growth in the gross domestic product (GDP) in Western societies, and that assessment of the impact of investments in human capital could lead to better national and international policy recommendations (Schultz, 1961).

Human capital theory indicates that education provides the knowledge, skills, and analytical abilities that raise productivity and lifetime earnings. Many universities already



provide educational opportunity for low-income, first-generation college students through academic enrichment programs, parent education workshops, and scholarships from business partnerships and community connections (Contreras, 2011; Hicks, 2009; McCurrie, 2009). The challenge when balancing the costs v. benefits of these programs is to keep higher education focused on the long-term positive outcomes for the greater good of all. Chapter II examines additional research about human capital theory in the context of this study.

This research project also addressed the current climate of national concern over the equity of college access, reviewed past trends in national college access program development, and suggests future possibilities for new policies to increase college access and retention for underrepresented youth. Recommendations are outlined for program changes to increase the role of higher education in preparing underrepresented students for college before-and-during their senior year of high school.

### **Conclusion**

College access, persistence, and completion rates for high school students from low-income families where neither parent has attended college have become the focus of a national conversation. Higher education institutions are now expected to exercise a proactive role in improving access, retention, and graduation rates for these students in order to insure that a majority of all students graduate in four years. The new “College Scorecard” proposed by the U.S. Department of Education places greater emphasis on these outcomes, and threatens to enforce penalties on institutions that do not insure student success. As a result, higher education institutions must confront the challenge to quickly improve overall college success rates by changing the paradigm for underrepresented students. Traditional Federal TRIO Programs have attempted to accomplish this goal for over thirty years, but these programs are not readily

scalable or sustainable. Federally funded College Access Challenge Grant programs have provided new opportunities to experiment with short-term innovative approaches that may be quickly scalable *and* sustainable, but the outcomes of these programs had not been examined in long-term studies. This quantitative research study examined college acceptance, enrollment, academic achievement, and persistence rates of a sample of New Jersey College Access Challenge Grant Program Aim High Academy participants from 2011 to 2013, and compared these results to the college enrollment and persistence rates of the high schools and colleges who participated in AHA.

Using the conceptual framework of human capital theory, this study examined underlying issues of income inequality that lead to levels of poverty that impact academic achievement through circumstances external to the school (including family and community) and internal to the school (including the quality of teaching and education leadership). Through the lens of human capital theory, the results of this study were used to make recommendations for higher education to assume an increasingly proactive role in preparing underrepresented high school students for college.

## **CHAPTER II**

### **REVIEW OF RELATED LITERATURE**

Higher education access, affordability, and retention for low-income youth have become a national priority to reach President Barack Obama's goal to insure that America has the highest percentage of college graduates in the world (Compton, 2012). This goal cannot be achieved unless college enrollment nationwide increases by 50% or more (U.S. Department of Education, 2011). To increase college opportunities for low-income students, the White House released a research-based policy report focusing on promising education models that have achieved modest success and can be implemented quickly by two- and four-year colleges and universities working in collaboration with their regional high school leaders (Executive Office of the President, 2014). This policy report confirmed that underrepresented students face barriers to college access that also impact their ability to remain in college, much less obtain a degree in four years. The report also calls for further research and testing of new models that can be replicated nationwide quickly and at relatively low cost. To meet this challenge, higher education leaders need to focus their scarce resources on the most successful strategies.

This literature review examines research that provides additional insight into the challenges low-income students face in college access and retention as a consequence of the impact of income inequality; the effects of poverty on their academic and economic futures; the impact of precollege interventions; and the outcomes in terms of human capital gains. Federally funded College Access Challenge Grant (CACG) Programs, higher education programs designed to improve retention of low-income students, and New Jersey's CACG Program Aim High Academy are examined. Implications for higher education leadership are presented to tie these

initiatives back to national goals for expanded education opportunities and increased college access and retention.

### **The Repercussions of Income Inequality**

The Occupy movement that started on Wall Street in 2011 brought U.S. income inequality into national headlines and consciousness with slogans about 1% v. 99% that resonated in a new way. But the increases in income inequality have been rising steadily since the 1970s (Bryaw & Martinez, 2008; Keller, 2010; Stiglitz, 2012), while rising at the highest rate since 2000 (Aspergis, Dincer, & Payne, 2011; Keller, 2010; Stiglitz, 2012).

### **Measures of Income Inequality**

The Gini coefficient, named after the 20th century Italian statistician Corrado Gini, is one of the most widely used measures of income inequality, using a scale of 0 to 1, where 0 represents complete equality and 1 represents complete inequality (Keller, 2010). The Gini coefficient is applied to compare levels of income inequality among countries, and within countries to compare inequalities by race, gender, or employment (Keller, 2010). In comparisons among countries, the categories of “developed countries” and “less developed countries” are generally used as a basis. Developed countries, which have greater degrees of economic development, and higher standards of living, GDP, per capita income, and industrialization, include the United States, Canada, Japan, South Korea, Australia, New Zealand, United Kingdom Belgium, Germany, France, and other Western European countries. Less developed countries demonstrate the lowest indicators of socioeconomic development, and include 34 countries in Africa, 14 countries in Asia Pacific, and 1 from the Americas (Haiti). Overall, developed countries have the highest Gini coefficients; less developed countries have significantly lower Gini coefficients (Keller, 2010).

The Gini coefficient, preferred by economists and the U.S. Census Bureau, is most effective for measuring across a whole society rather than comparing extremes; the most common values are from .3 to .5 (Wilkinson & Pickett, 2010). As an alternative measurement, the Robin Hood index has also been explored. The Robin Hood index describes how to achieve income equality by taking a percentage of income from the rich to give to the poor (Wilkinson & Pickett, 2010).

### **The Pattern of Growth in Income Inequality**

Stiglitz (2012) measured the influence of wealth inequality beyond income variations and into personal access to resources that accompany wealth. According to Stiglitz, the financial crisis that began in 2007-2008, followed by the Great Recession, essentially wiped out the poor and middle class whose wealth was concentrated in housing. The gains of the “recovery” accrued overwhelmingly to the wealthiest 1% of Americans, as highly paid professionals and chief executive officers held much of their investment wealth steady (i.e., interest, dividends, capital gains, business income, etc.), and quickly returned to pre-crisis salary levels by 2010 (Stiglitz, 2012). From 2000 to 2010, the median income of households of individuals with a minimum of a bachelor’s degree decreased by 10%.

The Great Recession, according to Stiglitz, was the hardest on the poor: in 2011 over 15% of the population lived in poverty, based on the U.S. Department of Health and Human Services Poverty Guideline of \$22,350 for a family of four, compared to 12.5% in 2007. In the subsequent recovery, the poor got poorer, the middle class began to shrink, and the rich grew richer as the labor market demanded more high-skill and low-skill jobs, and offered fewer jobs with moderate skills. The *poverty gap*, which is the percentage by which the mean income of the country’s poor falls below the official poverty line, was 37% in 2011, a 3.7% increase over

the year 2000. The number of children under age 18 living in poverty was 16.1 million, 5.7% higher than in the year 2000. Only 58% of the children born in extreme poverty ever move up, and when they do the movement is slight (Stiglitz, 2012).

### **The Great Gatsby Curve**

Alan Krueger (2012) examined research findings about the relationship between income inequality and inter-generational social mobility to explain the effects of income inequality (Krueger, 2012). Research indicated that family income was highly correlated from one generation to the next generation: the children of wealthy parents were more likely to be wealthy than the children of poor parents, and vice versa. The measure describing the comparison of a parent's lifetime earnings to his/her child's lifetime earnings was intergenerational mobility elasticity (IGE), and the average IGE between .4 and .6. Low intergenerational economic mobility occurred with high IGE. The phrase "the Great Gatsby Curve" was used to describe the positive relationship between IGE and inequality (Krueger, 2012).

Since the 1970's, income has grown more for families in the top of the income distribution than for the poor or middle income families, except for 1992 to 2000, when all income levels rose together, which Krueger (2012) attributed to strong national economic growth and policies of the Clinton Administration (Krueger, 2012). The middle class shrunk from 50% of the median income in 1970, to 44.2% in 2000, to 42.2% in 2012. The share of all income going to the top 1% grew by 13.5% (Krueger, 2012; Wilkinson & Pickett, 2012).

Krueger (2012) put the correlation between a worker's first salary and the ability to increase earnings over a career at 0.50. To put this in perspective, he used the simple analogy of the correlation between parents' height and their children's height, which is also 0.50. Krueger wrote that there was an equal probability of someone 5 feet 6 inches tall producing a child over 6

feet tall as there is a probability of someone in the lowest 10% income level rising to the top 10% (Krueger, 2012). Krugman (2013) examined Krueger's Great Gatsby curve and found that income inequality is greater than a generation ago in America, and the gaps in opportunities between different economic classes are not easily bridged (Krugman, 2013).

### **Income Inequality Creates a Negative Cycle for the Poor**

The top ten states with a high ratio of top 1% income to bottom 99% income are Connecticut, New York, Florida, Massachusetts, Nevada, Wyoming, California, Texas, Illinois, and New Jersey (Sommeiller & Price, 2014). States with the highest inequality have the highest school dropout rates, the least social mobility, lower rates of academic achievement, higher rates of teenage pregnancy, and more (Wilkinson & Pickett, 2010). The lowest rates of income inequality are found in Hawaii, Alaska, Iowa, Maine, Mississippi, Nebraska, New Mexico, Delaware, Idaho, and Kentucky (Sommeiller & Price, 2014). These data indicate that the poorest states, with the lowest number of high-income families, are the most equal; obviously, none of the research indicates that striving to become poorer is a viable path to achieving greater income equality.

Douglas Willms (2003) examined literacy scores for 12 developed countries (including the United States and Canada) and found that countries with higher average national scores in academic achievement had less variation in socioeconomic gradients. Willms was among the leaders of many researchers who advocated for reducing the gradient (reducing inequality) as a route to increasing academic achievement (Willms, 2003; Huggett, Ventura, & Yaron, 2011).

One question cannot be ignored if the children of the rich grow up to be rich and the children of the poor grow up to be poor: If we accept the American dream of economic

mobility, where everyone has an equal opportunity to succeed, how can rising inequality be accepted (Sommeiller & Price, 2014)? The impact of income inequality is a roughly negative cyclical pattern for those in low-income areas (Darling-Hammond, 2010).

### **Inequality in Educational Opportunities**

Today more than in the past, the income, wealth, and education of an individual's parents may determine access to a good education, with the result that income inequality generates inequalities in educational opportunities (Stiglitz, 2012). In the past, when low-income workers providing services to wealthy families lived nearby, all income levels benefited from collective efforts to insure high-quality public schools were available for grades K-12 (Stiglitz, 2012); today fewer low-income families live in close proximity to the wealthy (Stiglitz, 2012), and neighborhood public schools in low-income neighborhoods struggle for resources (Stiglitz, 2012). In addition, a large number of cities have struggled with a declining tax base, leaving their school districts competing for federal and state funding to meet their basic operating costs (Jacob, 2007). The inequality continues past high school, into college, and beyond, as the children of wealthy parents have better healthcare, access to highly competitive universities, and connections to higher paying jobs (Krueger, 2012). When children at the top stay in this position, it's more than the result of a good gene pool (Krugman, 2013).

High Gini coefficients, indicators of high income inequality, have been found to be associated with rates of college attendance (Keller, 2010). Developed countries have an average of 33% of their students attend college, and those countries with higher expenditures per college student have lower Gini coefficients, indicating less income inequality (Keller, 2010).

Differences in educational attainment generate differences in median personal and household income (Keller, 2010). By 2012, the median income of high school graduates was



\$38,845; for individuals with a professional degree or doctorate, the median incomes were \$116,983 and \$129,588 respectively (Stiglitz, 2012).

### **The Effects of Poverty on Student Achievement**

The discussion of income inequality is more than an analysis of numbers, as Jost, Whitfield, and Jost (2005) illustrated in their study of players reactions during a simple game of Monopoly (Jost, Whitfield, & Jost, 2005). The researchers divided participating teachers into 3 groups, with each group joining the Monopoly game at a different point in time. The first group began Monopoly with the standard parts, pieces, and rules. After 7 rounds of the board, during which each player acquired cash, bought property, added buildings, and gained “power,” the second group joined in. Group 2 had fewer opportunities to buy, and often landed on “owned” property where they needed to pay rent. By the time Group 3 started, all property was purchased and contained several buildings. All the game pieces had been allocated, and these players improvised with pennies or trinkets to move around the board. Almost everywhere they landed, they needed to pay rent. Some teachers in Group 3 remarked that it was cheaper to stay in Jail, where at least they didn’t have to spend any more cash (Jost, Whitfield, & Jost, 2005). Upon conclusion of the game, teachers reported a deeply personal sense of what it means to have roadblocks to access and equity; suddenly there was a “reality check” about the difficulties confronting their students and families who lived in poverty (Jost, Whitfield, & Jost, 2005).

### **The Coleman Report**

The scope of inequity in educational opportunities was first brought to the forefront in a landmark study commissioned by the United States Department of Health, Education, and Welfare in 1966, *The Equality of Educational Opportunity Study* (1966). Widely known as the “The Coleman Report,” this study examined data from a national sample of 650,000 students and

concluded that student background and socioeconomic status were more significant factors influencing educational outcomes than cost-per-student spending. In addition, the quality of schools and teachers also had an important impact (Equality of Educational Opportunity Study, 1966).

### **A Nation at Risk**

Almost twenty years after the Coleman Report, the 1983 policy paper *A Nation at Risk: The Imperative for Educational Reform* from the National Commission on Excellence in Education under President Ronald Reagan, triggered federal, state, and local school reform efforts on a scale beyond all previous efforts. Findings included declining test scores, low teacher salaries, poor teacher training programs, and an American education system falling behind other industrialized countries; recommendations included changes to procedures for hiring and evaluating teachers, provisions for better training for new and incumbent teachers, increasing the time children spend in school, higher standards for academic achievement at all grade levels, and more (*A Nation at Risk*, 1983).

When outcomes of this initiative were assessed ten years later, results were mixed (Edwards & Allred, 1993). A nationwide survey of Colleges of Education, school districts, and individual secondary schools indicated that schools were only “somewhat” successful in implementing the Commission’s recommendations. Lack of adequate training for teachers was still evident, especially in math and science; few schools had lengthened the number of days in their school year or hours in their day; courses of study in public schools were only partially able to meet academic goals; and college admission standards had not been significantly changed, among other findings. Schools that reported success, on the other hand, indicated that these “reforms” were already in place before 1983 (Edwards & Allred, 1993). At the 30-year

anniversary of the release of the report, there were still few major changes, including far-reaching significant improvements in student academic achievement (Graham, 2013).

Why *A Nation at Risk* ultimately had so little influence was hard to determine, but lack of leadership, absence of buy-in from educators, and overall resistance to education change have been cited as causes, along with the enormity of the task and lack of financial resources (Edwards & Allred, 1993; Ogden, 2003).

### **No Child Left Behind**

President George W. Bush advocated for and succeeded in passing the No Child Left Behind (NCLB) Act in 2001, which reauthorized the Elementary and Secondary Act of 1965 (ESEA) and sought to level the playing field for economically disadvantaged youth (No Child Left Behind [NCLB], 2002). NCLB recommended new standards in reading and math; annual testing for students in Grade 3 to Grade 8; and measures of progress for all states to achieve adequate yearly progress (AYP) towards grade-level proficiency within 12 years (NCLB, 2002). Data were analyzed by race, poverty, ethnicity, disability, and limited English proficiency; schools that failed to meet AYP for five consecutive years were in danger of being restructured or closed (NCLB, 2002).

When the 12-year deadline passed and most states did not reach their goals for grade-level proficiency, NCLB received harsh criticism from educators, but received strong support from others with a vested interest education reform (Berliner, 2013; Blank, 2011). While state-level gains in reading and math proficiency were evident as a result of mandatory grade-level testing, it was clear that achievement gaps still existed in all states, and gains for economically disadvantaged students lagged behind overall improvements in student achievement (Blank, 2011). The need to close achievement gaps became more significant when jobs emerging in the

21st Century workforce required higher skill levels; the environment was changing as blue collar and administrative support jobs began to decline, while jobs requiring analysis and evaluation of written materials began to increase (Darling-Hammond, 2010; Haskins, Murnane, Sawmill, & Snow, 2012). If NCLB was not the answer, what was?

### **The Impact of Poverty on Academic Achievement**

Poverty is defined not only by low wages and lack of wealth, but also includes the lack of support systems, knowledge of unwritten rules, secure relationships, emotional stability, mental health, spiritual strength, and physical stamina that impact student learning (Lacour & Tissington, 2011; Scales, Roehlkepartain, Neal, Kielsmeier, & Benson, 2006). Conflicting opinions about poverty and the role of teachers v. out-of-school variables have fueled academic and political debates since the 1965 Coleman Report was issued. On one side of the argument are educators who believe that family and community factors exert a greater influence on student achievement than teachers and administrators, or policy mandates. Factors include, but are not limited to, the availability of healthcare and nutrition, family income, safety, neighborhood efficacy, parent stability, language, and early childhood education (Ravitch, 2010; Berliner, 2013). These factors can have an impact at least three times greater than in-school activities (Berliner, 2007).

The achievement gaps between poor and rich students are more closely related to social and cultural factors that have an impact on academic performance than on the school environment (Berliner, 2007, 2013). Students from low-income households fall increasingly behind those with strong financial stability (Brill, 2011; Jacobson, Jamal, Jacobson, & Blank, 2013; Jost, Whitfield, & Jost, 2005; Ravitch, 2010; Reardon, 2013). Children raised in poverty need additional resources, including pre-school opportunities, medical care, small classes, and

family support, including social services such as job skills training and placement for parents (Jacobson, et.al., 2013). Urban schools cannot provide this web of assistance alone; they need the help of both public and private agencies that have the necessary resources to support families (Jacobson, et al., 2013; Roderick, Najaoka, Coca, & Mueller, 2008). Education policies and social policies are not always linked to learning and personal circumstances, in spite of the widespread recognition that complicated life conditions mold students' learning experiences and prevent academic achievement (Malen, 2005).

Research indicates that students' standardized test scores, educational accomplishments, access to higher education information, participation in extracurricular activities, school leadership positions, graduation rates, and college enrollment and completion rates are directly correlated with income level: the higher the income, the greater the level of achievement up the educational ladder (Reardon, 2013). Reardon (2013) found that the rich-poor gap in schools between 1960 and 2010 increased by 40% (Reardon, 2013). He also found that the widening achievement gap between rich and poor students was found across and among races, and that white students from poor families showed the same decline as their peers from wealthy families. The correlation between this decline in academic achievement and the increase in income inequality in the United States led to his conclusion that poverty, rather than race or schools, was the cause. From 1972 to 2006, high income families began to invest 150% more money in their children's academic success and cognitive stimulation starting as early as prekindergarten. In the same time period, low-income families struggled to increase their spending on their children by less than 57% (Reardon, 2013).

While there is relative agreement about the severity of the challenges, there are divergent perceptions of how improvements in academic achievement can be achieved, as evidenced in the

dissension about NCLB. When it comes to root causes and potential solutions, research and policies diverge into two major sectors: causes that are *external* to the school (family and community issues), and causes that are *internal* to the school (teachers, guidance counselors, leadership, facilities).

### **The Role of Family and Community**

The position that the root causes of poor academic achievement are based on factors *external* to low-income schools says that it is naïve to think that students in schools comprised of 90% minorities and 90% poor can achieve levels of 90% pass rates on state standardized tests (characterized by the slogan “90/90/90”). From this point of view, a child’s ability to focus in school is more dependent on issues external to the school: the environment at home (unemployment, single parents households, violence, addiction ); the issues in neighborhoods (crime, joblessness, drug sales, homicides, imprisonment); lack of healthcare (low birth weight, basic dental health, vision, life expectancy); inadequate nutrition, and food insecurity (Teachman, 1987). These obstacles are beyond the control of teachers and principals, according to this research. As a result, students cannot achieve 90% success rates without government intervention in policies regarding poverty and housing, creation of more decent paying jobs, higher taxes, smaller class sizes, and summer educational opportunities (Berliner, 2013; Ravitch, 2010; Wilkinson & Pickett, 2010). Proponents of this line of thinking cite statistics about the high cost of spending per student in low-income urban schools, coupled with the fact that in spite of federal and state investments of significant dollars into failing schools their students remain at risk of failing to achieve proficiency (Brill, 2011).

## The Role of Teachers and Counselors

School-centered education research places the school at the heart of a students' potential for success in the future (Wrigley, 2012). Research and policies that focus on *internal* causes of low academic performance in low-income schools find that academic achievement can be dramatically improved by high quality teachers, including: setting higher academic standards; improving the quality of new teachers; creating tougher teacher evaluation systems; removing teachers who don't meet high standards; hiring experienced professionals who are not certified teachers; and/or changing school and district leadership (Brill, 2011; Berliner, 2013; Ng, 2003).

Proponents of this approach often cite the success rates of students in charter schools and private schools, which hire high quality teachers more easily because they face fewer restrictions from municipal or union regulations (Brill, 2011; Tough, 2012). These schools also have higher rates of teacher retention. Popular examples of the positive impact of highly effective teachers on academic achievement include the charter schools KIPP (Knowledge is Power Program) and the Harlem Success Academy; Catholic and other private schools; and large urban schools that have been "restructured" into smaller academies (Brill, 2011; Tough, 2013). KIPP, founded by David Levin and one of the most widely recognized names in charter schools, has now expanded to a network of 99 charter schools nationwide. With highly effective teachers, engrossing student activities, high parental involvement, KIPP charter schools are examples that strive to define students by their potential, not their poverty (Brill, 2011; Tough, 2013).

High poverty schools, on the other hand, have difficulty in hiring high quality teachers *and* retaining them, creating a continuous need for certified teachers in urban public schools (Ng, 2003). Because of a shortage of teachers who are willing to work in low-income schools, districts will hire teachers with no experience or certification, use substitute teachers for

extended time periods, or increase class size (Jacob, 2007). But because retention problems have been demonstrated by both certified teachers and teachers who are not traditionally certified, the causes are most likely to be contextual rather than personal, which forces this issue up to the level of the school system (Ng, 2003).

Retention of high quality teachers is challenging: when novice teachers gain experience, they tend to move on to low poverty school districts (Haskins et al., 2012; Roderick et al., 2008; Schaffer, 2012). Problems related to teacher retention are based on a combination of factors related to working conditions and salary issues, including a lack of collaboration, weak leadership, inadequate resources, and pay that is based on years of teaching rather than excellence in teaching (Haskins et al., 2012; Roderick et al., 2008). Higher education teacher preparation programs recognize the importance of combining coursework with immersing pre-service teachers in field experiences to observe, engage, and teach in K-12 classrooms. But not all urban field experience assignments provide adequate mentoring from experienced teachers or faculty to help pre-service teachers truly understand the depth and breadth of their role in low-income districts (Schaffer, 2012).

Implementing Common Core Standards is a demanding objective, with goals based on reading comprehension, accuracy, and fluency; conceptual knowledge, and vocabulary. To prepare teachers to be effective in helping students achieve proficiency and meet common core standards, teachers may need re-tooling through professional development, and states may need a new focus on assessment (Haskins, et al., 2012). Research indicates that the focus on assessment is not enough, however; instead of concentrating on penalties for schools that fail to meet goals and standards, educators should examine ways to build a well-trained, well-supported teaching force, scale up school designs that work, and focus on curriculum that emphasizes critical



thinking and performance skills needed for the 21st century economy (Darling-Hammond, 2010).

No single one of these issues exists in a vacuum; all are intricately interwoven. Because education reform has tended to foster research in silos, many recommendations for solutions fail to engage all stakeholders. Recent research, however, is uncovering new models that address the needs of *all stakeholders*, including students, parents, teachers, and community members. These models emerged from federal funding for new 21st Century Community Learning Centers (21st Century Community Learning Centers [21CCLC], 2014).

### **21st Century Community Learning Centers (21CCLC)**

The federal 21st Century Community Learning Center (21st CCLC) Program was introduced in 1994, and provided funding to expand after-school, extended day, and summer programs for Schools in Need of Improvement in a new strategy for school reform (U. S. Department of Education, 2014). One program proposed under 21st CCLC was the Full Service Community School (FSCS) model, also known as “The Community School” (Contreras, 2011; Jacobson, et al., 2013). The Community School strategy was to design programs, services, and support activities that would be conducted on-site at each individual school. Programs and services were required to address the needs of students, parents, teachers, administrators, and members of the neighboring community through a network of partnerships among members of the school, the local community (including businesses, civic groups, non-profit and faith-based organizations), and local higher education institutions (Contreras, 2011; Jacobson, et al., 2013). The Community School model addressed enhanced instructional methods using inquiry-based learning, youth development, parent training, employment assistance, health and human services,

including on-site nurses, doctors, dentists, and eye doctors (Contreras, 2011; Jacobson, et al., 2013).

Today there are over 5,000 Community Schools nationwide. Research on academic gains in mature Community Schools showed improvements in academic performance in math and reading; improved attendance (both teachers and students); reduced dropout rates; greater parental involvement; and gains in positive youth development, including conflict resolution skills and leadership. Some communities also showed benefits through improvements to school buildings and increased safety (Jacobson, et al., 2013). With convenient access to healthcare and nutrition on-site at the Community School, absentee rates declined; with better attendance, after-school programs and professional development programs for teachers delivered by higher education partners have resulted in improved academic achievement; with training, coaching, and employment assistance for parents, the communities have begun working together for the welfare of the children (Jacobson, et al., 2013).

The Community School model is explored in this literature review because of its positive impact on the acquisition of social and cultural capital for participating students and their families, which will be discussed later in this chapter. Using human capital as the theoretical framework for this study, programs that successfully build social and cultural capital early in the academic experience of underrepresented low-income first-generation college students take on particular significance.

### **Challenges Facing Low-Income, First-Generation Precollege Students**

First-generation low-income precollege students are often challenged by their level of academic and social preparation, major financial constraints, insufficient parental support, and low expectations that influence their decisions about applying to college, their chances for

acceptance into a 2 or 4-year college/university, and their ability to remain in college (Hicks, 2003). Research indicates that students' standardized test scores, educational accomplishments, access to higher education and other resources directly correlate with income level: the higher the income, the greater the level of achievement up the educational ladder (Krueger, 2012; Reardon, 2013; Wilkinson & Prickett, 2010; Willms, 2003). Even highly praised charter schools, such as KIPP, cannot guarantee that a majority of their successful eighth grade graduates will graduate from college. To date, their college graduation rate is 40%, far above the equivalent rates for their surrounding community, but far below the goals expected by founder David Levin (Brill, 2011).

Links between high school academic achievement, college access, persistence, and graduation have been established through a significant body of research that indicates academic grades are not the only concern. Students who hope to attend a four year college need to begin their preparation early in high school in order to participate in college search activities to find their best match (Roderick et al., 2008). For students who do not have support at home for the college search and application process, high school teachers, guidance counselors, and other mentors at school play the most significant role (Reddick, Welton, Alsandor, Denyszyn, & Platt, 2011). Without this assistance, low-income students who are well qualified to attend a four-year college do not apply, or apply to a two-year program, or apply but then fail to register upon acceptance. Among the roadblocks are filing the Free Application for Federal Student Aid (FAFSA) to maximize federal, state, and institutional support, and applying to multiple schools that are an appropriate fit for academic and personal qualifications (Roderick et al., 2008).

The role teachers and counselors play in setting high expectations for urban students has also been examined and supported by other researchers (Reddick, et al.; Oldfield, 2007; Wrigley,

2012). Research has indicated that if teachers and administrators are themselves from poor and/or urban environments, there is a higher probability that they will deal effectively with students in the same situation. By recruiting teachers and counselors who can relate more effectively to their students' needs, there are greater opportunities to make strong connections for both the students and the teachers (Oldfield, 2012). Mentors beyond the classroom have also been shown to be highly important in providing assistance in navigating the steps to investigate and apply for college. Mentors have been described as significant allies who could show students how to talk with their parents/families about their college goals (Reddick, et al.; Oldfield, 2007; Wrigley, 2012).

Studies have shown that first-generation students have a higher risk of dropping out of college and achieving timely graduation, exacerbated by low family incomes (Ishitani, 2006). The rates of longitudinal persistence towards 4-year graduation for low-income, first-generation college students are significantly lower than for other students (Ishitani, 2006). "The greatest benefits for explaining college success of first-generation students result from thorough examination of both precollege attributes of students and the quality of their interactions with institutions of higher education" (Ishitani, 2006, p. 865). Studies have also found a decline in retention between the first and second year of college, with an even steeper decline between second and third year, indicating that first-generation students were more likely to withdraw from college than students with college-educated parents (Ishitani, 2006). Other variables that have been significantly associated with college withdrawal were low income, lower educational expectations. First-generation students were 51% less likely to graduate in 4 years and 32% less likely to graduate in 5 years than students whose parents had attended college. Students from low-income families were also less likely to graduate between 4 and 6 years than families with

incomes higher than \$50,000. The strongest positive impact on degree completion within 4 to 6 years was continuous enrollment: students who maintained continuous enrollment were 4 times more likely to graduate in 4 years (Ishitani, 2006). The National Student Clearinghouse (NSC) Research Center report *High School Benchmarks 2014: National College Progression Rates* found that overall school income was the strongest factor in predicting immediate college enrollment. Students from high income schools were more likely to enroll in college right after high school, attend out-of-state colleges, enroll in 4-year colleges, and remain in college after the first year than students from low-income schools. The report examined high school-to-college transition rates for public, private, and charter high schools based on income, race/ethnicity, and locale (urban, suburban, and rural). Results from this survey of over 3.5 million students over four years consistently pointed to disparities related to income level over any other combination of factors. College enrollment rates for the fall semester after high school indicated that students from high schools with a large number of low-income students had lower college enrollment rates (between 47 and 58%) than higher income schools (between 61 and 73%), regardless of minority and/or geographic category of the schools (NSC Research Center, 2014). Differences were even more pronounced for enrollment in 2-year and 4-year colleges. Only 26 to 31% of the graduates of low-income schools enrolled in 4-year colleges, compared to 33 to 51% for high income high schools. Enrollment in 2-year colleges for low-income students was between 44 to 48%. Persistence rates for all students, regardless of income, race, or geographic region, were higher for students who attended 4-year colleges (78 to 89%) than 2-year colleges.

### **Non-Cognitive Factors and Educational Resilience**

Can students from low-income urban areas, attending schools with poor academic performance, and families facing economic and personal challenges overcome obstacles and ultimately

succeed academically? Recent studies have indicated that the answer is “yes,” with a combination of factors from the student, family, educators, and community. Tough (2012) wrote that non-cognitive skills (or character) allow students to persevere and reach for their goals in the face of difficulties. These essential skills, or “grit”, enable some students from poverty to achieve a better life (Tough, 2011). Academic researchers use a different name, but grit and educational resilience are similar. Academic researchers refer to a larger set of characteristics as non-cognitive skills that are influenced by background, attitude, and environmental variables, including study skills, values, goals, interpersonal competence, studying, help-seeking activities, involvement or leadership of a team or organization (Thomas, Kuncel, & Crede, 2007; Attewell, Heil, & Reisel, 2011; Farrington, Roderick, Allensworth, Nagaoka, Keyes, Johnson, & Beechum, 2012). Although non-cognitive skills have not been found to connect effectively with the college admissions process (Thomas, et al., 2007), research indicates that these factors can influence student persistence and academic performance (Farrington, et al., 2012). The University of Chicago Consortium on Chicago School Research identified five categories of non-cognitive factors that were related to student persistence and academic performance:

1. *Academic Behaviors* (going to class, doing homework, organizing material, participating, studying),
2. *Academic Perseverance* (grit, tenacity, delayed gratification, self-discipline, self-control),
3. *Academic Mindset* (belonging to an academic community, finding value in the work),
4. *Learning Strategies* (study skills, self-regulated learning, goal-setting), and
5. *Social Skills* (interpersonal skills, empathy, cooperation, assertion, and responsibility).

Although this research indicated that factors 1 to 4 above had the strongest relationship to academic performance, the most important factors to influence student perseverance and

strengthen academic behaviors were developing an academic mindset and employing learning strategies (Farrington, et al., 2012, p. 73).

“Educational resilience” has been defined as the core characteristic of successful students who thrive in school in spite of obstacles (Contreras, 2011; Williams & Bryan, 2012). Common themes include factors from the home, the school, and the community environments. *Home factors* include parenting practices that related to school, families that shared stories of personal hardship and success, positive mother-child relationships, and extended family networks. *School factors* are supportive relationships with teachers and staff (including coaches and counselors), school-focused peers, good teachers, and extracurricular school activities. *Community factors* are social support networks (friends, extended family, neighbors) and outside-school activities, including involvement with a church or community organization (Contreras, 2011; Williams & Bryan, 2012).

Williams and Bryan (2012) studied educational resilience and found that these students thrived and remained proud of their achievements in spite of daily obstacles, including inadequate housing, unemployment, financial struggles and family battles. This study of educational resilience is resoundingly positive in its message as it shares the credit for student accomplishments among family, school, and community. Just as no one entity should accept all blame for negative outcomes, no single entity could claim all the credit for the success. Strong family support and positive relationships with a parent seemed to insulate them from the harsh reality they faced in their neighborhood environment and schools, an outcome supported by other recent research (Glickman & Scally, 2008; Strier, 2011). The role of “family” also extended to a broader scope beyond the immediate household, including close neighbors and church members who spent time with these students and mentored them (Glickman & Scally, 2008).

The adults involved in the lives of these students-whether at home, in school, or within the community-shared many of the same characteristics; that is, these adults all encouraged high expectations, established high goals, helped the development of new skills, provided opportunities to explore new interests, and more. Whether the adult was an aunt/uncle, church volunteer, or high school coach, their behavior was consistently supportive. These educationally resilient students reported that they felt valued, challenged, and unconditionally important to all their mentors. The combined forces of family, school, and community appeared to be working in sync with one another to provide some form of stability, consistent with previous research about the interactions among family, school, and community (Glickman & Scally, 2008; Strier, 2012).

Another key component of educational resilience was self-motivation. Resilient students didn't wait for things to happen; they sought opportunities. When teachers didn't challenge them, they pushed. When counselors didn't provide information for them, they sought it through their network of community alliances (Reddick, et al., 2011). High-achieving first-generation college students found their own resources in "funds of knowledge" and "pockets of hope" derived from community members who generously shared information about pathways to success (Reddick, et al., 2011; Oldfield, 2007; Wrigley, 2012). The process of adjustment to college can influence academic achievement and college retention. Students who have adjusted to college, socially as well as academically, tend to have better grades; students with good grades are more likely to remain in college than those who struggle academically. In fact, the correlation has been found to be more significant than with prior academic accomplishments on SAT or high school academic achievement (Crede & Nieborster, 2012).



## **Economic and Human Capital Formation**

This research project will examine results through the lens of the human capital framework; however, in order to understand outcomes in terms of human capital theory, inputs from social and cultural capital will also be examined. The students participating in this study do not possess the wealth of social and cultural capital assimilated by their peers who are from higher income families where one or more parents attended college. Research, discussed below, indicates that both social and cultural capital will influence the acceptance, enrollment, and retention of successful college students. This literature review presents relevant research from the frameworks of social capital theory and cultural capital theory that coalesce to influence the human capital outcomes that will be central to this study.

### **Human Capital**

Theodore W. Schultz was among the pioneers in economics who described education as an investment in capital, and because this investment strengthened *people*, the outcome was creation of *human capital* (Schultz, 1960). Schultz, the first economist to put a factor for education into the formula for national economic success, hypothesized that increases in the U.S. national income from 1900 to 1956 were substantially due to significant investments in education at all levels, from early childhood through higher education. He compared the value of lost earnings while attending school to the potential for increased wages upon completion of high school or college. According to Schultz, investments in education created benefits beyond cultural and economic advantages for individuals by generating greater national income. Examining resources applied to education as investments, he determined that the rate of return on investment in education exceeded the return on investments in physical capital over five

decades, in spite of education costs rising at a greater rate than the costs of physical investments (Schultz, 1960).

Schultz' subsequent research applied macroeconomic principles to analyze the effects on society and the national economy of investments in human capital. According to Schultz, assessment of the impact of investments in human capital could lead to better national and international social and policy recommendations (Schultz, 1961). He examined the scope of human investments in healthcare services and facilities, formal K-12 and higher education, employee on-the-job training, adult professional development programs, and relocation to better job opportunities; his analysis again led to the conclusion that education investment reaped greater human capital benefits than financial investments in physical capital (Schultz, 1961).

Building on the work of Schultz, Gary S. Becker became the next leader in examining relationships between human behavior and economic outcomes, receiving a 1992 Nobel Prize in Economic Science for his work over two decades. Similar to Schultz, Becker believed that the most important investments in human capital were education and training, but Becker went further than Schultz by applying human capital theory to real-world challenges like income inequality (Becker, 2009). According to Becker, even after adjusting for differences in family wealth, and netting out the direct/indirect costs of school, the achievement of a college education in the U.S. raised individual income. Increased earnings, Becker believed, were not a consequence of the credential of the college degree, but rather resulted from the acquisition of advanced knowledge, skills, and analytical abilities that enabled individuals to become more productive throughout their careers (Becker, 2009).

The positive rate of return in human capital from investments in education were also explored from a microeconomic perspective by examining "opportunity cost", or the tangible

and intangible results of *not* taking a specific action or making a certain decision (Levin, 2008; Levin, Belfield, Muennig, & Rouse, 2007). Levin et al., (2007) calculated the financial benefits from public investments in improving the education-attainment rates of Black men. Levin's research indicated that Black males significantly lagged behind other groups in achieving high school graduation, entering college, and completing a 2 or 4-year college degree program. Lower levels of education attainment led to inferior jobs, low wages, poor health, and greater likelihood of incarceration. The researchers found that these outcomes in turn led to high social and economic costs, as these individuals produced lower earnings for tax revenues, created higher healthcare system costs, increased costs for criminal justice systems, and generated additional drains on public assistance. The researchers then examined the public benefits of increasing the number of Black high school graduates through education intervention programs, and calculated the economic impact of higher wages, increased tax revenue, decreased healthcare costs, and reduced criminal justice costs. The result was a cost-benefit analysis that showed public benefits of \$256,700 per additional high school graduate accrued from the value of increased earnings, additional taxes, and lower public health and crime costs. Measured against the cost of education, the researchers found an average of two to four dollars in public benefits for every dollar invested in education interventions, indicating that the benefits significantly outweighed the costs. Levin also projected that the mean aggregate public savings for improving the high school graduation rates for Black males (up to age 20 years) was \$3.98 billion (Levin et al., 2007).

The macro-and-microeconomic research on human capital research produced by Schultz, Becker, and Levin et al. examined the economic impact of education; the advantages of achieving higher levels of education; the disadvantages of not achieving a high school education;

and the burdens on society due to low levels of economic attainment. From Schultz' research conducted in the late 1950's, through Becker and Levin et al. research published over 40 years later, the economic impact of education was clear: individuals with higher levels of education consistently achieved higher levels of earnings throughout their lives; enjoyed a healthier lifestyle characterized by better access to good healthcare; and acquired access to college, on-the-job training, and other post-secondary skills enhancement. Low levels of education led to low wages, low lifetime earnings potential, poor housing, poor health, and a widespread increasing negative impact on society. They were consistent in their strong recommendations for greater investments in human capital through higher education to achieve greater economic benefits for society as a whole.

When children from low-income families do not have opportunities even close to the opportunities of families who can afford better schools, receive college preparation, benefit from tutoring, and draw on their personal and social connections to secure jobs, there is a cost to society and to the economy (Krueger, 2012). The likelihood of low-income students receiving adequate support in college-decision is slim, and impacts their potential for 2-and 4-year college enrollment. As an average, 40% of low-income students graduate high school and enroll directly into college; 84% of students in families with incomes over \$100,000 enroll at the same age. These disparities in college enrollment are evidence of social inequality that results in social and economic losses at the micro- and macro-level.

### **Social and Cultural Capital**

Pierre Bourdieu (1983) expanded on the framework of Schultz and described three types of human capital: economic capital (money and property), cultural capital (educational qualifications), and social capital (social obligations and connections). These three forms of

capital are intricately interwoven for all individuals, leading to an imbalance in equal opportunity (Bourdieu, 1983). Bourdieu described a multiplier effect in the acquisition of capital when economic and cultural capital synchronize with an individual's social capital connections.

Social capital theory can contribute to insight into current educational and social problems from multiple perspectives (Dressman, 2008), by providing the framework to examine economic capital, including family income and residential location, and cultural capital, including opportunities offered to students, parents, high school teachers, university faculty, and staff. These relationships are all potential sources of value and benefit to identify the social capital advantages of successful college students.

Social capital theory was first described by Glenn Loury, an economist in the 1970's, in terms of social relationships that help individuals acquire valuable marketable skills (Loury, 1987). These relationships also invariably help individuals achieve greater economic growth (Putnam, 1995).

Bourdieu and Coleman were among the early researchers to study social capital and its implications. Bourdieu examined the combination of economic and cultural resources – capital – that combine to create a strong network of relationships, or social capital (Bourdieu, 1983). Coleman, a sociologist who examined adolescent behavior and academic achievement, defined social capital in terms of two common elements: a social structure, and people or other “actors” who create action for the purpose of achieving positive outcomes (Coleman, 1988). He looked at social norms and how they influence individual's actions, and individual's self-interest, or independent action. For adolescents, social capital is situated in their parents, their peers, their community, and the level of their parents' relationships within the community and its formal structures.

Bourdieu (1983) described social capital in terms of relationships and personal contacts, and measured social capital by the size of networks of connections. Endless effort of time and energy to create long-lasting relationships with people can result in transactions that produce a significant payoff for individuals, whether material or symbolic.

James S. Coleman (1988) examined three forms of social capital: obligations and expectations, information, and social norms. Where human capital is created by new personal skills and capabilities, social capital is derived from changes in relationships among people. Trustworthiness is crucial, because with trust comes the ability to accrue obligations with the expectation that they will be “paid back” in some way (Coleman, 1988). Information channels are valuable because they enable individuals to acquire data indirectly, through their network of connections, saving time and increasing scope. Norms and effective sanctions lead individuals to act in the best interest of the whole group; consequently, social capital may aid some activities and curtail other activities (Coleman, 1988).

Social capital is expedited in social structures with closure, a phenomenon that is most apparent with intergenerational closure, such as when parents’ friends are the parents of their children’s friends (Coleman, 1988). Coleman deduced that the combination of social capital in the family and the community have a powerful impact on the development of each successive generation of youth. When families move frequently, they lose a measure of the community’s social capital while they struggle to reestablish themselves. In low-income communities, where families struggle to pay their rent, moves from place to place within the same city are frequent and unavoidable (Advocates for Children of New Jersey, 2011).

## **College Access Programs**

In an attempt to address educational inequities for low-income and underrepresented students, the U.S. Department of Education funded college access programs commonly known as TRIO. Federal TRIO programs grew from the War on Poverty and the Economic Opportunity Act of 1964. The TRIO programs were created to help students who were low-income, first-generation college students, and individuals with disabilities, to successfully advance from middle school into higher education.

The first three programs (hence the name TRIO) were Upward Bound (1964), Talent Search (1965), and Student Support Services (1968). Expansion of the TRIO programs continued for the next three decades with Educational Opportunities Centers (1972), the Training Program for Federal TRIO Programs (1976), the Ronald E. McNair Postbaccalaureate Achievement Program (1986), and the 1990 Upward Bound Math/Science Program.

Today there are a total of eight TRIO programs: Upward Bound, Talent Search, Student Support Services, Educational Opportunities Centers, Training Program for Federal TRIO Programs, Ronald E. McNair Postbaccalaureate Achievement Program, and Upward Bound Math-Science Programs (U.S. Department of Education, 2014). All federal TRIO programs required a long-term commitment from each college and university, and grants were competitively awarded every five years to higher education institutions throughout the United States (U.S. Department of Education, 2010).

### **Upward Bound and Upward Bound Math-Science**

Upward Bound, the oldest and largest of the federal programs for economically disadvantaged precollege students, was created to increase access to postsecondary education for an increased number of low-income students whose parents did not receive a baccalaureate

degree. In 2014, low-income families were defined as earning an income of \$35,775 or less for a family of four. Special consideration is also given to students with a high risk for academic failure (grade point average of 2.5 on a 4.0 scale), limited English proficiency, and disconnected youth (foster care and homeless youth). Participants must have completed Grade 8 (U. S. Department of Education, 2014).

***Components of Upward Bound.*** All Upward Bound projects must include academic instruction in mathematics, laboratory sciences, literature, composition, and foreign languages. Upward Bound projects must also include support activities to enhance economic and financial literacy, including counseling, mentoring, tutoring, work-study, and cultural enrichment. Guidance about Federal Student Financial Aid programs and the college application process is also expected to be included (U.S. Department of Education, 2014). Upward Bound Math-Science added a 5-week summer program, which included math courses (algebra, geometry, precalculus, calculus), science courses (biology, chemistry, and physics), English courses, as well as opportunities to participate in research working with university faculty. Upon completion of the program, students are awarded one college credit from the college/university that conducted the program (U. S. Department of Education, 2014).

***Measurement of Objectives.*** Progress toward achieving Upward Bound's objectives is measured by the cost per successful participant, and by the percentage of Upward Bound students who (1) by Grade 12, complete two years of math after Algebra 1, (2) complete the FAFSA, (3) enroll in postsecondary education, (4) do not require remediation in order to be placed into college-level math and English courses, (5) receive an associate degree within two years, or a bachelor's degree within four years, and (6) receive an associate degree within 3 years, or a bachelor's degree within six years.



*Assessment of Outcomes.* In 2009, the U.S. Department of Education Policy and Program Studies Service commissioned an extensive review entitled “The Impacts of Regular Upward Bound on Postsecondary Outcomes Seven to Nine Years After Scheduled High School Graduation” (Seftor, Mamun, & Schirm, 2009). At that time, 67 Upward Bound projects were run by two- and four-year colleges and universities nationwide. The study found that Upward Bound did *not* have an overall significant effect on (1) the rate or competitiveness of college enrollment; (2) applications for financial aid or receipt of a Pell grant, or (3) earning an associate or bachelor’s degree. Upward Bound *did* increase the number of students who obtained postbaccalaureate certificates or vocational licenses. Exceptions to these overall findings were found in specific subgroups, where closer examination showed increased college enrollment and completion rates, including students who had low educational expectations at the onset; entered Upward Bound at Grade 10 or later; or achieved a GPA of 2.5 in Grade 9 (Seftor, Mamun, & Schirm, 2009).

### **GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs)**

GEAR UP was signed into public law in 1999, designed to increase college enrollment and success for low-income students, as well as offer college scholarships. GEAR UP provides six-to-seven year grants to states to serve low-income students in cohorts beginning in middle school (before Grade 7) and continuing into high school (US Department of Education, 2014). Program components include academic courses, tutoring, computer literacy, standardized test preparation, counseling, and career counseling. In addition to the scholarship component that is not part of Upward Bound, GEAR UP programs include parent workshops, events, and extracurricular activities to engage both students and families in the college-readiness process.

**Objectives.** The goals and objectives of GEAR UP are (1) to increase college awareness, aspirations, and knowledge, (2) to strengthen academic achievement, and (3) to raise college enrollment and success.

**Measurement of Outcomes.** GEAR UP programs have not been subjected to the same national review and measurement of outcomes as Upward Bound. Programs are systematically assessed at the local level, but not collectively. A working paper from a 2010 study by CoBro Consulting, funded by the A.T. & T. Foundation, recommended a rigorous research design, methodology, and data elements for a program review of GEAR UP, but to date those recommendations have not been implemented (CoBro Consulting, 2010). A review of individual state reports indicate outcomes very similar to Upward Bound: there were little if any overall increases in college enrollment, with the exception of students who became engaged in the program after Grade 10.

### **College Access Challenge Grants (CACG)**

In 2009, the U.S. Department of Education introduced new federally-funded College Access Challenge Grants (CACG) to create more equitable access to higher education for low-income underrepresented high school students. CACG grants were designed to encourage collaborations among federal, state, non-profit organizations, and other partners to provide new programs to assist a broader range of students preparing to enter college (U.S. Department of Education, 2010). These new and experimental programs could be designed for a shorter duration than the traditional TRIO programs, and could be funded annually.

In 2010, the U. S. Department of Education awarded over \$141 million from the CACG Program to all states, territories, and the District of Columbia to increase college access for low-

income students and help them complete their postsecondary education (U.S. Department of Education, 2010).

### **New Jersey Aim High Academy Program**

In New Jersey, \$2 million CACG funds were used to launch the new Aim High Academy (AHA) Program on six college and university campuses, including both public and privately-funded institutions, in 2011. The new CACG Aim High Academy programs were expected to focus on Science, Technology, Engineering, and/or Math (STEM) academic curriculum. AHA programs were envisioned to become the next incarnation of the prestigious *Governor's School*, but with a target population of high-achieving, low-income, first-generation college students (New Jersey Higher Education, 2011).

Successful AHA programs were invited to participate again in 2012, 2013, and 2014. Each AHA program addressed the following components: leadership training, problem solving, team interaction, and exposure to higher level learning (e.g., strong academic curriculum and interaction with faculty). The goals were to focus on achieving secondary school graduation, and increasing college admission and enrollment. All participants in AHA were low-income, high-achieving students who had completed their third (junior) year of high school and were the first in their families to attend college. All AHA programs were conducted on college campuses for three weeks in July, with commuter and residential options.

In 2013 NJHE sponsored a qualitative research study to identify best practices of AHA programs in each of the six participating universities and colleges. This study was conducted by a team of graduate students in the Edward J. Bloustein School of Planning and Public Policy at Rutgers University (New Jersey Commission on Higher Education, 2013). NJHE also conducted annual surveys to determine if students who participated in these programs applied to college in

their senior year. Neither of these studies provided NJHE with longitudinal or quantitative data to determine if high school juniors who participated in AHA programs were more likely to apply, enroll, and remain in college than other New Jersey students from similar socioeconomic backgrounds. This study will provide information that may provide insight about the future role of higher education in precollege preparation for underrepresented high school students.

### **Advanced Placement and Dual Enrollment Courses**

During the same twenty-year time period that federally-funded TRIO programs were launched and growing, United States high schools increased the number of Advanced Placement (AP) and dual enrollment/college-credit courses they offered, in the belief that these programs have an important impact on college access for a wide range of students (New Jersey Higher Education, 2011). A rigorous college-bound curriculum in high school includes AP and/or dual enrollment courses, which can have an impact on success in college (Contreras, 2011).

*Advanced Placement (AP).* Advanced Placement (AP) courses are college-level courses taught in high school, followed by a College Board examination at completion. Although AP courses have been looked at favorably by college admissions offices as an indication of a student's ability to succeed in college-level work, underrepresented students remain at a disadvantage. Research indicates that low-income first-generation college students are unlikely to enroll in AP courses, or take AP exams, which deprives them of access to the additional academic support that accompanies these courses (Contreras, 2011). Before graduation from high school, students can earn post-secondary credit hours through dual enrollment courses, college courses, and through exams such as Advanced Placement tests, which can accelerate college progression towards graduation and facilitate continuous enrollment in college (Ishitani, 2006).

***Dual Enrollment.*** Dual enrollment courses were originally designed to offer more challenging academic courses to high-achieving high school students. Dual enrollment allows high school students to simultaneously earn college credit and high school credit for the same course, without requiring admission to college. Dual enrollment courses have also been proposed as a viable way to reduce college costs for low-income students: by obtaining college credit for courses taken during high school, these credits can be transferred to the college of their choice, subsequently reducing the overall cost of college tuition (Brewer & Stern, 2005; Contreras, 2011).

### **Summer Bridge Programs**

Summer “bridge” programs are designed to aid underrepresented first-year college students in the transition to college using intense short courses. In some higher education institutions, these programs are a requirement for acceptance. Summer bridge programs address the gaps between educational preparation up through high school, and the realities of college life, from both academic and social perspectives (McCurrie, 2009). Basic writing skills and math are emphasized, along with time management and peer relationships.

Research has indicated that summer “bridge” programs play an important role in raising student achievement, providing guidance about succeeding in college, with the outcome of increasing retention among potentially at-risk college students (Contreras, 2011; Hicks, 2005; McCurrie, 2009). Summer bridge programs have been offered through schools, communities, non-profits, and universities, and share the common goal of improving college success for underrepresented students. Achievement of this goal differs from program to program. Following are examples of summer bridge programs for high-achieving, low-income students offered by a sample of higher education institutions.

***Columbia College Chicago.*** The Columbia College Summer Bridge program was designed to enhance underrepresented student success through reading, writing, and math courses; exposure to their faculty's research projects; exposure the rigor of college courses; and familiarity with the campus and its resources. Admissions, Student Affairs, and Academic Support staff collaborate to review the progress of students admitted into the Summer Bridge program and to follow academic achievement and retention. The outcome of their review indicated that students who had completed Summer Bridge had a higher retention rate after their first semester than at-risk students who did not attend Summer Bridge; however, in the second and third years, their withdrawal rates were significantly higher. Less than 15% of the students who completed Summer Bridge were still enrolled by their second year (McCurrie, 2009). University efforts to ameliorate this outcome and increase retention were system-wide; it wasn't enough to modify Summer Bridge. Retention efforts extended in developmental programs across the curriculum, and across academic support and student development activities throughout the year (McCurrie, 2009).

***Texas Developmental Summer Bridge Programs.*** The Texas Higher Education Coordinating Board first funded developmental summer bridge programs at 22 colleges in 2007. This funding supported the state's strategic plan goals for *Closing the Gaps by 2015*. Increasing college enrollment and academic success was a primary objective. Students with low basic skills were selected for inclusion in the new Summer Bridge programs, and the curriculum consisted of intense remedial instruction in math, reading, writing, and college preparation (Wathington, et al., 2011). A 2011 review of eight Texas Summer Bridge programs indicated that students who participated in summer bridge programs were more likely to pass college-level math and writing courses in the fall semester, and more likely to register for higher level math, reading, and

writing courses than students who did not complete the programs (Wathington, et al., 2011). Longitudinal results about college retention were not yet available as of this literature review.

***Middle Tennessee State University's FirstSTEP.*** FirstSTEP focused on retention of first-year science, technology, engineering, and math (STEM) students enrolling at Middle Tennessee State University. Launched in 2010 with a cohort of 35 students, FirstSTEP began with a 2-week intensive summer academic program, financial incentives for enrolling and remaining in the cohort, and free residential housing for students based on need and distance from the campus (Raines, 2012). While longitudinal results are not yet available, early outcomes indicate a retention rate of 91.4% from the fall to spring semester, and 77.1% from first year to second year, higher than the university's overall retention rate for first-year freshmen (Raines, 2012).

***Meyerhoff Scholarship Program (MSP) Summer Bridge Component.*** The Meyerhoff Summer Bridge Program at the University of Maryland was designed to provide additional academic and social support services to high achieving, low-income minority students in STEM fields. The program is a highly intensive, 6-week residential program that takes place in the summer before freshman year. Components include academic remediation, information about campus life, strategies to address social networks, and personal goal-setting (Stolle-McAllister, 2011). With a strong combination of academic and social modules, Meyerhoff Summer Bridge Program builds social and cultural capital for students before the full campus community members arrive in the fall. Success strategies for college level courses include details about class participation, approaching professors, networking with peers, building alliances, and more (Stolle-McAllister, 2011).

### **College Developmental and Remedial Education**

Full assessment of the impact of first-year and subsequent college developmental and remedial education programs is beyond the scope of this literature review, but an overview is presented here to “fill in the blanks” after summer bridge programs that conclude before freshman year begins. Most U.S. colleges and universities offer remediation courses for students who need help in the math, reading, and writing skills (“basic skills”) that are essential to success in college courses. Even students who are accepted into college with adequate GPA’s have been unable to pass the requisite Basic Skills testing that takes place before registration in the fall of the first year, and are required to take – and pass - these courses, usually offered without credit towards graduation credits.

Research indicates that an average of 40% of traditional undergraduates take at least one remedial course after they have enrolled in college; low-income, minority, and English as a second language students, as well as older students returning to school, require more than one remedial course (Attewell, Lavin, Thurston, & Levey, 2006). Remedial courses continue to receive support from higher education institutions because of indications of improvements to retention and graduation rates for underrepresented students; however, research indicates that most of the gap in graduation rates reflects skill differences from high school (Attewell, Lavin, Thurston, & Levey, 2006).

### **Challenges Facing First-Generation College Students**

Research indicates that first-generation college, low-income students were more 8.5 times more likely to leave college than other students, although the risk of departure decreased after sophomore year (Ishitani, 2006). Private higher education institutions had a significantly higher



retention rate than public institutions, with private college students 34% less likely to leave (Ishitani, 2006).

College completion rates also differ for first-generation college, low-income students. These students were 51% less likely to graduate in four years, and 32% less likely to graduate in five years (Ishitani, 2006). Degree completion varied with the rigor of the students' high school academic experience, and precollege experiences were determined to have a significant impact on students' time to degree completion (Ishitani, 2006). These results point towards the need to improve academic performance *before college* to improve the chances for success in college.

### **Conclusion**

To make a significant change in K-12 schools, higher education institutions need to be willing to change, too, and accept the challenge to emulate the same behaviors that K-12 leaders should implement in research, teaching, communities of practice, and advocacy (Reilly, 2005). Immersion in field research in urban schools, increasing deep involvement in the community, and using the power of the institution to advocate for policies that address critical issues for urban schools are central (Ng 2003; Reagan, 2005).

Precollege youth programs created and implemented by higher education can open new horizons for disadvantaged urban youth, potentially enhancing their social capital in ways that cannot be addressed in their home environment. Enhancing social capital can help students strengthen their academic competencies; assess their talents, skills and interests; become empowered to consider attending an undergraduate institution; be prepared to assume the responsibilities of a part-time job; access tools to make important career decisions for a full-time job; and build a dynamic network with the business community to secure employment.

Providing these additional opportunities for youth who would not otherwise have access due to financial constraints is one step towards creating a more level playing field.

Universities need to address inequity and achievement gaps by listening to the varied perspectives of multiple constituencies within the classroom *and* the community (Reilly, 2005). Higher education leaders have the potential to provide segues from theoretical frameworks to research to implementation by addressing issues of equity and the subsequent impact on human capital, and by creating new strategies for intervention (Reilly, 2005). The challenge for higher education today is to blend the resources of academic experts, business partnerships, and community connections *together* in a cohesive framework to build the best programs for diverse low-income, first--generation college-bound students to enter universities prepared to thrive.

### **CHAPTER III**

#### **METHODOLOGY**

Most college-educated parents will guide their children throughout high school as they prepare for post-secondary education by researching colleges that match their interests and abilities, visiting college campuses, registering for SAT preparation courses, exploring scholarship opportunities, and investigating loan packages. Low-income students whose parents did not attend college struggle with the lack of appropriate guidance from their parents and their teachers about the entire college application process (Blank, 2011; Berliner, 2013). These underrepresented students often lose hope of admission to college (Blank, 2011; Berliner, 2013).

U.S. Department of Education College Access Challenge Grants (CACG) were created to provide opportunities for colleges and universities to create new types of programs to help underrepresented students prepare for and apply to higher education institutions (U.S. Department of Education, 2014). In New Jersey, a portion of these funds were used to create the Aim High Academy (AHA) Program on six university campuses, including both public and privately-funded institutions. All Aim High Academy programs were required to focus on Science, Technology, Engineering, and/or Math (STEM) academic curriculum. AHA programs were also required to address the following components: leadership training, problem solving, team interaction, college preparation information (including the college application and financial aid processes), and exposure to higher level learning through a strong academic curriculum and interaction with faculty (New Jersey Higher Education, 2011). Campus residential experiences were desired but not required. AHA programs were implemented using a combination of classroom instruction, group project work, laboratory assignments, personal advisement, and field trips. The goals were to focus on achieving secondary school graduation, and increasing

college admission and enrollment (New Jersey Higher Education, 2011). Participants in AHA programs were low-income, high-achieving students who had completed their third (junior) year of high school and were the first in their families to attend college. Aim High Academy host institutions were invited to participate again in 2012, 2013, and 2014.

A qualitative study of Aim High Academy program participants was conducted in 2013 to examine the impact of the 2011 and 2012 AHA programs on college applications and acceptance (Hocker, Centore, Virella, & Ramirez, 2013); however, this research did not examine subsequent college enrollment, academic achievement, and persistence in a two-or-four year college/university. Longitudinal quantitative research had not been conducted to determine if students who participated in Aim High Academy have higher rates of enrollment and persistence in two-or-four year postsecondary institutions than students who have not participated in this program. In addition, the level of academic achievement in college had not been examined for AHA program participants.

### **Purpose of the Study**

This study examined the impact of higher education's role in preparing underrepresented low-income high school students for successful college enrollment, academic achievement, and persistence in college through the study of New Jersey's CACG Program Aim High Academy. This study examined the rate of college enrollment, level of academic achievement, and rate of persistence in college for a sample of high school students who completed Aim High Academy programs in 2011, 2012, and 2013. The enrollment outcomes for AHA students were compared to average college enrollment rates for all high schools who participated in Aim High Academy; persistence rates were compared to average rates for all students from the New Jersey colleges who participated in this study. The independent variable for this study was attendance in the Aim

High Academy Program. The dependent variables were college enrollment, academic achievement, and persistence in a two-or-four year college or university.

### **Research Question**

This quantitative research study examined the relationship between high school students' participation in the Aim High Academy program and their subsequent enrollment, academic achievement, and persistence in college. Did students who participated in AHA programs have a higher rate of college enrollment and persistence than the average rates for the high schools and colleges who participated in AHA? What was the level of academic achievement for AHA students in college?

### **Research Questions**

Specific research questions that were addressed during this study were:

1. What was the rate of college enrollment for high school students who participated in Aim High Academy in 2011, 2012, and 2013?
2. Was there a difference between the college enrollment rate for AHA participants in 2011, 2012, and 2013 and the college enrollment rate for all students from the high schools who participated in AHA?
3. What was the level of college academic achievement for Aim High Academy participants in 2012 and 2013?
4. What was the persistence rate of current college students who participated in Aim High Academy in 2012 and 2013?
5. How did the persistence rate of AHA participants compare to the average persistence rate for all students from the New Jersey colleges who participated in this study?

## Methods

The research questions selected for this study were more appropriately examined using quantitative research methods based on recommendations from Patten (2009), including the availability of a basis of qualitative research to draw from, concerns about availability of participants for extensive observations or interactions, limits of time and funding, and the need to provide hard numbers to present to funding agencies, legislators, and higher education administrators (Patten, 2009). This study examined trends over time, and checked previous findings with different methodology (Gall, Gall, & Borg, 2003).

### Participants

Participants in this study were students from eighteen to twenty-one years old who completed New Jersey's CACG Program Aim High Academy at six New Jersey universities in 2011, 2012, and 2013. All students who attended AHA had similar profiles in terms of age and socioeconomic backgrounds. Specifically, all participants had completed their junior year of high school. The criteria for acceptance into AHA programs were the following: *low-income* students (met the Federal Low Income Guidelines from the U.S. Department of Education for 2014); *first-generation prospective college students* (neither parent attended a two-or-four-year college); and *high-achieving students* (selected by a combination of SAT/ACT test scores, high school cumulative grade point average, and recommendations from guidance counselors, math and/or science teachers).

At the time of this study, the total number of Aim High Academy participants was 728 students from six New Jersey public and private universities. The total number of AHA attendees by year of participation was 215 students in 2011, 254 students in 2012, and 259 students in 2013. The final sample size was 102, 14% of the total AHA population of 728. This sample was

determined to be an adequate size, and was representative of the population (Patten, 2009; Gall, Gall, & Borg, 2003).

At the time of this study, these students had graduated from high school and could be enrolled as college freshmen (cohort 2013), sophomores (cohort 2012), or juniors (cohort 2011), if they had consistently registered full-time for college courses (i.e., four or 5 courses at 3-to-5-credits per course, the equivalent of 15 credits per semester).<sup>1</sup>

### **Instrument**

To assist in the design of the survey instrument for this study, the researcher examined sample questionnaires from an AHA program director at Rutgers University-Newark who provided copies of instruments developed by an Office of Enrollment Management for the purpose of measuring retention and persistence in college for high school students who participated in Rutgers “Future Scholars Program.” The Future Scholars Program survey was examined as a guide, and some of these questions were used in this Aim High survey. In addition, several AHA program directors expressed interest in gathering data about non-cognitive factors that might be related to persistence in college. Questions related to non-cognitive behaviors were included in the survey for this study at the request of the AHA program directors, but these questions were beyond the scope of this research design and were not analyzed for this study.

The survey questions that addressed research questions for this study gathered prevalence data rather than perception; the majority of the questions were straightforward. The only area of

<sup>1</sup> A full-time college schedule for institutions with 120 credits required to complete a Bachelor’s degree in four years consists of completion of 30 credits in Freshman year, 60 credits by the end of Sophomore year, and 90 credits by the end of Junior year. The norm for New Jersey higher education institutions to award a Bachelor’s degree is 120 credits.

concern was the difference in language used to specify “persistence” and “retention” among students, faculty, and administrators, as noted by several AHA program directors. Terminology about “student retention” and “student persistence” was sometimes used interchangeably, although retention is related to a university and persistence is related to an individual student. The language used in this survey was selected to reflect the students’ perception rather than faculty/administrators’ perception. This study used the terminology “persistence” to describe a student’s progress towards achievement of the Bachelor’s degree. A copy of the survey, entitled *Aim High Academy Survey of College Persistence*, is in Appendix A.

All survey questions were related to this study’s research questions, which examined one independent variable (Attended Aim High Academy) and three dependent variables (College Enrollment, Academic Achievement, and College Persistence). Survey Questions 1 and 2 gathered information about the program year students attended Aim High Academy (2011, 2012, or 2013) and about other precollege programs that students may have attended, if applicable (Upward Bound, GEAR UP, Advanced Placement, and/or Dual Enrollment college credit courses). Survey Questions 3 to 6 gathered information about the students’ Fall 2014 college enrollment status (Accepted/not accepted into college, 2-or-4-year college, college name and location). Survey Questions 10 and 11 gathered information about students’ academic achievement, including their average grades (A, A/B, B, B/C, C and below) and their Grade Point Average (GPA). Survey Questions 7 to 9 gathered information about students’ persistence in college: their Fall 2014 class level (Freshman, Sophomore, Junior, Senior); whether enrolled full-time or part-time; and the number of courses they were enrolled in for Fall 2014. Survey Questions 19 to 23 gathered descriptive information about the students’ ethnicity and campus residence. Questions 12 to 18 gathered information about students’ application of non-cognitive factors, requested by the AHA program directors and beyond the scope of this study. In a



similar manner, Question 24 gathered narrative information about the students' Aim High Academy experience at the request of AHA program directors. Questions 20 and 21 were only presented to students who indicated that they did not enroll in college. These question asked about their reason for leaving school (leave of absence or withdrawn), and their work status (full-time, part-time, seeking employment and/or unemployed).

All survey questions had been previously used in other validated questionnaires, so a pilot study was determined not to be necessary; however, this survey was tested using the online platform SurveyMonkey to insure that all links and paths were operating correctly, and to verify that the survey could be completed within 10-15 minutes. A group of five recent college graduates took the survey using their smart phones, tablets, and personal computers to access the SurveyMonkey link directly from the email invitation. This test confirmed that the survey link could be easily accessed; that the survey could be quickly and effectively completed on several different devices; and that the survey questions were clear. Access to the survey link through smart phones, tablets, and personal computers was a critical factor to insure maximum participation from all possible access methods for the study respondents.

### **Data Collection**

A total of 102 students responded to the AHA survey. This study posted the online questionnaire/survey instrument through the online platform SurveyMonkey to gather information about AHA participants' college enrollment, academic achievement, and persistence. SurveyMonkey was effectively used as an online platform to gather yearly program data about AHA participants' rate of college application from 2012 to 2014; as a result, instruments distributed through SurveyMonkey were familiar to both students and AHA Program directors. Because this instrument distribution platform was used effectively in the past for this

population, the potential for sampling bias in this study was minimal (Gall, Gall, & Borg, 2003). In addition, the use of web-based or electronic surveys has been determined to be an effective and efficient method for data collection, with lower costs (i.e., printing and postage) than conventional paper questionnaires (Gall, Gall, & Borg, 2003). In telephone interviews with AHA program directors, all directors stated that *only* online surveys have been effectively used with their respective precollege students; the largest response rates have been achieved when survey links were sent to participants via both email and cell phone text message.

Each AHA program director retained his/her own unique databases of student contact information (i.e., there was no central New Jersey database); these databases were used to reach Aim High program participants. All AHA program directors agreed to distribute this survey to past participants of their AHA cohorts from 2011, 2012, and 2013, using email requests and cell phone text messages containing the SurveyMonkey link. The AHA program directors also agreed to post notices about this survey on their Facebook, Twitter, and Instagram pages. All survey results were designed to be returned anonymously to the researcher's SurveyMonkey account.

To gather information about college enrollment rates for New Jersey high school graduates, AHA program directors were asked to provide a list of all high schools that participated in Aim High Academy from 2011 to 2013. Data about post-secondary enrollment rates for these high schools were then gathered from the State of New Jersey Department of Education *New Jersey School Performance Report 2012-2013* (New Jersey Department of Education, 2013). New Jersey School Performance Report data about Post-Secondary Enrollment Rates for high school graduates were gathered 16 months after high school graduation by the National Student Clearinghouse, which collected student-level enrollment data

from 95% of institutions of higher education nationwide. Post-secondary enrollment rates were recorded for overall college enrollment, 2-year college enrollment, and 4-year college enrollment from all high schools that sent students to Aim High Academy Programs from 2011 to 2013. Data about college enrollment were used in the analysis of research question 2 (Was there a difference between the college enrollment rate for AHA participants in 2011, 2012, and 2013 and the college enrollment rate for all students from the high schools who participated in AHA?).

Data about college persistence were gathered for the six New Jersey public and private universities that conducted Aim High Academy programs from the United States Department of Education Institute of Education Sciences (IES) National Center for Education Statistics website “College Navigator” (U.S. Department of Education, 2013). College Navigator provided data for all United States public and private colleges and universities about the percentage of full-time, first year students who graduated in 4 years and 6 years. This resource serves as a guideline for all universities to compare their graduation outcomes to their peer institutions. Data about college persistence were used in the analysis of research question 5 (How did the persistence rate of AHA participants compare to the average persistence rate for all students from the New Jersey colleges who participated in this study?).

### **Data Analysis**

The data set of survey responses from AHA participants was exported from SurveyMonkey into Excel. Two Excel spreadsheets were created: the first spreadsheet contained all survey responses (including responses to survey questions included for the AHA Program Managers) and would be held for later study; the second spreadsheet contained only data related to the variables for this study’s research questions. All categorical responses from SurveyMonkey were coded into numeric responses for SPSS. The survey responses were also

grouped by variable for more efficient use in SPSS, using the structure shown below in Table 1, *Description of the Relationship among Variables, Survey Questions, and Research Questions*.

After coding and organizing the data in Excel, the database was exported into SPSS. All variables were defined again in SPSS, using numerical coding for categorical data items for the purposes of the quantitative analysis.

*Definition of variables.* The independent variable was attendance in Aim High Academy in 2011, 2012, or 2013, with or without additional precollege programs (i.e., Upward Bound, GEAR UP, Advanced Placement courses, and/or Dual Enrollment college-credit courses). Responses for Aim High Academy only were coded 1; responses for Aim High with other precollege programs were coded 2.

The dependent variables in this study were:

1. College enrollment (accepted/not accepted; enrolled in 4-year, 2-year, less than 2-year, or not enrolled).
2. Academic achievement (college grades, GPA).
3. College persistence (Fall 2014 class level Freshman, Sophomore, Junior, Senior; full time or part time enrollment; number of Fall 2014 courses enrolled in)

Results for survey questions 3 to 6 provided information related to Research Question 1: What was the rate of college enrollment for high school students who participated in Aim High Academy in 2011, 2012, and 2013? Results for survey questions 10 and 11 provided information related to Research Question 2: What was the level of college academic achievement, defined by grades and grade point average (GPA), for Aim High Academy participants in 2012 and 2013? Survey questions 7, 8, and 9 provided information related to

Research Question 4: What was the persistence rate of current college students who participated in Aim High Academy in 2012 and 2013?

Table 1

*Description of the Relationship among Variables, Survey Questions, and Research Questions*

Variables	Description	Survey Question	Research Question
Independent	Attended Aim High - Year attended - Also attended other programs	Q1 Q2	
Dependent	1. College Enrollment - 4-year, 2-year, other	Q3, 4, 5, 6	Q1, 2
Dependent	2. Academic Achievement - Grades - Grade point average	Q10 Q11	Q3
Dependent	3. College Persistence - Fall 2014 class level - Full time/part time enrollment - Number of Fall courses	Q7 Q8 Q9	Q4, 5

*Descriptive Statistics.* General information about the respondents was gathered directly from SurveyMonkey, and included age, where their college was located, and what their current activities were, if not enrolled in college. Descriptive statistics and frequencies were gathered by analyzing the coded responses to survey questions in SPSS and the responses in SurveyMonkey. Measures of central tendency (mean, median, and mode) were calculated for the dependent variables Academic achievement-grades and Academic achievement-GPA. Correlations were examined for variables Enrolled 2-year/4-year, Number of courses enrolled in, and GPA.

Some of the variables in this study were categorical and some were continuous, so the analysis concentrated on frequencies, percentages, and correlations.

*Frequencies.* Frequency distributions were examined for Year attended Aim High, Accepted/Not accepted into college, Enrolled 2 Year/4 Year to address Research Question 1 about AHA student enrollment in college. Frequency distributions and percentages were examined for Academic achievement-grades, and Academic achievement-GPA to address Research Question 3 about academic achievement in college. Frequency distributions and percentages were examined for Persistence-number of courses, and Persistence-Fall 2014 Year to address Research Question 4 about college persistence.

The dependent variable college persistence-Fall 2014 year was examined separately for each AHA cohorts 2011, 2012, and 2013 because of different expectations about their year of college enrollment. When the survey was administered from August to October 2014, Aim High students in cohort 2011 were expected to have registered for the third year of college (Juniors); cohort 2012 was expected to have registered for the second year of college (Sophomores); and cohort 2013 was expected to be enrolled as first-year students (Freshmen). Table 2 provides a summary of anticipated outcomes for Fall 2014, shown by the year that each cohort of students attended Aim High Academy, and their expected year of college if they consistently enrolled full-time.

Table 2

*Anticipated College Class Level in Fall 2014 by Aim High Academy Cohort Year*

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Cohort Year	College Freshman	College Sophomore	College Junior
2011			X
2012		X	
2013	X		

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*Percentages.* Research Question 2 (Was there a difference between the college enrollment rate for AHA participants in 2011, 2012, and 2013 and the college enrollment rate for all students from the high schools who participated in AHA?) was analyzed using a comparison of the percentages for the two groups for College enrollment-overall, Enrollment in 4-year college, and Enrollment in 2-year college.

Research Question 5 was addressed by comparing the average college persistence rates for AHA students to the average persistence rates for all New Jersey students in the colleges who participated in AHA. For this analysis, AHA students who met two criteria were classified as on track for 4-year graduation: (1) on track in Fall 2014 year of college, and (2) enrolled full time (i.e., enrolled in 4 or more courses in Fall 2014). Students who did not meet these two criteria were classified as on track for 6-year graduation: (1) behind their cohort by one or more years in college, and/or (2) enrolled part-time (i.e., enrolled in fewer than 4 courses in Fall 2014).

### **Limitations and Delimitations**

1. Due to the small sample available for this study, it might not be possible to generalize results beyond the specific population for this sample.
2. Students who participated in Aim High Academy were already high-achieving, ready to take full advantage of the program offerings. In addition, students who responded to the survey may have been those who were most successful.
3. Due to the use of New Jersey high school rates of college enrollment overall, 2-year college, and 4-year college, predictive statistics could not be used to analysis the results of this study (i.e., neither ANOVA nor Chi Square would allow for analysis that did not compare individual outcomes for AHA students to outcomes for individual students from high schools participating in this study. Data sets for all New Jersey individual student outcomes were not

available to this researcher; however, the added value of performing a predictive statistical analysis for this study was questionable, given the size of the total population. In addition, because of the structure of this study's categorical independent and dependent variables, the predictive statistics of regression analysis could not be used. While a predictive statistical analysis may have contributed additional insight to this study, the essential research questions did not lend themselves to this form of analysis.

4. Although Aim High Academy is a program that has been implemented through CACG funding in other regions of the U.S., the current study focused only on AHA program in New Jersey.
5. The current study did not examine results by race, ethnicity, and/or gender; income and first-generation college were the basis of analysis, although the breakdown of data is available for future study.

### **Conclusion**

The data analysis consisted of examining the surveys, coding and entering data into a database in SPSS, and performing an analysis of responses using descriptive statistics, frequencies, percentages, and correlations. Frequency tables, histograms, and charts were constructed to display results for the five research questions about college enrollment, academic achievement, and college persistence, and to determine how AHA students compared to all students from the high schools and colleges who participated in AHA.



## **CHAPTER IV**

### **RESULTS**

This quantitative research study examined the relationship between high school students' participation in the New Jersey CACG Aim High Academy program and their subsequent enrollment, academic achievement, and persistence in college. Specific research questions that were addressed during this study were: (1) What was the rate of college enrollment for high school students who participated in Aim High Academy in 2011, 2012, and 2013? (2) Was there a difference between the college enrollment rate for AHA participants in 2011, 2012, and 2013 and the average college enrollment rate for all students from New Jersey high schools that participated in AHA? (3) What was the level of college academic achievement for Aim High Academy participants in 2012 and 2013? (4) What was the persistence rate of current college students who participated in Aim High Academy in 2012 and 2013? (5) How did the persistence rate of AHA participants compare to the average persistence rate for all students from the New Jersey colleges which participated in this study?

#### **Sample**

The total population of Aim High Academy participants was 728 students, with 215 students in 2011, 254 students in 2012, and 259 students in 2013. AHA Program Directors distributed this survey using email invitations, text messages, and postings notices on Facebook, Twitter, and Instagram with the SurveyMonkey. All survey results were returned anonymously to the researcher's SurveyMonkey account. The total survey responses were 102 responses, 14% of the total population of 728 Aim High Academy students.

The participants in the AHA sample had similar socioeconomic profiles, as required by the AHA program selection criteria, so the survey did not ask questions about income or high

school academic achievement; specifically, all AHA participants were low income (based on the Federal Low Income Guidelines from the U.S. Department of Education for 2014), first-generation prospective college students, with high academic achievement in high school (defined by SAT/ACT test scores, grade point average, and recommendations from guidance counselors, math and/or science teachers).

The survey results indicated that students' ages ranged from eighteen to twenty-one years old. The survey question about ethnicity ( $N = 77$ ) indicated responses of 33 Hispanic/Latino, 21 Black/African American, 13 Asian/Pacific Islander, 12 White/Caucasian; 3 students chose the option "Prefer not to answer." Seven students provided multiple responses, indicating 9% of the respondents were mixed race. Responses from the students who answered the question about financial aid ( $N = 65$ ), 90.9% received financial aid ( $n = 59$ ); 9.2% did not receive financial aid ( $n = 6$ ).

### **Descriptive Statistics**

All questions on this survey were voluntary, so respondents could choose to skip questions and still continue with the rest of the survey. As a result, the number of responses to each question was not always consistent, which is noted in the descriptions that follow. Four respondents were removed from the analysis because they provided incomplete data, i.e., they did not provide an adequate number of responses to this study's critical questions: year of AHA program attendance, whether or not they were accepted into college, and Fall 2014 college class year ( $N = 98$ ).

Responses about the year students attended Aim High Academy indicated that 48 students (52.7%) were in the 2013 cohort; 18 students (19.8%) were in the 2012 cohort; and 25 students (27.5%) were in the 2011 cohort, as shown in Table 3.

Table 3

*Frequency of Year Attended Aim High Academy (2011, 2012, 2013)*

Year Attended	Frequency	Percent	Valid Percent
2011	25	25.5	27.5
2012	18	18.4	19.8
2013	48	49.0	52.7
Valid Total	91	92.9	100.0
Missing	7	7.1	
Total	98	100.0	

When asked about participation in other precollege programs, 52 students had attended Advanced Placement courses, 20 students attended Dual Enrollment (college credit) courses, 4 attended Upward Bound, and 1 attended GEAR UP (n=100), with 29 students participating in more than one of these program. Results are shown in Appendix B, *Aim High Academy Survey of College Persistence Results*, Question 2.

### Frequency

#### College Acceptance and Enrollment

A total of 85 students (86.7%) were accepted into college; 13 students (13.3%) were not accepted into college (N=98), as shown in Table 4. All students accepted into college also enrolled in college ( $n = 85$ ). Examination of the variable Enrolled 2-year/4-year college ( $N = 77$ ) indicated that the majority of students had enrolled in 4-year colleges ( $n = 70, 78.7%$ ). Enrolled 2-year/4-year college indicated that 66 students had enrolled in 4-year colleges (75.9%); 15 students enrolled in 2-year colleges (17.2%); none were enrolled in trade/professional schools; and 6 students did not enroll (6.9%). Results are depicted in Appendix B. The majority of

students who attended AHA enrolled in 4-year colleges, and remained in 4-year colleges for Fall 2014.

Table 4

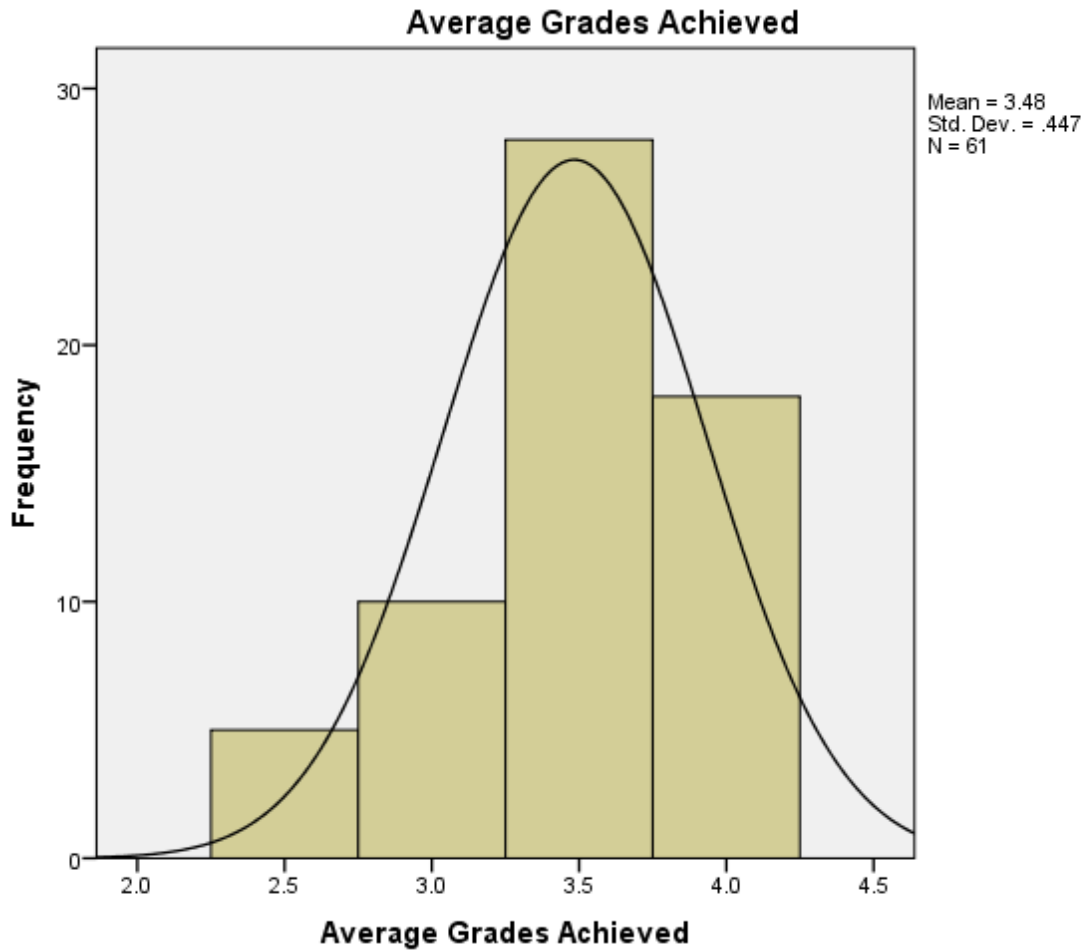
*Frequency of College Acceptance and Not Accepted for Aim High Academy 2011-2013*

College Acceptance	Frequency	Percent
Not accepted	13	13.3
Accepted	85	86.7
Total	98	100.0

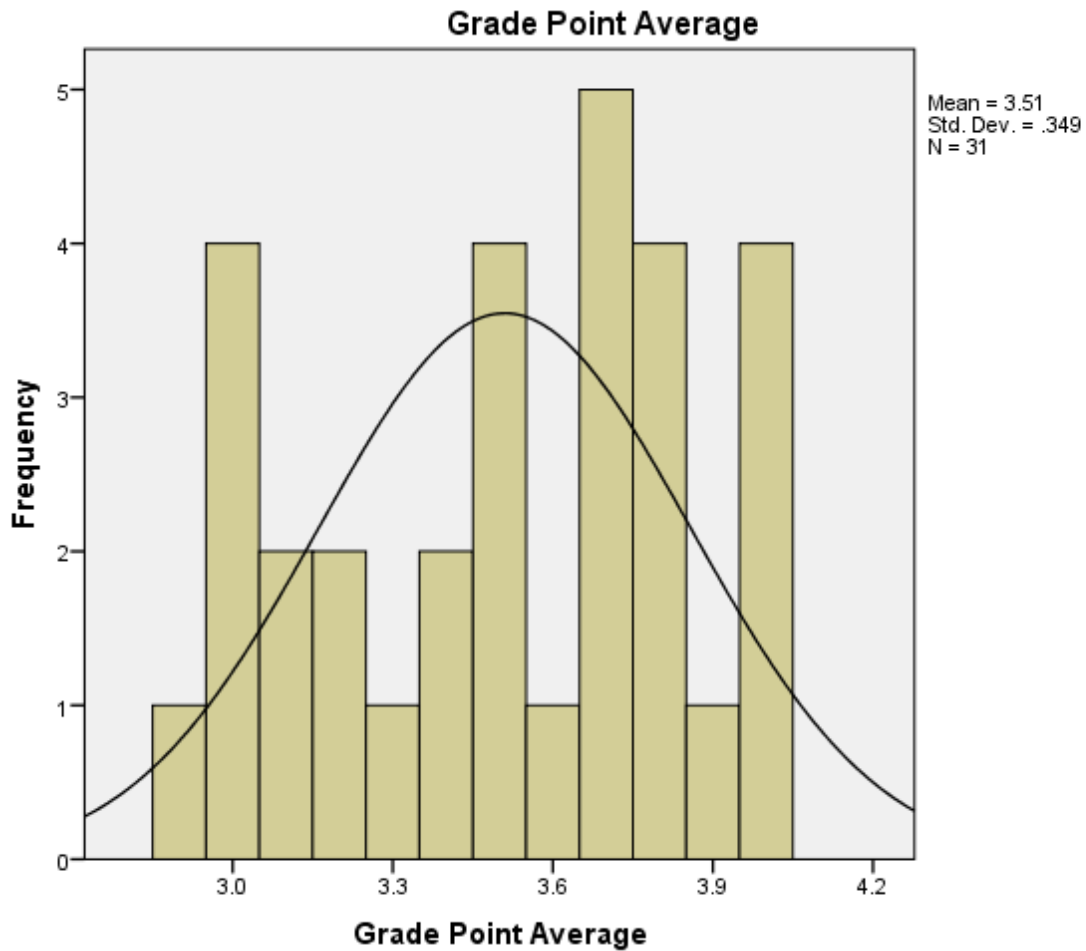
Of the students who enrolled in college, the majority attended colleges in New Jersey, a total of 77 of the 89 responses (86.5%); 12 students (13.5%) enrolled in out-of-state colleges. These results are consistent with the National Student Clearinghouse Research Center Report (2014) findings that 9-13% of students from low-income schools enrolled in out-of-state institutions (NSC Research Center, 2014).

### **Academic Achievement**

To examine academic achievement, the survey asked students to provide information about their average college grades and their current Grade Point Average (GPA). Questions about both average college grades and GPA were included in the survey to double-check how the students reported their responses because of the researcher's concern that students might not be able to report their GPA. Only students in cohorts 2011 and 2012 were expected to provide responses to these questions. The range of college grades was a minimum 2.5 to a maximum 4.0, with a mean of 3.48 ( $N = 61$ ,  $SD = .45$ ), indicating that a majority of students' average grades were A/B, as shown in Figure 1.

**Figure 1***Histogram of Average Grades Achieved*

The range of GPA was a minimum 2.9 and maximum 4.0, with a mean of 3.51 ( $N = 31$ ,  $SD = .35$ ), indicating that the majority of students achieved GPAs from 3.16 to 3.86. This result is similar to average grades of A/B on a 4.0 GPA scale, although the number of responses to this question was smaller, as shown in Figure 2.

**Figure 2***Histogram of Grade Point Average***College Persistence**

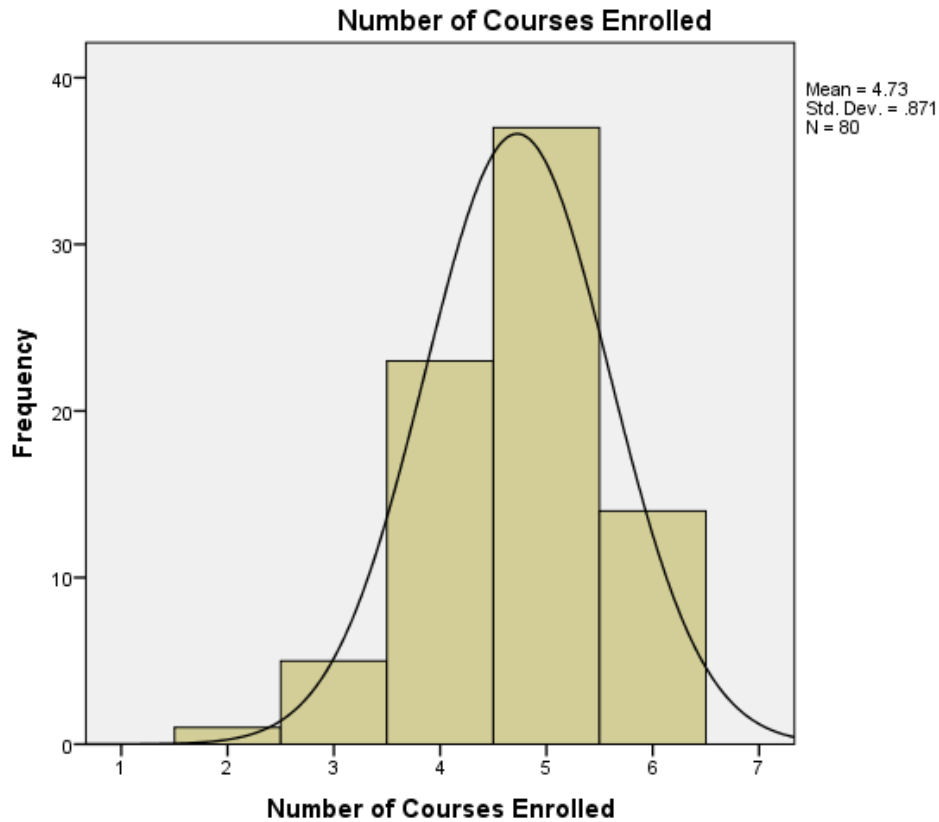
Persistence in college was examined using year of college in Fall 2014 and the number of courses enrolled in. Fall 2014 class levels are shown in Table 5, with 43 Freshmen, 21 Sophomores, 15 Juniors, and 1 Senior, which were consistent with the rate of responses from Aim High students in cohorts 2013, 2012, and 2011.

Table 5

*Fall 2014 Class Level for Aim High Academy Students*

Class Level	Frequency	Percent	Valid Percent
Freshman	43	43.9	53.8
Sophomore	21	21.4	26.3
Junior	15	15.3	18.8
Senior	1	1.0	1.3
Total	80	81.6	100.0
Missing	18	18.4	
Total	98	100.0	

According to these results, many of the students were enrolled as Sophomores in Fall 2014, although cohort 2012 (the anticipated Sophomores) was not the largest group of respondents ( $N = 80$ ). This outcome indicates that a small number of the anticipated Juniors were actually enrolled as Sophomores. This could be the result of one or more semesters of enrollment in less than a full-time academic schedule. The mean number of courses enrolled in was 4.73 ( $SD = .87$ ), with a minimum 2 courses to maximum 6 courses, as shown in Figure 3. Students in the 2011 cohort who enrolled in only 2 courses in any given semester would not be expected to stay on track as Juniors, and as a result would still be considered Sophomores.

**Figure 3***Histogram of Number of Courses Enrolled in Fall 2014***Correlation Analysis**

Correlation coefficients were calculated to determine if positive, negative, or no correlations exist between Enrolled 4-year college and the Number of courses enrolled; Enrolled 4-year and GPA; and Number of courses enrolled in and GPA. The correlation matrix for these comparisons is shown in Table 6. Enrollment in 4-year colleges and Number of courses enrolled were substantially positively related ( $p = .01$ ,  $r = 0.7$ , 2-tailed), indicating that students attending 4-year colleges were enrolled in a more courses than students attending 2-year colleges. There was also a correlation between Enrolled 4-year and GPA, but it was not statistically significant.



Table 6

*Intercorrelations for Grade Point Average, Number of Courses Enrolled, and Enrolled 4-Year*

Measure	1	2	3
1. Grade Point Average	-	.169	-.142
2. Number of Courses Enrolled	.169	-	.402**
3. Enrolled 4-Year	-.142	.402**	-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### **College Enrollment**

Research question 1 about the rate of college enrollment for participants in Aim High Academy was investigated using descriptive statistics, frequencies, and percentages. Enrollment overall for AHA students was 86.9% ( $N = 86$ ); enrollment in 4-year colleges was 81.4% ( $n=70$ ); and enrollment in 2-year colleges was 18.6% ( $n = 16$ ).

College enrollment rates for high schools who participated in Aim High Academy were gathered from the *New Jersey School Performance Report 2012-2013*, shown in Appendix C, *College Enrollment Rates in 2012-2013 for New Jersey High Schools Participating in Aim High Academy*. This summary of 68 New Jersey high schools that participated in AHA lists overall college enrollment, enrollment in 2-year college, and enrollment in 4-year college. The mean overall college enrollment rate for these high schools was 69%; the mean enrollment in 4-year colleges was 47%; and the mean enrollment in 2-year colleges was 53%.

Comparison of the overall college enrollment rates for high schools participating in AHA (69%) compared to the AHA enrollment rate (86.9%) indicated that more AHA students enrolled in college than the average rate for high schools participating in AHA. Comparison of the 4-year

college enrollment rate for the participating high schools (47%) to AHA students (81.4%) indicated that the rate for AHA was almost double. Comparison of the 2-year college enrollment rate for the participating high schools (53%) to AHA students (18.6%) indicated that fewer AHA students were attending 2-year colleges than the average for participating high schools (Table 7).

Table 7

*Comparison of Aim High Academy College Enrollment to Participating High Schools*

	Overall Enrollment	2-Year College Enrollment	4-Year College Enrollment
Aim High Academy	86.9%	18.6%	81.4%
Participating High Schools	69.0%	53.0%	47.0%
Difference	+17.9%	-34.4%	+34.4%

### **College Persistence**

College persistence rates were examined using progress towards 4-year graduation and number of courses enrolled in to determine if there was a difference in the percentage of AHA students in progression towards a Bachelor's degree in 4 years or 6 years compared to all students from New Jersey colleges that participated in AHA. Table 8 shows the comparison of Aim High Academy expected Fall 2014 class levels and actual class levels. The survey responses for Fall 2014 class level was 80, a difference of 11 fewer responses from the total 91 Fall 2014 class level. While the responses for expected freshmen compared to actual Freshmen are consistent (53% and 54%), the number of actual Sophomores was 26% higher than the expected 10%; the actual Juniors/Seniors at 20% was lower than the expected 27%, indicating

that some of the 2011 cohort were enrolled as Sophomores, not Juniors. In addition, two students from the 2013 cohort (anticipated Freshmen) were enrolled as Sophomores.

Table 8

*Aim High Academy Students' Anticipated College Level, Actual Class Level, Courses Enrolled In, and 4-6Year Graduation Track*

AHA Cohort	Class Level	<u>Fall 2014 Class Level</u>		<u>Courses Enrolled In</u>		<u>On Track Graduation</u>	
		Expected	Actual	4+	Less than 4	4-Year	6-Year
2013	Freshmen	48	43	41	-	41	-
2012	Sophomore	18	21	13	4	13	4
2011	Junior/Senior	25	16	13	9	13	9
Total	N	91	80	67	13	67	13
<u>Percent</u>		100%				83.8%	16.2%

*Note: Aim High Academy overall college enrollment rate was 86.7%..*

For this analysis, AHA students who met two criteria were classified as on track for 4-year graduation: (1) on track in Fall 2014 year of college, and (2) enrolled full time (i.e., enrolled in 4 or more courses in Fall 2014). Students taking 4-6 courses in Fall 2014 were considered on track for degree completion in 4 years if their actual year of college was the same as the anticipated year of college (i.e., cohort 2011 = Juniors; cohort 2012 = Sophomores; cohort 2013 = Freshmen) *and* they were enrolled in 4 or more courses in Fall 2014. Students who were behind the anticipated college year, regardless of the number of courses they were enrolled in, were considered on track for 6-year graduation. This description was based on data available at the time of this study: a full-time college schedule consists of an average 30 credits per year (15 credits per semester); i.e., completion of 30 credits in Freshman year, 60 credits by the end of Sophomore year, and 90 credits by the end of Junior year, and 120 credits at completion of

Senior year. This progression enables a student to meet the minimum requirements to complete a Bachelor’s degree in four years. Students who did not meet these two criteria were classified as on track for 6-year graduation (Table 8).

### **Statewide College Persistence Rates**

Data about college graduation rates for six universities participating in Aim High Academy was gathered from the United States Department of Education Institute of Education Sciences (IES) National Center for Education Statistics website “College Navigator” (U.S. Department of Education, 2014). Results are shown in Appendix D, *Bachelor’s Degree Graduation Rates: Universities Offering Aim High Academy (4 Year and 6 Year)*. The average 4-year graduation rate for colleges participating in AHA was 29.17%, with a range from 16% to 46%. The average 6-year graduation rate for colleges participating in AHA was 58.5%, with a range from 50% to 70%. This data indicated that approximately 12.33% of students finished in more than 6 years, or withdrew from college. A comparison of results for AHA and the average rates for colleges participating in AHA is shown in Table 9.

Table 9

*College Persistence towards 4-Year and 6-Year Graduation: Comparison of Aim High Academy to Average Rate for Students from Aim High Academy Participating Universities*

Group	Overall College Enrollment	On Track Graduation	
		4-Year	6-Year
Aim High Students	86.7%	83.8%	16.2%
Students from Participating Universities	69.0%	29.17%	58.5%
Difference	+17.7%	+54.62%	-42.3%

Persistence towards 4-year graduation, determined by college class level and number of courses enrolled in Fall 2014, was 83.8% rate for Aim High students, compared to 29.17% for colleges participating in AHA. This difference of 54.62% indicated that more Aim High students were on track to graduate from college in 4 years than the average for all students from colleges participating in AHA. A total of 16.2% of the Aim High students were on track for graduation in 6 years, compared to 58.5% for all New Jersey students, indicating that fewer Aim High students were on track to complete college in 6 years than the average rate for students from all participating colleges.

### **Summary of Results**

This quantitative research study examined the relationship between high school students' participation in the Aim High Academy program and their subsequent enrollment, academic achievement, and persistence in college. Did students who participated in AHA programs have a higher rate of college enrollment and persistence than the average rate for students from high schools and colleges who participated in AHA? What was the level of academic achievement for AHA students in college? Data was collected using an online survey on the platform SurveyMonkey, which was distributed through a website link contained in emails, text messages, Facebook, and Instagram notices to past participants in the program. A total of 102 students responded to the survey, which was 14% of the program enrollment in six New Jersey universities.

*College enrollment* for high school students who participated in Aim High Academy from 2011 to 2013 (Research Question 1) was examined using descriptive statistics, frequencies, and percentages for college enrollment. Of the 99 survey respondents for this question, a total of 86 students (86.9%) were accepted and enrolled in college; 13 students (13.1%) were not

accepted into college. Comparison of overall college enrollment in 2-year and 4-year colleges indicated that the majority of Aim High students enrolled in 4-year colleges ( $n = 65$ , 76.5%); only 15 students enrolled in 2-year colleges (17.6%). Comparison of college enrollment for Aim High Academy to the average college enrollment rate for all high schools participating in AHA (Research Question 2) indicated that Aim High students overall enrollment in colleges (86.9%) was higher than the 69% rate for students from high schools participating in AHA. The rate of AHA enrollment in 4-year colleges (81.4%) was higher than the rate of 47% for students from participating high schools, and lower than the enrollment for 2-year colleges (18.6% v. 53%).

*Academic achievement* (Research Question 3) was determined to be strong for AHA students after examination of both average grades and GPA. The mean of grades was 3.48 ( $N = 61$ ,  $SD = .45$ ); the mean GPA was 3.51 ( $N = 31$ ,  $SD = .35$ ), indicating that a large number of students' grades were A's and B's.

*College persistence* for Aim High Academy students (Research Question 4), using AHA cohort year, Fall 2014 college class level, and the number of courses enrolled in as indicators of progression towards completion of a Bachelor's degree indicated that the total number of students on track for 4-year graduation was 67 (83.8%); the total number of students on track for 6-year graduation was 13 (16.2%). Comparison of the rate of college persistence for AHA students compared to students from the colleges participating in AHA (Research Question 5) showed that Aim High Academy students' rate of persistence towards 4-year graduation (83.8%) was more than double the average rate for students in the participating colleges (29.2%), a difference of 54.6%. More Aim High Academy students were on track to graduate from college in 4 years than the average rate for participating colleges. The correlation between enrollment in 4-year college and the number of courses enrolled students were enrolled in were significantly

positively related ( $p = .01$ ), indicating that students attending 4-year colleges were enrolled in a higher number of courses than students attending 2-year colleges, and further supporting their potential to remain on-track for graduation.

The significance of these outcomes for Aim High students, the potential implications for the role of higher education and underrepresented students, and recommendations for future study are discussed further in Chapter V.

## CHAPTER V

### CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

#### Summary of Findings

Results of this study indicated that AHA student outcomes in college acceptance, enrollment, academic achievement, and persistence in college surpassed the average rates for high schools and colleges participating in AHA.

*College enrollment.* Of the 98 survey respondents for this question, 85 students (86.7%) were accepted and enrolled in college; only 13 students (13.3%) were not accepted into college (research question 1). Comparison of overall college enrollment rates for AHA students to the average enrollment rates for high schools participating in AHA (research question 2) indicated that Aim High students enrolled in 4-year colleges at a higher rate.

*Academic achievement.* Results indicated that AHA students demonstrated strong academic achievement (research question 3), with average grades of A's and B's, and mean GPA of 3.51.

*College persistence.* AHA student persistence (research question 4) was examined for each cohort from 2011, 2012, and 2013 using two factors as indicators of progression towards completion of a Bachelor's degree in 4 years: Fall 2014 college class level, and number of courses enrolled in during the Fall 2014 semester. According to these indicators of persistence, the total number of AHA students on track for 4-year graduation was 67 (83.8%); the number on track for 6-year graduation was 13 (16.2%). Examination of college persistence rates for AHA students compared to students from the colleges who participated in AHA (research question 5) showed that AHA students' persistence towards 4-year graduation at 83.8% was more than double the average rate for the participating colleges (29.17%); this difference of 54.62%,



indicated that more AHA students were on track to graduate from college in 4 years than the participating college average rates.

### **Conclusions**

Federally-funded TRIO Programs and College Access Challenge Grant (CACG) Programs have been used for several decades to provide academic and college readiness activities for a growing population of students raised in poverty who would not otherwise qualify for admission to college (U.S. Department of Education, 2010, 2014). Results from this study indicate that students who participated in the New Jersey CACG program Aim High Academy from 2011 to 2013 had significant positive outcomes in college acceptance, enrollment, academic achievement, and persistence in college, better than the averages for the high schools and colleges who participated in AHA.

*College enrollment.* With 86.7% of Aim High students enrolled in college, the results for this sample differed from outcomes for previous research that indicated students from low-income families enroll in college at rates significantly lower than all other students (Brill, 2010; Reardon, 2013; Stiglitz, 2012). The National Student Clearinghouse Research Center Report (2014) found that the average college enrollment rate for low-income schools was 47-58% (NSC Research Center, 2014). The results of this study also differ from research that indicated low-income students were more likely to enroll in 2-year colleges than 4-year colleges (NSC Research Center, 2014). College enrollment rates for AHA students surpassed rates for high schools participating AHA, and exceed the average rates for enrollment in 4-year colleges. AHA students also exceeded the national averages for 4-year college enrollment for students from low-income high schools of 26-31%, compared to 81.4% for AHA and 47% for New Jersey high schools participating in AHA.

*Academic achievement.* Results of this study indicated that AHA students demonstrated strong academic achievement, with average grades of A's and B's and mean GPA of 3.51. This outcome differs from previous research that indicated low-income, first-generation students are highly likely to be challenged by low academic achievement (Brill, 2011; Jacobson, 2013; Jost, Whitfield, & Jost, 2005; Ravitch, 2010; Reardon, 2013; Stiglitz, 2012). Although the results of this study do not contradict the overall findings that higher income levels lead to achievement of greater success in education (Reardon, 2013), the performance of AHA students indicates that in some situations these outcomes can be ameliorated. Student academic success in college is influenced by a broad array of factors, past and present, and is the subject of close examination on college campuses nationwide.

*College persistence.* AHA student persistence rates indicated that 83.8% were on track for 4-year graduation, more than double the New Jersey statewide average of 29.17%. This finding is not consistent with previous research that found low-income first-generation college students faced challenges that interfered with their progress towards a four-year completion rate and were 51% less likely to graduate in four years and 32% less likely to graduate in five years than other students (Ishitani, 2006). This outcome indicates that AHA students did not follow previously cited patterns of college withdrawal after Year 1 and Year 2, and may have been positively influenced by participation in the AHA program.

## **Discussion**

Access to post-secondary education has been identified as a powerful factor to change the future for low-income families by providing access to higher paying jobs and greater lifetime earning potential; however, students from low-income families often have the greatest difficulty remaining in college and finishing a degree program in four years.

College access, achievement, and completion rates for high school students from low-income families where neither parent has attended college have become the focus of a national conversation. Higher education institutions are now expected to quickly exercise a more proactive role in improving college access and graduation rates for these students in order to insure that a majority of all students graduate in four years, with the U.S. Department of Education “College Scorecard” threatening to impose penalties on institutions that do not achieve this measure of student success (U.S. Department of Education, 2014). Higher education initiatives such as multi-year CACG programs were designed to improve access to college for underrepresented students; summer bridge programs conducted before the first year of college were designed to improve academic achievement and persistence in college.

Review of the literature indicates that Federal TRIO Programs may not be readily scalable and sustainable to provide a rapid response to the federal challenge to increase college access and 4-year graduation rates for underrepresented students. CACG programs, on the other hand, may offer more flexibility and more potential for future expansion, particularly for summer bridge programs for low-income students. In New Jersey, the most significant summer-bridge program has been *The Governor’s School*, a program designed to provide college preparation for the highest achieving students without consideration for background or level of income (New Jersey Higher Education, 2013). This study indicates that Aim High Academy can offer a similar high-quality program with demonstrated success, worthy of consideration as a new model for New Jersey to address the needs of underrepresented high achieving students.

AHA students demonstrated strong college *academic achievement*, which may have been strengthened by the structure of AHA and set the foundation for AHA students’ persistence

towards completion of a degree in 4 years. The AHA program provided students with college-level academic courses that challenged and stimulated them, similar to college bridge programs conducted after senior year of high school, which have shown a positive influence on academic success (Raines, 2012). High school AP and dual enrollment courses have been shown to have a positive influence on college academic achievement (Contreras, 2011); although designed to present a level of rigor comparable to college, these courses are frequently offered in high school classrooms and taught by high school teachers. When students are faced with difficult assignments, their usual resources of friends, teachers, and family are there to provide direction/guidance (for better or for worse); this environment doesn't remotely resemble the real-world college experience, where students need to seek direction/guidance from people they barely know. The AHA intense 3-week academic program in the summer after Junior year of high school provided college-level STEM courses, opportunities to work closely with university faculty, access to admissions advisors, mentoring by university instructors, staff, and college peer leaders, supplemented by workshops and experiential exercises in leadership, problem-solving, team-building, and college readiness (New Jersey Higher Education, 2014). Over three weeks at AHA, students faced academic challenges repeatedly, but they had the opportunity to confront their hesitation to seek help and to experience positive interactions with peers, mentors, advisors and faculty that led to successful outcomes in their assignments. Mentors have been shown in previous research to strongly influence student achievement (Oldfield, 2007; Reddick, et al., 2011; Wrigley, 2012). AHA assignments were tough, but with support and perseverance, these students had the opportunity to thrive. AHA also provided opportunities for students to work together in groups, not in high school level project-based learning scenarios, but on college-level group problems that resulted in college-

level group presentations. AHA students had the freedom to be students, away from the personal conflicts at home that may have challenged their time management skills and their focus on academics. The AHA opportunity to practice new skills without distraction may have carried over into their performance in senior year of high school, which set the stage for higher academic achievement in college.

AHA students demonstrated strong persistence in college, shown by their year of enrollment in Fall 2014 and their course load for the Fall semester, indicating the ability of these students to consistently maintain a full-time schedule. Student persistence in a 4-year graduation path is connected to human capital benefits through the accumulation of less debt in the while attending college by finishing in four years. The human capital benefits from participation in precollege programs such as Aim High Academy can lead to greater persistence in college for these students by providing a precollege experience which addresses not only academics but also survival skills. The most significant human capital benefits, however, are the lifetime salary and employment advantages of holding a Bachelor's degree; these advantages have been confirmed by both economists and education researchers.

## **Recommendations**

### **Recommendations for Further Study**

Because the current study strongly indicated that AHA students had higher rates of college enrollment, academic achievement, and persistence in college than the average rates for participating New Jersey high schools and colleges, new research questions should be addressed to determine how AHA students adapt what they experienced/learned in the program to their college experience. Specifically, what non-cognitive behaviors used by Aim High Academy students contribute to positive outcomes in college academic achievement and persistence? How

do Aim High Academy students compare to students nationally in these specific areas? Which components of AHA are most essential to achieve the same positive student outcomes when replicating the program in other regions?

During the design of the Aim High Academy Survey of College Persistence, some of the AHA Program Directors expressed interest in gathering additional data about non-cognitive factors that might be related to persistence in college; as a result, questions related to non-cognitive behaviors were included in the survey for the current study. To address research questions about non-cognitive behaviors, results for these survey questions should be unpacked and analyzed further. Included in this data are five questions about non-cognitive factors from the 2014 National Survey of Student Engagement (NSSE) created by Indiana University, adapted with permission from Indiana University (The College Student Report, NSSE, Copyright 2001-14 from The Trustees of Indiana University). Indiana University maintains a historical database of national data from all colleges that distribute NSSE; national norms are available for each of the NSSE questions used in the AHA Survey. In collaboration with Indiana University, AHA student responses can be compared to responses for college students nationally. This comparison would be a unique application of the NSSE instrument, which is generally used to compare college-to-college results, and may provide valuable information for additional research in collaboration with Indiana University.

The recommended research model to serve as the foundation for future study is the University of Chicago research project *Teaching Adolescents to Become Learners: The Role of Non-cognitive Factors in Shaping School Performance* (Farrington, et al., 2012), which identified non-cognitive factors that had the most important influence on student persistence and strengthening academic behavior: developing an academic mindset, and employing learning

strategies (Farrington, et al., 2012). The non-cognitive questions in the NSSE survey are directly related to non-cognitive factors in the University of Chicago model, but have not been combined in this manner in any prior studies. Specifically, the relationship should be examined between the construct of non-cognitive factors and the variables Understanding academic systems (AHA survey questions 13, 14); Developing an academic mindset (AHA survey questions 15, 16, 17); and Employing learning strategies (AHA survey questions 18, 19). In addition, AHA survey question 24, which gathered narrative information about the students' Aim High Academy experience, provided open-ended response data that is worthy of a subsequent factor analysis. The data currently available from the non-cognitive question results from the Aim High Academy Survey of College Persistence could be examined using a qualitative research design, with the addition of telephone interviews and focus groups to triangulate the data. Each AHA Program Director continues to retain his/her own unique databases of student contact information which can be used again to reach Aim High program participants.

### **Recommendations for Practice**

Children raised in poverty need additional resources, including pre-school opportunities, medical care, small classes, and family support, including social services such as job skills training and placement for parents (Jacobson, et al., 2013). Because education reform has tended to foster research in silos, many recommendations for solutions fail to engage all stakeholders. Recent research, however, is uncovering new models that address the needs of *all stakeholders*, including students, parents, teachers, and community members. Models such as Full Service Community Schools which emerged from federal funding for 21st Century Community Learning Centers, deserve further consideration for their benefits for families facing poverty, their scalability and sustainability.

The New Jersey CACG program Aim High Academy, unlike many long-term Federal or short-term summer college bridge programs, is scalable and sustainable. Another important distinction between Aim High Academy and traditional college bridge programs is *timing*: Aim High Academy was conducted on university campuses in the summer *before senior year of high school*, which provides a college experience in academic and non-cognitive skills earlier than traditional college bridge programs. The successful outcomes for AHA students indicates that TRIO and CACG programs, dual enrollment courses, and summer bridge programs before Freshman year are not the only opportunities for higher education to prepare underrepresented students for college before and during their senior year of high school. Short, intensive programs that build both academic and non-cognitive skills, conducted on college campuses earlier in students' high school years, may also have a strong positive impact.

### **Conclusion**

With opportunities to acquire social capital, underrepresented students have additional support to strengthen their academic competency, become empowered to thrive in a higher education environment, assess career goals, and build a network to help their job search after graduation. With greater access to 4-year colleges and enhanced potential to remain on-track to graduate in 4 years, these students build their human capital. Precollege programs such as Aim High Academy offer new hope to improve college access for underrepresented students, to enhance support for students prior to college admission, and to strengthen their skills and ability to succeed in college.



## References

- Advocates for Children of New Jersey. (2011). *Paterson Kids Count: A City Profile of Child Well-Being*. Retrieved from [acnj.org/downloads/2011\\_11\\_01\\_PatersonCityReport.pdf](http://acnj.org/downloads/2011_11_01_PatersonCityReport.pdf).
- Albrecht, D. E. & Albrecht, S. G. (2009). Economic restructuring, the educational income gap, and overall income inequality. *Sociological Spectrum*, 29 (4), 519-547.
- A Nation at Risk: The Imperative for Educational Reform. (1983). The National Commission on Excellence in Education. Washington, DC
- Aspergis, N., Dincer, O., & Payne, J. (2011). On the dynamics of poverty and income inequality in the United States. *Journal of Economic Studies*, 38 (2), 132-143.
- Attewell, P., Heil, S., & Reisel, L. (2011). Competing explanations of undergraduate noncompletion. *American Educational Research Journal*, 48 (3), pp. 536-559. doi: 10.3102/0002831210392018
- Attewell, P. & Jang, S. H. (2012). Summer coursework and completing college. *Research in Higher Education Journal*, 1-25.
- Attewell, P., Lavin, D., Thurston, T., & Levey, T. (2006). New Evidence on College Remediation. *The Journal of Higher Education*, 77(5), 886-924.
- Becker, G. S. (2009). *Human Capital: A Theoretical and Empirical Analysis* (3rd ed.). Illinois: University of Chicago Press.
- Berliner, D. C. (2007). Investing in student lives outside of schools to increase achievement inside schools. In G. Rodriguez & R. A. Rolle (Eds.), *To what ends and by what means? The social justice implications of contemporary school finance theory and policy* (pp. 161-187). New York: Routledge.

- Berliner, D. C. (2013). Effects of inequality and poverty vs. teachers and schooling on America's youth. *Teachers College Record*, 115 (12). <http://www.tcrecord.org/library> ID Number: 16889, Date Accessed: 2/15/2014 3:42:57 PM
- Blank, R. K. (2011). *Closing the achievement gap for economically disadvantaged students? Analyzing change since No Child Left Behind using state assessments and the National Assessment of Educational Progress*. Washington, DC: Council of Chief State School Officers.
- Bourdieu, P. (1983). Forms of Capital. In J. C. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (p. 241-258). Westport, CT: Greenwood Press.
- Brewer, D. J., & Stern, S. (2005). The promise of "Early College" as a high school redesign model. Working paper, Center on Educational Governance, Rossier School of Education, University of Southern California.
- Brill, S. (2011). *Class Warfare: Inside the Fight to Save America's Schools*. New York: Simon & Schuster.
- Bryaw, K. A. & Martinez, L. (2008). On the evolution of income inequality in the United States. *Economic Quarterly*, 94 (2), 97-120.
- CoBro Consulting. (2010). *A Guide to GEAR UP Program Evaluation: Optimal Research Design, Methodology, and Data Elements*. Commissioned expert paper developed by CoBro Consulting for RTI International, January 2010.
- Contreras, F. (2011). Strengthening the bridge to higher education for academically promising underrepresented students. *Journal of Advanced Academics*, 22(3), 500-526.
- Coleman, J. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94, 95-210.

- Compton, M. (2012, January 27). Everything you need to know about President Obama's Blueprint for College Affordability. [Web log post]. Retrieved from <http://www.whitehouse.gov/blog/2012/01/27/everything-you-need-to-know-about-president-obamas-blueprint-college-affordability>
- Crede, M., & Niehorster, S. (2012). Adjustment to college as measured by the Student Adaptation to College questionnaire: A quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review*, 24(1), 133-165.
- Darling-Hammond, L. (2010). *The Flat World and Education: How America's Commitment to Equity Will Determine Our Future*. New York: Teachers College Press.
- Dressman, M. (2008). *Using Social Theory in Educational Research*. New York: Routledge
- Edwards, C.H., & Allred, W.E. (1993). More on A Nation at Risk: Have the recommendations been implemented? *Clearing House*, 67 (2), 85.
- Engberg, M. E., & Allen, D. J. (2011). Uncontrolled destinies: Improving opportunity for low-income students in American higher education. *Res High Educ*, 52, 786–807. Published online 5 March 2011. Springer science +Business Media, LLC. doi: 10.1007/s11162-011-9222-7
- Equality of Educational Opportunity (COLEMAN) Study (EEOS). (1966). Principal Investigator: Coleman, James S., Johns Hopkins University (ICPSR 06389).
- Executive Office of the President. (2014, January). Increasing college opportunity for low-income students: Promising models and a call to action. [Policy paper]. Retrieved from [http://www.whitehouse.gov/sites/default/files/docs/increasing\\_college\\_opportunity\\_for\\_low-income\\_students\\_report.pdf](http://www.whitehouse.gov/sites/default/files/docs/increasing_college_opportunity_for_low-income_students_report.pdf)

- Farrington, C., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T., Johnson, D., & Beechum, N. (2012). *Teaching Adolescents to Become Learners: The Role of Non-cognitive Factors in Shaping School Performance: A Critical Literature Review*. The University of Chicago Consortium on Chicago School Research.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics, 4<sup>th</sup> Edition*. California: SAGE Publications Inc.
- Frank, M. W. (2009). Inequality and growth in the United States: Evidence from a new state-level panel of income inequality measures. *Economic Inquiry*, 47 (1), 55-68.  
doi:10.1111/j.1465-7295.2008.00122.x
- Gall, M.D.; Gall, J.P.; & Borg, W.R. (2003). *Educational Research: An Introduction*. New York: Pearson Education, Inc.
- Graham, E. (2013, April 25). A Nation at Risk turns 30: Where did it take us? [Online forum comment]. Retrieved from <http://www.neatoday.org/2013/04/25/a-nation-at-risk-turns-30-where-did-it-take-us/>
- Glickman, N. J. & Scally, C. P. (2008). Can community and education organizing improve inner-city schools? *Journal of Urban Affairs*, 30 (5), 557-577.
- Gullatt, Y., & Wendy, J. (2003). How do pre-collegiate academic outreach programs impact college-going among underrepresented students? *Pathways to College Network Clearinghouse*, 1-25.
- Haskins, R., Murnane, R., Sawhill, I., & Snow, C. (2012). Can academic standards boost literacy and close the achievement gap? *The Future of Children*. Policy brief: Princeton-Brookings

- Hicks, T. (2003). First-generation and non-first-generation precollege students' expectations and perceptions about attending college. *Journal of College Orientation and Transition*, 11(1), 5-19.
- Hicks, T. (2005). Assessing the academic, personal and social experiences of precollege Students who participated in a transitional summer bridge program. *Journal of College Admission*, 1(186), 19-24.
- Hocker, J., Centore, K., Virella, M., & Ramirez, M. (2013). *An Evaluation of the Aim High Academy Program: 2011-2012 Evaluation Report*. Prepared for New Jersey Higher Education by the Edward J. Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey, May 7, 2013.
- Huggett, M., Ventura, G., & Yaron, A. (2011). Sources of lifetime inequality. *American Economic Review*, 101(7), 2923-2954.
- Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-generation students: Time-varying effects of precollege characteristics. *Research in Higher Education*, 44(4), 433-449.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education*, 77(5), 861-885.
- Jacob, B. A. (2007). The challenges of staffing urban schools with effective teachers. *The Future of Children*, 17(1). Retrieved from: [www.futureofchildren.org](http://www.futureofchildren.org)

- Jacobson, R., Jamal, S., Jacobson, L., & Blank, M. (2013). *The Growing Convergence of Community Schools and Expanded Learning Opportunities*. Washington, DC: Coalition for Community Schools, Institute for Education Leadership. ISBN: 1-933493-45-3.  
Retrieved from: [http://www.communityschools.org/assets/1/Asset Manager/ELO Report\\_TheGrowingConvergenceofCommunitySchoolsandExpandedLearningOpportunities.pdf](http://www.communityschools.org/assets/1/Asset Manager/ELO Report_TheGrowingConvergenceofCommunitySchoolsandExpandedLearningOpportunities.pdf)
- Jost, Muktha, Whitfield, E. L., & Jost, Mark (2005). When the rules are fair, but the game isn't. *Multicultural Education*, 13(1), 14-21.
- Keller, K.R. (2010). How can education policy improve income distribution? An empirical analysis of education stages and measures on income inequality. *Journal of Developing Areas*, 43 (2), 51-77.
- Krueger, A. (2012). The rise and consequences of inequality in the United States. Remarks prepared for delivery January 12, 2012. Viewed at <http://www.americanprogress.org/events/2012/01/pdf/krueger.pdf>
- Krugman, P. (2013, June 22). Greg Mankiew and the Great Gatsby Curve. Retrived from <http://Krugman.blogs.nytimes.com/?s=Great+Gatsby+Curve>
- Lacour, M., & Tissington, L. D. (2011). The effects of poverty on academic achievement. *Educational Research and Reviews*, 6 (7), 522-527.
- Levin, H. (2009). The economic payoff to investing in educational justice. *Educational Researcher*, 38(1), 5-20. doi: 10.3102/0013189x08331192
- Levin, H. M., Belfield, C., Muennig, P., & Rouse, C. (2007). The public returns to public educational investments in African-American males. *Economics of Education Review*, 26, 700-709. doi: 10.1016/j.econedurev.2007.09.004

- Loury, G. (1987). Why should we care about group inequality? *Social Philosophy and Policy*, 5(1), 249-271.
- Malen, B. (2005). Education leaders as policy analysts. In Fenwick W. English (Ed.), *The Sage Handbook of Educational Leadership* (pp. 191-215). California: Sage Publications.
- McCurrie, M. (2009). Measuring success in summer bridge programs: Retention efforts and basic writing. *Journal of Basic Writing*, 28 (2).
- Myers, E.R. (1971). *The role of college-community relationships in urban higher education phase II: exploratory planning*. Washington, DC: U.S. Department of Health, Education & Welfare.
- National Student Clearinghouse Research Center. (2014). *2014 High School Benchmarks: National Progression Rates*. Retrieved from <http://nscresearchcenter.org/hsbenchmarks2014/>
- New Jersey Commission on Higher Education. (2011). *Notice of Grant Opportunity: New Jersey's Aim High Academy Initiative*. Trenton, NJ: New Jersey Higher Education.
- New Jersey Department of Education. (2014). *New Jersey School Performance Report 2012-2013*. Retrieved October 30, 2014, from <http://education.state.nj.us/pr/report.php?sch-name>.
- New Jersey Higher Education. (2011). *CACG-Aim High Academy Grant Program*. Retrieved March 25, 2013, from <http://www.state.nj.us/highereducation/grants/AHA.htm>
- New Jersey Higher Education. (2011). *Dual Enrollment Incentive Grants*. Retrieved March 25, 2013, from <http://www.state.nj.us/highereducation/grants/DualEnrollment.htm>
- New Jersey Higher Education. (2013). *Governor's School of New Jersey*. Retrieved March 25, 2013, from <http://www.state.nj.us/govschool/>

- Ng, J.C. (2003). Teacher shortages in urban schools: the role of traditional and alternative certification routes in filling the voids. *Education and Urban Society*, 34 (4), 380-398. doi:10.11770013124503255453.
- No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, § 115, Stat. 1425 (2002)
- Ogden, W. R. (2003). The real crisis in the classroom: Where have all the teachers gone? *Education*, 123 (2), 365-379.
- Oldfield, K. (2007). Expanding economic democracy in American higher education: A two-step approach to hiring more teachers from poverty- and working-class backgrounds. *Journal of Higher Education Policy and Management*, 29 (2), 217–230
- Patten, M.L. (2009). *Understanding Research Methods*. Glendale, CA: Pyraczak Publishing.
- Putman, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6 (1), 65-78.
- Raines, J. M. (2012). FirstSTEP: A preliminary review of the effects of a summer bridge program on precollege STEM majors. *Journal of STEM Education*, 13(1), 22-29.
- Ravitch, D. (2010). *The Death and Life of the Great American School System*. New York: Basic Books.
- Reardon, S. F. (2013, April 28). No rich child left behind: Income is a better predictor of success in school than race. *The New York Times Sunday Review*, pp.1, 4.
- Reddick, R. J., Welton, A. D., Alsandor, D. J., Denyszyn, J. L., & Platt, C. S. (2011). Stories of success: High minority, high poverty public school graduate narratives on accessing higher education. *Journal of Advanced Academic Research*, 22 (4), 594-618.
- Reilly, E.C. (2005). Toward equitable schools: reflections and challenges. *Education Leadership and Administration*, 17, 125-139.



- Roderick, M., Nagaoka, J., Coca, V., & Moeller, E. (2008). *From High School to the Future: Potholes on the Road to College*. Research Report. Chicago: Consortium on Chicago School Research at the University of Chicago.
- Rossell, C. H. (1975). School desegregation and white flight. *Political Science Quarterly*, 90 (4), 675-695.
- Schaffer, C. L. (2012). Urban immersion: Working to dispel the myths of urban schools and preparing teachers to work with diverse and economically disadvantaged students. *The Delta Kappa Gamma Bulletin*.
- Schultz, T. W. (1960). Capital formation in education. *The Journal of Political Economy*, 68 (6), 571-583. <http://links.jstor.org/1829945>
- Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51 (1), 1-17. <http://links.jstor.org/sici?sici=00028282%28196103%2951%3A1%3C1%A3IIHC%3E2.0.CO%3B2-4>
- Seftor, N.S., Mamun, A., & Schirm, A. (2009). *The Impact of Regular Upward Bound on Postsecondary Outcomes 7-9 Years after Scheduled High School Graduates*. Princeton: Mathematica Policy Research, Inc.
- Scales, P.; Roehlkepartain, E.; Neal, M.; Kielsmeier, J. & Benson, P. (2006). Reducing academic achievement gaps: The role of community service and service-learning. *Journal of Experiential Education*, 29 (1), 38-60.
- Sommeiller, E. & Price, M. (2014). The increasingly unequal states of America: Income inequality by state, 1917 to 2011. *Economic Analysis and Research Network Report*. Washington, DC: EARN.
- Stiglitz, J.E. (2012). *The Price of Inequality*. New York: W.W. Norton & Co.

- Stolle-McAllister, K. (2011). The case for summer bridge: Building social and cultural capital for talented Black STEM students. *Science Educator, 20*(2), 12-22.
- Strier, R. (2011). The construction of university-community partnerships: Entangled perspectives. *Higher Education, 62*, 81-97.
- Teachman, J. D. (1987). Family background, educational resources, and educational attainment. *American Sociological Review, 52*, 548-557
- Thomas, L. L., Kuncel, N., & Crede, M. (2007). Non-cognitive variables in college admissions: The case of the non-cognitive questionnaire. *Educational and Psychological Measurement, 67* (4), 635-657. doi: 10.1177/0013164406292074
- Tough, P. (2012). *How Children Succeed*. New York: Houghton Mifflin Harcourt.
- U.S. Department of Education. (2010). *College Access Challenge Grant Program FY 2010 Project Abstracts*. Washington, DC: U.S. Department of Education: Office of Postsecondary Education.
- U.S. Department of Education. (2010). College Access Challenge Grant Program: Department awards more than \$141 million to state agencies to improve college access. <http://www.ed.gov>
- U.S. Department of Education. (2011, March 18). Meeting the nation's 2020 goal: State targets for increasing the number and percentage of college graduates with degrees. Retrieved from <https://www.isac.org/dotAsset/8469ef53-433f-4863-a827-56c131d5f79f.pdf>
- U.S. Department of Education. (2014). Federal TRIO Programs Home Page. Retrieved from <http://www2.ed.gov/about/offices/list/ope/trio/index.html>

U.S. Department of Education. (2014, January 28). Federal TRIO Programs: Current Year Low Income Levels. Retrieved from

<http://www2.ed.gov/about/offices/list/ope/trio/incomelevels.html>

U.S. Department of Education. (2014). History of the Federal TRIO Program.

<http://www.ed.gov/about/offices/list/ope/trio/triohistory/html>

U.S. Department of Education. (2014). 21st Century Community Learning Centers. Retrieved from <http://www2.ed.gov/programs/21stcclc/index.html>

U.S. Department of Education. (2014). Institute of Education Sciences (IES) National Center for Education Statistics “College Navigator.” Retrieved from

<http://nces.ed.gov/collegenavigator>.

U.S. Department of Health and Human Services Poverty Guideline. (2011).

<http://aspe.hhs.gov/poverty/11poverty/shtml>.

Wathington, H. D., Barnett, E.A., Weissman, E., Teres, J., Pretlow, J., & Nakanishi, A. (2011).

Getting ready for college: An implementation and early impacts study of eight Texas developmental Summer Bridge programs. Published by the National Center for Postsecondary Research by a grant (R305A060010) from the Institute of Education Sciences, U.S. Department of Education.

Wilkinson, R., & Pickett, K. (2010). *The spirit level: Why greater equality makes societies stronger*. London: Penguin.

Williams, J. M. & Bryan, J. (2013). Overcoming adversity: High-achieving African American youth’s perspectives on educational resilience. *Journal of Counseling & Development*, 91, 291-300.

Willms, J. D. (2003). Literacy proficiency of youth: Evidence of converging socioeconomic gradients. *International Journal of Educational Research*, 39, 247-52.

Wrigley, T. (2012). Poverty and education in an age of hypocrisy. *Education Review*, 24 (2), 90-98.

Yaffe, D. (2011). Optimizing talent: closing educational and social mobility gaps worldwide. *ETS Policy Notes*, 19(2), 2-11.

**APPENDIX A**

**AIM HIGH ACADEMY SURVEY OF COLLEGE PERSISTENCE**

## APPENDIX A

### Aim High Academy Survey of College Persistence

#### INFORMED CONSENT

*This survey contains questions about the current activities of students who participated in Aim High Academy programs throughout New Jersey from 2011 to 2013. This survey will take about 15 minutes to complete. The purpose of this survey is to determine how Aim High Academy students have progressed since their graduation from high school. The survey is anonymous; there is no personal identifying information and all results will be combined. Your participation is entirely voluntary. You may choose to not answer any or all of these questions. Your participation in this survey indicates your consent to participate.*

**Directions:** Please answer the following questions by checking the responses that most accurately describe your activities.

- 1. What year did you attend Aim High Academy?**
  - 2011
  - 2012
  - 2013
  
- 2. Besides Aim High Academy, did you participate in any other programs during high school? Please check all that apply.**
  - I only attended Aim High Academy.
  - I attended GEAR UP.
  - I attended Upward Bound.
  - I attended an Advanced Placement (AP) course.
  - I attended a Dual Enrollment (college credit) course.
  
- 3. Where you accepted into a college or university?**
  - Yes
  - No

*If the response is NO, the survey will be directed to:*

#### **Which of the following activities apply to you?**

- Seeking a job
- Employed full time
- Employed part-time
- Enlisted in the Armed Services
- Enrolled in a professional certification program
- Applying or plan to apply to college again

**Please share your thoughts or comments about your Aim High Academy experience.**

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*Thank you for taking time to participate in this survey!*

**4. Thinking about the Fall 2014 term, are you a full-time student?**

- Yes
- No

**5. How many courses are you taking for academic credit in the Fall 2014 term?**

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7 or more

*If the response is 0, the following question will be asked:*

**Please provide additional information. Have you?**

- Taken a leave of absence. Reason \_\_\_\_\_
- Withdrawn from college. Reason: \_\_\_\_\_

**6. After high school, I attended:**

- 4-year college or university
- 2-year college
- less than 2-year institution (trade or professional school)

**7. Today I attend:**

- 4-year college or university
- 2-year college
- less than 2-year institution (trade or professional school)

**8. The college/university I attend is:**

Name of college \_\_\_\_\_  
 Location of college (city, state) \_\_\_\_\_

**9. What is your class level?**

- Freshman/first-year
- Sophomore
- Junior
- Senior
- Unclassified

**10. What year do you expect to graduate? \_\_\_\_\_ (Maximum 4 characters)**

**11. What have most of your grades been up to now?**

- A
- A-
- B+
- B
- B-
- C+
- C
- C- or lower

**12. If you know your current Grade Point Average (GPA), please enter it here:**

\_\_\_\_\_

**13. Are you currently receiving financial aid?**

- Yes
- No

**14. Have you met with academic advisers?**

- Yes
- No

**15. During the current school year, how often have you done the following? <sup>1</sup>**

- a. Talked about career plans with a faculty member
  - Very often
  - Often
  - Sometimes
  - Never
- b. Worked with a faculty member on activities other than coursework (committees, student groups, etc.)
  - Very often
  - Often
  - Sometimes
  - Never
- c. Discussed course topics, ideas, or concepts with a faculty member outside of class
  - Very often
  - Often
  - Sometimes
  - Never
- d. Discussed your academic performance with a faculty member
  - Very often
  - Often
  - Sometimes
  - Never

**16. Which of the following have you done or plan to do before you graduate? <sup>1</sup>**



- a. Participate in an internship, field experience, student teaching, or clinical placement
  - Done or in progress
  - Plan to do
  - Do not plan to do
  - Have not decided
- b. Hold a formal leadership role in a student organization or group
  - Done or in progress
  - Plan to do
  - Do not plan to do
  - Have not decided
- c. Participate in a learning community or some other formal program where groups of students take two or more classes together
  - Done or in progress
  - Plan to do
  - Do not plan to do
  - Have not decided
- d. Participate in a study abroad program
  - Done or in progress
  - Plan to do
  - Do not plan to do
  - Have not decided
- e. Work with a faculty member on a research project
  - Done or in progress
  - Plan to do
  - Do not plan to do
  - Have not decided

**17. Please check any/all of the activities you are involved in during a typical week: <sup>1</sup>**

- Participate in campus activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)
- Work for pay (on or off campus)
- Volunteer or do community service work
- Relax (spend time with friends in person or online, video games, TV, etc.)

**18. During the current school year, about how often have you done the following? <sup>1</sup>**

- a. Asked questions or contributed to course discussions in other ways
  - Very often
  - Often
  - Sometimes
  - Never
- b. Prepared two or more drafts of a paper or assignment before turning it in
  - Very often
  - Often
  - Sometimes
  - Never
- c. Come to class without completing readings or assignments

- Very often
  - Often
  - Sometimes
  - Never
- d. Attended an art exhibit, play, or other arts performance (dance, music, etc.)
  - Very often
  - Often
  - Sometimes
  - Never
- e. Asked another student to help you understand course material
  - Very often
  - Often
  - Sometimes
  - Never
- f. Explained course material to one or more students
  - Very often
  - Often
  - Sometimes
  - Never
- g. Prepared for exams by discussing or working through course material with other students
  - Very often
  - Often
  - Sometimes
  - Never
- h. Worked with other students on course projects or assignments
  - Very often
  - Often
  - Sometimes
  - Never
- i. Gave a course presentation
  - Very often
  - Often
  - Sometimes
  - Never

**19. During the current school year, about how often have you done the following? <sup>1</sup>**

- a. Identified key information from reading assignments
  - Very often
  - Often
  - Sometimes
  - Never
- b. Reviewed your notes after class
  - Very often
  - Often
  - Sometimes

- Never
- c. Summarized what you learned in class or from course materials
  - Very often
  - Often
  - Sometimes
  - Never

**20. Where do you live while attending college?**

- On campus (Residence hall or other campus housing)
- Off campus (House, apartment, with family or friends)

**21. Enter your year of birth (e.g., 1994): \_\_\_\_\_**

**22. What is your racial or ethnic identification? (Check all that apply.)**

- American Indian
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Other
- I prefer not to respond

**23. Please share your thoughts or comments about your Aim High Academy experience.**

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*Thank you for taking time to participate in this survey!*

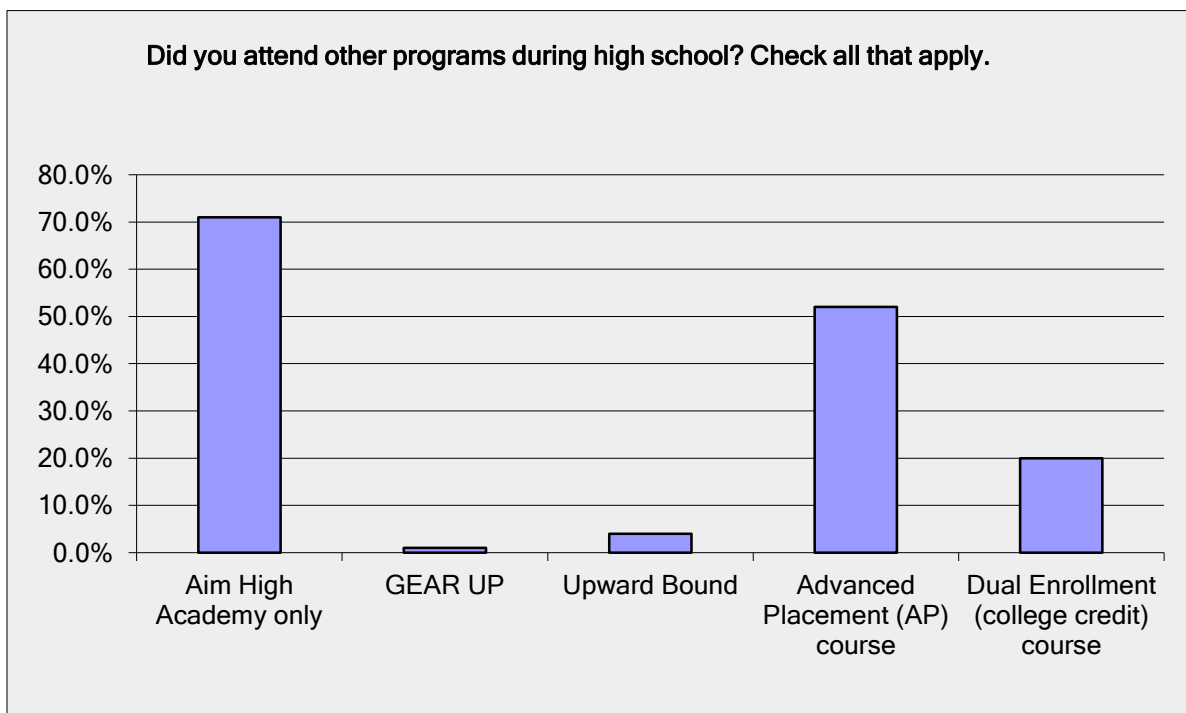
1. Items 15, 16, 17, 18, and 19 used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-14 The Trustees of Indiana University.

**APPENDIX B**  
**SURVEYMONKEY RESULTS FOR AIM HIGH ACADEMY**  
**SURVEY OF COLLEGE PERSISTENCE Q2 AND Q5**

**APPENDIX B**

**Aim High Academy Survey of College Persistence - Question 2**

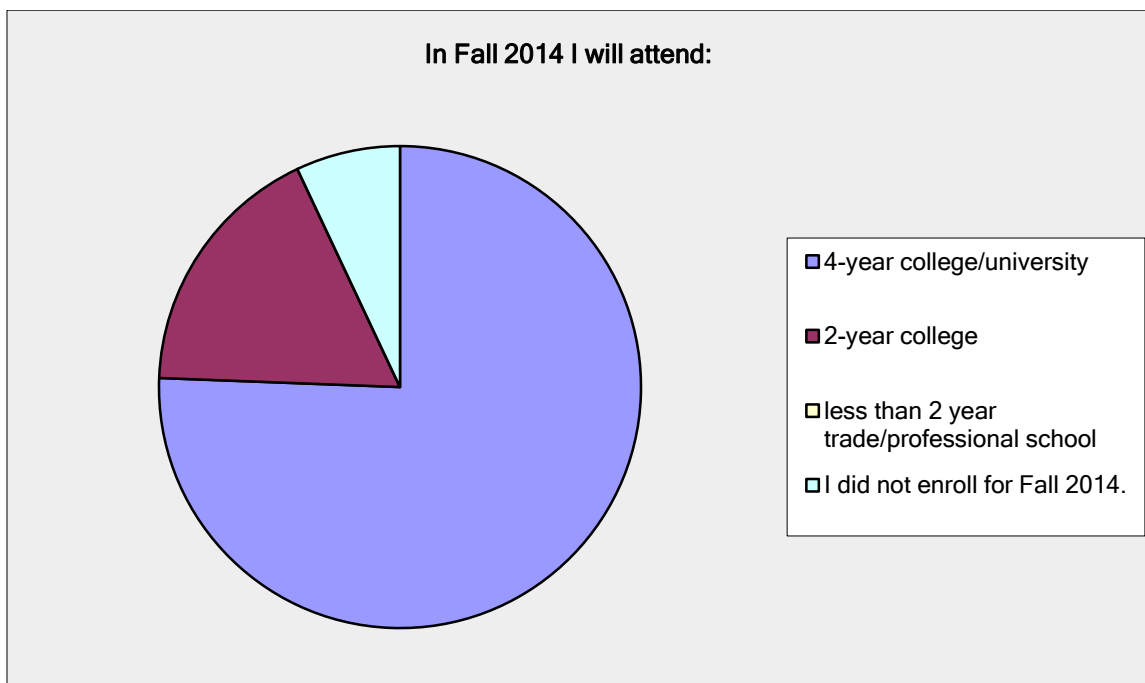
Did you attend other programs during high school? Check all that apply.		
Answer Options	Response Percent	Response Count
Aim High Academy only	71.0%	71
GEAR UP	1.0%	1
Upward Bound	4.0%	4
Advanced Placement (AP) course	52.0%	52
Dual Enrollment (college credit) course	20.0%	20
<i>answered question</i>		<b>100</b>
<i>skipped question</i>		<b>2</b>



## APPENDIX B

### Aim High Academy Survey of College Persistence - Question 5

In Fall 2014 I will attend:		
Answer Options	Response Percent	Response Count
4-year college/university	75.6%	65
2-year college	17.4%	15
less than 2 year trade/professional school	0.0%	0
I did not enroll for Fall 2014.	7.0%	6
<i>answered question</i>		<b>86</b>
<i>skipped question</i>		<b>16</b>



**APPENDIX C**

**COLLEGE ENROLLMENT RATES IN 2012-2013 FOR NEW JERSEY**

**HIGH SCHOOLS PARTICIPATING IN AIM HIGH ACADEMY**

## APPENDIX C

*College Enrollment Rates in 2012-2013 for New Jersey High Schools Participating in Aim High Academy<sup>1</sup>*

<b>New Jersey County</b>	<b>High School</b>	<b>No. of Grade 12 Students</b>	<b>Overall College Enrollment Rates</b>	<b>Enrollment Rates for College: 2-Year / 4-Year</b>
Atlantic	Egg Harbor Twp		70%	44.3 55.7
Atlantic	Absegami HS	439	77%	49 51
Atlantic	Atlantic City Inst Tech	177	54%	73.1 26.9
Atlantic	Mainland Regional	354	83%	32.1 67.9
Bergen	Hackensack High	449	68%	50 50
Burlington	Delran	212	75%	54.5 45.5
Burlington	Lenape Regional	464	86%	36.5 63.2
Burlington	Maple Shade	97	70%	59.2 40.8
Burlington	Palmyra	70	70%	54.9 45.1
Burlington	Willingboro	222	67%	63.1 36.2
Camden	Brimm Medical Arts	51	69%	54.8 45.2
Camden	Camden Academy	98	63%	62.5 35.7
Camden	Camden HS	111	43%	79.3 10.3
Camden	CCTS- Gloucester	288	52%	81.5 17.6
Camden	CCTS- Pennsauken	167	58%	75 25
Camden	Cherry Hill West	395	76%	43.3 56.7
Camden	Collingswood Sr. High	184	67%	53.4 45.7
Camden	Eastern Regional	534	79%	32 68
Camden	Leap Academy	57	79%	54.2 45.8
Camden	Lindenwold	114	53%	64.6 35.4
Camden	Overbrook	151	70%	61.1 38.9
Camden	Pennsauken HS	361	61%	68.3 30.4
Camden	Triton Regional	390	70%	62.5 37.5
Camden	Winslow Township HS	301	70%	69.8 30.2
Camden	Woodrow Wilson HS	174	49%	73.3 22.1
Cape May	Wildwood	60	48%	59.4 40.6
Cumberland	Vineland	528	62%	74.1 25.9
Essex	Belleville Sr. High	380	65%	50.7 49.3



Essex	Barringer Academy of STEAM	273	47%	81.3	18.7
Essex	East Side HS	305	54%	66.5	33
Essex	Science Park HS	166	80%	25.6	74.4
Essex	Technology HS	114	74%	47.1	52.9
Essex	University HS	106	68%	21.3	78.7
Essex	Weequahic HS	177	43%	69.1	30.9
Essex	West Side HS	227	48%	69.7	29.3
Gloucester	Delsea Regional	276	67%	59.4	40.6
Gloucester	Deptford Township	239	68%	57.3	42.7
Gloucester	Glassboro	130	74%	51.5	48.5
Gloucester	Woodbury	94	73%	63	37
Hudson	James J. Ferris	327	70%	61.8	36.7
Hudson	Kearney HS	411	71%	56.5	43.1
Hudson	McNair HS	174	76%	7.7	92.3
Middlesex	Highland Park HS	114	84%	32.5	67.5
Middlesex	North Brunswick Twp HS	419	81%	38.1	61.9
Middlesex	Perth Amboy HS	451	62%	63.7	36.3
Middlesex	Woodbridge HS	344	74%	51.3	48.7
Passaic	Passaic High	650	65%	69.7	29.9
Passaic	Eastside HS:				
	- Info Tech	140	51%	78.2	21.8
	- Gov & PR	132	49%	80.5	19.5
	- Culinary Arts	103	59%	81.3	18.8
Passaic	PCTI	769	74%	45	55
Passaic	Clifton HS	792	77%	48.3	51.3
Passaic	Manchester Regional High	186	70%	52.6	47.4
Passaic	JFK High:				
	- Ed & Training	121	66%	61.5	38.5
	- Bus, Tech, Mkt	105	54%	78.7	21.3
	- Science Tech	108	74%	64.6	35.4
Passaic	School of Health Science (HARP)	66	78%	42.6	57.4
Passaic	Paterson Charter	80	81%	47.4	52.6
Passaic	International HS	118	66%	68.6	31.4
Salem	Schalick HS	151	69%	49.4	50.6
Union	Elizabeth HS	161	84%	25.8	74.2
Union	Hillside HS	174	79%	55	44.2
Union	Linden HS	408	73%	57.3	42.3
Union	Roselle Park HS	145	67%	51.5	48.5

Union	Union Senior HS	608	79%	53.3 46.5
Union	Rahway HS	190	72%	54.4 45.6
	<b>TOTAL</b>	<b>17,014</b>	<b>69%</b>	<b>53% 47%</b>

(1) *Source:* State of New Jersey Department of Education, *NJ School Performance Report 2012-2013*. <http://education.state.nj.us/pr/report.php?sch-name>. Post-Secondary Enrollment Rates for high school graduates, 16 months after high school graduation. The data is from the National Student Clearinghouse, which reports that it collects student-level enrollment data from 95% of Institutions of Higher Education nationwide ([www.state.nj.us/education/pr/2013](http://www.state.nj.us/education/pr/2013)).

**APPENDIX D**

**BACHELOR'S DEGREE GRADUATION RATES 2013: NEW JERSEY UNIVERSITIES**

**PARTICIPATING IN AIM HIGH ACADEMY**

## APPENDIX D

### Bachelor's Degree Graduation Rates: Universities Offering Aim High Academy <sup>1</sup>

University	4-Year Graduation Rate	6-Year Graduation Rate
Rowan University	46%	70%
Caldwell University	35%	53%
Rutgers Newark	32%	67%
Rutgers Camden	27%	65%
Kean University	19%	46%
William Paterson University	16%	50%
<b>AVERAGE RATE</b>	<b>29.17%</b>	<b>58.5%</b>

(1) Percentage of Full-time, First Year Students Who Graduated in the Specified Amount of Time (<http://nces.ed.gov/collegenavigator>) using rates for students who began in Fall 2007.

**APPENDIX E**

**Fordham University IRB**



FORDHAM UNIVERSITY

THE JESUIT UNIVERSITY OF NEW YORK

Michele Kuchera  
IRB Manager  
[mkuchera@fordham.edu](mailto:mkuchera@fordham.edu)  
718-817-0876

**Office of the Institutional Review Board for Research on Human Subjects**  
**Report of Action: EXEMPT**

Review Date: 08/13/2014

IRB Protocol ID: IRB-14-BT-177

Project Title: The Role of Higher Education in Pre-College Preparation for Underrepresented Students

Investigator: Bernadette B. Tiernan

Faculty Sponsor: Dr. Carolyn Brown

School/Department: GSE/ELAP

Review Type: New  Continuing  Date of Last Review \_\_\_\_\_ Expiration date: \_\_\_\_\_  
Amendment  Study closure

Category: Exempt  Category \_\_\_\_\_2\_\_\_\_\_

Your protocol was reviewed and has been given exempt status under Category 45 CFR 46.101 (b)(2):

*Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:*  
*a) information is obtained or recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and***  
*b) any disclosure of the human subjects responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation, or insurability.*

- Exempt protocols do not require annual review. A study closure form must be submitted to the IRB office once the study has been completed.
- Investigators are responsible for submitting amendments to the IRB for any changes to the research protocol, including changes to the research design, documents, staffing, procedures or recruitment. These changes require IRB approval before being introduced.
- The investigator(s) identified above are required to retain an IRB protocol file, including a record of IRB-related activity, data summaries and consent forms. This file is to be made available for review for internal procedural (audit) monitoring.