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THE IMPACT OF HIGH SCHOOL CAREER ACADEMIES ON STUDENT ACADEMIC
ACHIEVEMENT AND ENGAGEMENT

BY

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Submitted in partial fulfillment of the requirements for
The Degree of Doctor of Education
Seton Hall University
Department of Education Leadership Management and Policy

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Daisy Rodriguez has successfully defended and made the required modifications to the text of the doctoral dissertation for the Ed.D. during this Summer Semester 2020.

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ABSTRACT

The purpose of this study is to examine the effectiveness of high school career academies in comparison to the traditional, comprehensive high school educational program with respect to student academic achievement and student engagement in one large urban high school in Central New Jersey. It is the intent of this researcher to determine if either of the educational structures and approaches significantly impacts the achievement and engagement levels of students in the high school under investigation.

Student math and ELA state test scores and student engagement scores were analyzed using quantitative methods. To ascertain the degree of effectiveness this reform initiative has had on specific student outcomes, this study relied primarily on researched numerical data. The data for this study was obtained as secondary data provided by school administration from administrative records.

Data compared for student achievement outcomes included 9th grade ELA PARCC scores, 10th grade ELA NJSLA scores, 9th grade Math PARCC scores and 10th grade Math NJSLA scores. Student engagement levels were derived from the Student Engagement Instrument (SEI), a research-based questionnaire developed by the University of Michigan. The school administration administered the SEI to students one year before and after entering the Career Academy or the Comprehensive high school. The data utilized for this study represents two groups of students (10th grade Career Academy and 10th grade Non-Career Academy). Students' 9th grade ELA, Math and Engagement levels were utilized as the baseline data for both groups under investigation.

The statistical analysis employed in this study (independent samples t-test and multiple regression analyses), indicates that the impact of the career academy model on student

achievement is positive as compared to their non-academy counterparts. Further, the analysis revealed that Free or Reduced Lunch eligibility was the only demographic variable with a moderating effect on the impact of the Career Academy. Students eligible for free or reduced lunch experienced the greatest benefit in their math performance. However, the analysis did not show any significant differences in student engagement levels between both groups when previous performance and engagement levels were accounted for. The study determined that there is evidence to suggest that a measurable gain in achievement exists for students who participate in a career academy. Due to this analysis, it is this researcher's contention that the career academy model has had a positive effect on student academic performance but no impact on student engagement levels within the prescribed urban high school.

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CHAPTER I

INTRODUCTION, PROBLEM AND PURPOSE

Introduction

“Research has consistently shown that when a school is too big, problems often arise. Smaller schools tend to have lower drop-out rates and better attendance.... As for academic achievement, at-risk students are at a particular disadvantage in large schools.” (U.S. Department of Education, 2001, p.5). Several researchers have compared schools of all sizes and have generally found that students attending smaller schools have better outcomes (Raywid, 1995, 1996, 2000; Howley and Bickel, 2000; Fowler and Walberg, 1991; and Gregory, 1992). However, there is less rigorous research available on Smaller Learning Communities found within large high schools, and the evidence of their effectiveness is less clear. In a small learning community (SLC), teachers work collaboratively to improve achievement among a cohort of students. The cohort of students share the same group of teachers and attend the same core classes together within a larger high school environment (Kemple and Snipes, 2000). Some Small Learning Communities are focused on an overarching theme like technology or business, and seek to bring students and staff together around a theme of shared interest. A Career Academy is a type of Small Learning Community focused on a specific Career Theme. Stern, Dayton, and Raby (1998) defines a career academy with several specific characteristics in which it serves as a “school-within-a-school for grades 9-12, run by a small team of teachers from various disciplines... offers a rigorous, applied and contextual college prep curriculum.. utilizes a broad-based career theme... curriculum that combines technical and academic classes each semester... and involves employer and higher education representatives from the academy career

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field to help plan and guide the program. They are involved as speakers, field trip hosts, internship supervisors, mentors and sometimes in curriculum development.” For the purposes of this study the model investigated is the Career Academy.

This study seeks to determine the impact that participation in a high school Career Academy has on student achievement and student engagement in an urban high school in New Jersey. There is increasing evidence that school size and poverty interact to affect student achievement. According to Strange (1997) a study conducted in Alaska, California and West Virginia indicated that:

1. Large schools moderately benefit affluent students, compared to smaller schools, but increase the negative effect of poverty on the achievement of poor students
2. The benefit of small schools for poor children is much greater than the benefit of large schools on rich children.

The research indicates that large schools not only hurt poor students, but actually increase the educational gap between wealthy and poor children. According to Cutshall (2003), about 70 percent of all high school students in the United States attend school with 1,000 or more students, and a sizable group goes to schools of 2,000 or more (p.22). With the increasing number of large high schools found in urban settings, there is a disproportionate amount of minority and low income students attending large high schools.

The transition to high school can present significant academic and social/emotional challenges for some students, particularly ninth graders, students that are not academically prepared for the rigor of high school level work, or students that have difficulty adjusting to the larger, more structured environment found in typical Comprehensive High Schools (Lee & Smith, 2000). The larger academic environment in high schools, often reduces opportunities for

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individualized attention causing students to get easily lost in the crowd, fall behind academically, fail to make meaningful connections with peers and adults and eventually lose interest in school.

A literature review on studies conducted by Tienken (2017) reveal inadequacies of traditional American Schools, like large comprehensive high schools, in meeting the unique needs of students. Early programs like the Lancasterian system, Monitorial instruction, and the Gary Plan sought to improve the overall output of the instructional system by creating “cost efficiencies in public education by homogenizing performance outcomes and instructional delivery through the mechanistic assembly-line approach” (Tienken, 2017). Practicing Educators and administrators are well aware of the numerous factors that affect student performance and defy the concept of standardization in public education.

To help address this concern of the misalignment of the traditional comprehensive high school model with student needs, schools across the nation are implementing Small Learning Academies that tend to be smaller focused programs found within a larger high school. A popular approach in the implementation of learning academies, which include personalization as a key element to success, are theme-based or career academies. These academies focus on students’ individual interests and strengths and provide students with a balanced mix of rigorous core academic programming with opportunities to develop practical, hands-on experience and skills. The academy model is believed to successfully help engage students and keep them on track for graduation due to its personalization of student needs and interests.

Problem Statement

The transition to high school presents many challenges, both academic and social, for some students. Particularly ninth graders and those who are underprepared for a rigorous college-preparatory curriculum or have difficulty acclimating to the larger, more bureaucratic environment of the typical American high school (Lee & Smith, 2000). With fewer opportunities for individualized attention, students can easily get lost in the crowd, fall behind, lose interest in school, and eventually drop out. Research has shown an inverse relationship between school size and academic achievement & student engagement (US Dept of Education, 2011). Today, approximately 64% of high school students are enrolled in large schools (schools with 1000 students or more). Nationally, there is a disproportionate amount of low income and students of color enrolled in these large schools.

Several researchers have compared schools of all sizes and have generally found that students attending smaller schools have better outcomes (Gladden, 1998; Kahne, J. et al., 2008). Since it is not economical or practical to build new small schools to address this growing need, many large comprehensive high schools have moved to restructuring their large campuses to form smaller learning communities typically organized around a theme or career cluster. However, there is less rigorous research available on smaller learning communities in large high schools, and the evidence of their effectiveness is less clear. This study seeks to determine the effects that participation in a high school Career Academy has on student achievement and engagement in an urban high school in New Jersey compared to students that did not participate in a Career Academy within the same high school.

This study is deemed to be significant because of the need for additional evidence to

demonstrate the effectiveness and efficacy of the school-within-a-school model that has grown in popularity despite the inconclusive existing literature of the academy model in replicating the known benefits of small schools. Clearer evidence supporting or not supporting the effectiveness of the academy model within large comprehensive high schools can help to drive decision making by building and district administrators as well as future educational policies.

Purpose of the Study

The purpose of this study was to research the extent to which the Career Academy approach in a specific High School improved student achievement and student engagement. In particular, this study compared students from a range of backgrounds that displayed both high indicators for future success and low indicators for future success that attended a Career Academy to students of similar backgrounds that did not participate in the Career Academy Program. Student NJSLA English 10 Language Arts scores, NJSLA 10th Grade Math Scores, and Student Engagement Instrument Scores were reviewed as measures of student achievement and engagement. This study compared the data scores of Career Academy students to traditional high school students in the same New Jersey High School during the 2018-19 school year to determine whether any relationship exists between the Career Academy approach and higher levels of student achievement and engagement among Academy students.

Hypothesis

The hypothesis of this study is that the Career Academy approach helps to improve high school student academic achievement for students from different socio-economic backgrounds, gender, and English Proficiency levels as measured by NJSLA English 10 Language Arts Scores, NJSLA 10TH Grade Math Scores, and student engagement as measured by a Student Engagement

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Instrument (SEI). Student engagement levels will be measured through the Student Engagement Instrument (SEI), a tool offered by the Check and Connect Student Intervention Program developed by the University of Minnesota. The Student Engagement Instrument (SEI) is a brief 35 item self-reporting survey measuring cognitive and affective engagement.

Acceptance of this hypothesis would assist school leaders in providing an effective programmatic approach to help address the varying academic, socio-emotional, and post-secondary planning needs from high achieving to the most at risk students found in large high schools.

Research Questions

This study examined the following primary research question: To what extent, if any, does the implementation of Career Academies impact the levels of high school student achievement and student engagement (SEI results)?

Additional, more specific research questions included:

1. What impact do Career Academies have on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA 10th Grade Math Scores, and SEI results.
2. To what extent, if any, do students' demographic variables (Free/Reduced Lunch Eligibility, Limited English Proficient (LEP) classification, and Gender) moderate the impact of Career Academies on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA 10th Grade Math Scores, and SEI scores.

Limitations of the Study

The available research on the outcomes of the schools-within-a school model is smaller and less conclusive than the extensive research on small schools. Conclusions about this model must therefore be regarded as somewhat tentative. Since only one high school is analyzed in this study, caution is required in making comparisons. The study is limited to one urban high school in Central New Jersey, therefore the findings may not be readily applicable to other high schools. In order to generalize the findings of this study to other settings, consideration and research is needed to account for the size, location and nature of the school. Schools vary greatly in their characteristics. The conclusions of this study are limited to the sample under investigation.

The second limitation is that the data analyzed encompasses only a one-year period, the 2018-2019 school year. The Academy Model was first implemented in the high school under investigation in September of 2018, this study sought to measure the effectiveness of the academy model on the students enrolled in the academy compared to the non academy students enrolled in the same high school. Variation in student performance from year to year is expected; a future study with multiple years of student performance data is recommended.

Significance of Study

This study will compare two approaches to educating 10th grade students, 1) Career Academy Model and 2) Traditional Comprehensive High School Model, within the identified urban high school, and their effectiveness on student achievement and student engagement. It is the intent of this researcher to determine if either of the educational models significantly affect the achievement level and engagement levels of students in the identified high school.

Stern, Dayton, Piak and Weisburg (1998) concluded that, “Career Academies are flourishing because they have succeeded in solving some of the fundamental problems in

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American High Schools; they link school to the world outside, place academic instruction in a practical context, engage students in a learning community, avoid tracking, and prepare students for both work and further education” (Mittelsteadt & Reeves, 2003, p. 41).

The school district being investigated has made a concerted effort to restructure its large comprehensive high school into smaller learning communities focused on central themes. The high school launched its first Career Academy in the Fall of 2018 with 119 tenth grade students. The district believes that this approach is an essential first step to increase the graduation rate and further supporting high levels of academic achievement for students. This study contributes to our understanding of the potential benefits as well as the possible difficulties of the career academy model as an approach for high school reform in large urban districts. The analyses of issues related to student outcomes will yield findings and recommendations useful to schools and districts interested in developing smaller learning communities, notably career academies within large high schools.

Definition of Terms

At-Risk Students: Students who are not achieving at grade level. Key determinants include: Poor attendance, lacking credits towards graduation, at least one year behind in academic coursework, lack of interest in school, a score below the 40th percentile on standardized tests, and a GPA below 2.0.

Small Learning Community: Teachers working collaboratively to improve achievement for students. A cohort of students with the same teachers and attending the same core classes within a larger high school environment. For the purposes of this study the model investigated is the career academy.

School-within-a-school: Small, autonomous programs housed within larger school buildings.

Small Schools: Defined by the following characteristics:

- a. Preferably no more than 500 students in a high school
- b. A cohesive, self-selected faculty
- c. Substantial autonomy
- d. A coherent curricular focus that provides a continuous educational experience across a range of grades.

Career Academy: An academic cluster in a high school involving a core team of teachers, and a heterogeneous group of students. The academy model is intended to create a community atmosphere for the students and staff. Stern, Dayton, and Raby (1998) defines a career academy with several specific characteristics. A career academy:

- A. Is a school-within-a-school for grades 9 through 12, run by a small team of teachers from various disciplines to provide a certain degree of autonomy and flexibility
- B. Recruits students who volunteer for the program and demonstrate their commitment through an application process.
- C. Includes all students from varying ability levels
- D. Contributes to students' sense of membership in a caring school community through smaller classes than are typical in the high school, a system of motivational activities and rewards, and regular contacts with parents.
- E. Offers rigorous, applied and contextual college prep curricula
- F. Utilizes a broad-based career theme, such as health sciences, communications, business or information technology, that is supported by an integrated sequence of courses, experiences and strong partnerships with businesses and community partners.

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- G. Focuses on a career theme in a field in which demand is growing and employment opportunities exist in the local labor market.
- H. The curriculum combines technical and academic classes each semester. An academy also keeps the option of attending college available for all students.
- I. Allows for scheduling systems that provide consistent groups of academy students to move together in sequence.
- J. Supports a designated academy administrator with school counselor support.
- K. Provides support from business and community for work-based learning experience, such as job shadowing, internships, mentoring, etc.
- L. Involves employer and higher education representatives from the academy career field to help plan and guide the program. They are involved as speakers, field trip hosts, internship supervisors, mentors and sometimes in curriculum development.

Common Planning Time for Teachers: Academy teachers meet daily to plan lessons, interdisciplinary projects, and share reports of student progress and concerns.

Comprehensive High School: A free standing high school with a general, college preparatory curriculum. The course offerings are those required for high school graduation and adhere to state and district guidelines. Students are typically grouped by ability level but are not part of a particular cohort.

Student Achievement: For the purposes of this study, quantity and quality of courses, performance on standardized state exams (NJSLA).

PARCC Exam: The Partnership for Assessment of Readiness for College and Careers is a consortium of states that collaboratively developed a common set of assessments to measure student achievement and preparedness for college and careers. PARCC assessments are aligned

to the Common Core State Standards (CCSS) and were created to measure students' ability to apply their knowledge of concepts rather than memorizing facts. The exam measures student proficiency levels in English Language Arts and Mathematics and serves as one of the ways students may demonstrate ELA and Math proficiency for high school graduation in New Jersey.

New Jersey Student Learning Assessment (NJSLA): The NJSLA replaced the PARCC assessment in 2019. The NJSLA is offered in ELA, Mathematics and Science.

Organization of the Study

This research proposal is organized into five separate chapters. The first chapter of the study develops the appropriate and relevant background information on the topic of Career Academies and their impact on student achievement and engagement. The first chapter highlights the statement of the problem, the purpose of the study, the hypotheses, the limitations and significance of the study and the definition of key terms.

The second chapter is an extensive literature review of the evolution of the career academy model, the historical context of policies, research on student achievement and student engagement. This chapter outlines the findings of previous research conducted and implications for this research proposal.

The third chapter will outline the methods and procedures used for this study through which data are collected and compiled. This chapter will explore the design of the study, research procedures, methodology used, as well as the sampling and treatment of data in this study. The methods found in this study are quantitative.

The fourth chapter will present a statistical analysis and interpretation of the findings. The software package SPSS will be used to produce graphs to provide the reader with statistical representations important for the overall study. Variables such as NSJLA and PARCC results,

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Affective and Cognitive Engagement Results, and Descriptive Statistics of Student Demographic variable (Limited English Proficient (LEP) classification, Free/Reduced Lunch eligibility (FRLP), and Gender) will be statistically analyzed.

The fifth chapter details a summary, conclusions, policy implications, and recommendations for future research on this topic.

CHAPTER II

REVIEW OF LITERATURE

Introduction

This chapter will investigate a review of the research and literature on the impact of small learning communities in the form of Career Academies on student achievement and student engagement. This study seeks to evaluate the impact that enrollment in a Career Academy has on student achievement and student engagement compared to non-academy students enrolled in the same high school. In this chapter we will examine a review of literature related to the effects of school size on student outcomes, history of the Comprehensive High School model, Rationale for reform of the Comprehensive High School model, the history of the Career Academy Model, Components and research of the Career Academy model, research on Small Learning Communities and their impact on student outcomes, research on student engagement and its impact on student outcomes and identify the gap in the existing literature on school models and their impact on student achievement and engagement.

There has been extensive research conducted on the effects of school size on student achievement but the effects of high school career academies is limitedly available. When compared with the available research on the effects of school size, the research on the School-within-a-School structure is less conclusive, extensive and often less rigorous. The limited existing research on Schools within a School has noted benefits in the areas of academic achievement, social behavior, attitudes, satisfaction with school, attendance and student to teacher relationships. The purpose of this study is to compare the effects of high school student participation in a career academy and non-career academy involvement and its relationship to

student achievement and student engagement in a specific urban high school in Central New Jersey.

Theoretical Framework

This study is based on two educational theories. The first theory is that smaller learning communities focused on a central theme, within larger schools improve student engagement and student achievement by personalizing students education and creating a more supportive environment for students to feel connected to the school and their teachers. (Stern, Dayton, & Raby, 2010; Herlihy & Quint, 2006; Smith, 2008). The second theory states that students with higher levels of engagement in school and have increased attendance rates are better prepared for high school and beyond (National High School Center, 2009; Breaking Ranks, 1996). These theories combined, directly support the concept of the Career Academy approach for large comprehensive high schools as a way to boost academic achievement, student engagement and preparing all students for competitive colleges and careers post high school graduation.

Research on School Size

Research studies that have reported on school size have been remarkably consistent, smaller is better. According to Lee and Smith (1996), small school size has particular benefits with minority and low-income students more than middle and upper class students. Since many of the nation's largest high schools are in urban areas having high concentrations of disadvantaged students these findings are particularly attractive to service this student population. Small school size does not, in and of itself, guarantee school improvement but it does optimize the educational environment to support high quality schooling supportive of all students.

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Research suggests that:

1. Smaller, more “communal” learning environments reduce both student and teacher alienation commonly identified in larger school systems, and enhance student engagement in learning (Jimerson, 2006; Nathan & Thao, 2001).
2. Small high schools have substantially higher graduation rates than their large school peers. (Bloom & Unterman, 2012)
3. Small schools create more opportunities for participation per capita; a larger percentage of students participate and they participate in more kinds of activities (Black, 2002).
4. Students who participate in activities and feel connected at school have higher achievement, are less likely to drop out; they have higher self-esteem, attend school more regularly, and have fewer behavior problems (Howley & Bickel, 2000).
5. Student attendance is higher in small schools compared to large schools, especially with minority or poor students (Cotton, 1996).
6. Student engagement and attitudes towards school are most positive in small schools compared to large schools. The attitudes of low income and minority students are particularly sensitive to school size and increase greatly in small schools (Cotton, 1996).

Howley, Strange, & Bickel (2000) found that small schools reduced the negative effects of poverty “by between 20 and 70 percent, and usually by 30-50 percent, depending on grade level” (p. 4). Likewise, in Gladden’s (1998) large scale review of research, corroborating findings were

published: “compared with demographically similar students in large schools, the school performance of poor and minority students in small schools was not only better, but significantly better” (p. 114). Further Gladden found that nine out of the eleven studies he reviewed found a consistent and often strong relationship between small school size and more equitable academic achievement across ethnicity and socioeconomic background (p. 126).

According to Cotton’s (1996) review of 31 studies which researched the relationship between small schools and academic achievement, students in small schools performed equal to or better than their larger counterparts. Cotton (1996) states:

“None of the research finds large schools superior to small schools in their achievement effects. Consequently, we may safely say that student achievement in small schools is at least equal - and often superior - to student achievement in large schools. Achievement measures used in the research include school grades, test scores, honor roll membership, subject-area achievement, and assessment of higher-order skills.” (p. 4).

Historical Review of Comprehensive High Schools

Butts and Cremin (1953) recognized in the comprehensive high school the American commitment to education for all and concluded that the "comprehensive high school has become the most typical kind of institution for youth throughout the country and is largely a distinctive American creation".

The concept behind Comprehensive High Schools is aligned to the “American Dream” where all students, no matter the background, have equal opportunities. Davenport (1913) suggested that, "It is in every way un-American to organize society along vocational lines". Rather, Davenport insisted that the goal of the Comprehensive High School is to allow students to make a

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tentative selection of his/her future vocational interest and devote about one-fourth of the time to those studies while leaving the other three-fourths of the time for non-technical and general subjects allowing the student to mix with all other students in the school. This would allow the student to associate with his/her own particular group one-fourth of the time, and for the rest of the time associate with other people of other groups.

The American High School also aimed to prescribe particular curriculum components to provide for both general and specialized education. These components included, briefly, "a basic core offering to provide a body of common, integrating experiences," "special interest offerings to provide for the optimum development of individual interests and aptitudes and to prepare youth for work," and "organized student life to afford an opportunity for active participation in democratic group processes which foster understanding of social and political procedures" (Davenport, 1913).

The report of the Commission on the Reorganization of Secondary Education (CRSE) (1918), *Cardinal Principles of Secondary Education*, served as the blueprint for the American comprehensive high school. The distinguishing feature of the Comprehensive high school lied in the existence of academic and vocational studies under the same roof. The CRSE (1918) established two complementary functions of the comprehensive high school, specialization and unification functions. The specializing function would have the comprehensive high school serve the varied needs and interests of a heterogeneous student population through a variety of course and program offerings, and extracurricular activities. The unifying function required that the comprehensive high school include provisions for unifying students with different backgrounds, abilities, and aspirations so that they would have the opportunity to interact across social lines.

Rationale for Reform

There is increasing evidence that poverty and school size interact to affect student performance. A study conducted on school size in Alaska, California and West Virginia (Strange, 1997) indicate that large schools moderately benefit affluent students, compared to smaller schools, but they increase the negative effect of poverty on the educational achievement of low income students. The study also found that the benefit of small schools for low income students is much greater than the benefit of large schools on high income students. The research indicates that large high schools not only hurt low income students, but actually increase the educational gap between wealthy and poor children.

According to Cutshall (2003), about 70 percent of all high school students in the United States attend a school with 1,000 or more students, and a sizable group attends schools of 2,000 or more. (p.22). Nationally, low income students and students of color are overrepresented in large high schools. Comprehensive high schools have been widely criticized for leaving too many students unprepared for the increasingly competitive workplace that are not only demanding high school diplomas but also high level skills and post-secondary training. High Schools face the goal of ensuring that all students graduate with the knowledge and skills necessary to make successful transitions to college and careers. Urban high schools face the additional challenge of economic and demographic changes that have brought an unprecedented concentration of low income and ethnically and linguistically diverse students. According Oxley, D., & Kassissieh, J. (2008) the perceived deficits of Comprehensive High Schools include:

1. Large school populations,
2. Low Student Achievement

3. Irrelevant Instruction, and
4. Minimal interest in academics

The recognition that many of America's high schools had become impersonal and alienating drove efforts to make small replicas of the large institutions. From 1985 to 2000, the need to create a sense of community in large high schools fused with national pressure to improve educational outcomes fueled the growth of the creation of small learning communities within large comprehensive high schools.

Policy Context

The Every Student Succeeds Act (ESSA) was adopted and signed by President Obama in 2015 as a bipartisan measure to re-authorize the Elementary and Secondary Act (ESEA), the nation's national education law governing equal opportunity for all students in public schools. The provisions of ESSA include advances to equity by upholding critical protections to disadvantaged and high-need students, requires that all students be taught to high standards to prepare them for college and careers, ensures that students' progress towards high standards are shared with educators, families, students and community stakeholders, and maintains an expectation that accountability and action will be in effect in America's lowest performing schools.

Prior to the enactment of ESSA, the No Child Left Behind (NCLB) Act governed the provisions of all American public schools. Enacted in 2002, the No Child Left Behind Act sought to increase school accountability in ensuring that students progressed towards high academic standards regardless of race, income, zip code, disability, home language, or background (ESSA, 2017). Over time, NCLB's highly prescriptive requirements became increasingly unworkable for administrators, educators and schools. The Obama administration recognized this challenge and

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developed the Every Students Succeeds Act to create a clear goal of fully preparing all students for success in college and careers.

New Jersey is utilizing the shift from NCLB to ESSA as an opportunity to align its accountability and support systems in order to more accurately and fairly measure student, school, and district performance. Under the NCLB Act, for example, a narrow set of data points were used to identify struggling schools; requiring states to utilize proficiency data, prohibiting the use of progress or growth data. Without accounting for measures of student growth, the system could identify schools with low proficiency scores as “in need of improvement” regardless of any significant gains made in student scores.

The Every Student Succeeds Act (ESSA) shows unprecedented support for career and technical education (CTE) in definition of a well-rounded education. This focus on preparing high school students for college and careers requires a coordination of ESSA and CTE plans by both the state and local education agencies, supports the integration of academic and CTE coursework, and encourages states to include the progress of students towards attaining proficiencies in career and technical education on state report cards.

On July 31, 2018, President Trump signed the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) into law. This Act reauthorizes the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV), which is the main source of federal funding to states for the improvement of secondary and postsecondary career and technical education programs across the nation. The purpose of the Act is to fully develop the academic, career, and technical skills of secondary and postsecondary students who elect to enroll in career and technical education programs. Perkins V is largely based on the structure and content of the current law, but calls for some key changes that help to further align the Perkins Act with the Every

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Student Succeeds Act of 2005 and the Workforce Innovation and Opportunity Act (WIOA) of 2014. Although states have years of experience implementing these federal programs, because they are administered across different state agencies or different offices within a state agency, coordination across these initiatives can be a challenge.

The Workforce Innovation and Opportunity Act (WIOA), signed into law on July 22, 2014, aims to help job seekers access employment, education, training, and support services to help them succeed in the job market and to match employers with skilled workers they need to compete in a global economy. Although, the Workforce Innovation and Opportunity Act is geared towards post-secondary institutions, the alignment of college and career readiness programs outlined by ESSA and CTE requirements at the high school level are essential to coordinate high school leaders and higher education leaders efforts in career preparation for young adults.

History and Origin of Career Academies

The first Career Academy was established in 1969 in Philadelphia, Pennsylvania. This Electrical Academy was primarily designed as a vocational training program targeted for non college-bound students. In the 1980s, the Edna McConnell Clark Foundation build on the Philadelphia experience and provided initial funding to establish Academies in several Pittsburgh, Pennsylvania; Portland, Oregon; and Menlo-Atherton and Redwood City, California. Based on the performance of the Academies established in California (known as the Peninsula Academies), the California State Legislature provided funding through passing a bill to fund up to 10 school districts to establish new Academies in the 1985-1986 school year (later referred to as California Partnership Academies). During the same time period, the American Express Company collaborated with New York City Public Schools to establish Academy programs focused on the

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financial industry. Over 100 Academies in Philadelphia, California, and New York were estimated to be established by the end of the 1980s (Herlihy & Quint 2006).

The Academies established in the 1980s share key characteristics that have implications for Career Academies today. These initial Academies shared the primary focus of vocational education training for students who were struggling in traditional high schools and appeared to be at risk of dropping out. The main goal of these early programs were to keep students engaged in school by providing them with work-related learning experiences both inside and outside the classroom and to establish clear pathways between high school and work. The early programs in Philadelphia and California also established the basic organizational elements that have come to define the Career Academy approach by organizing these career theme programs as “schools-within-schools”. These Career Academies were established as programs within existing schools as a separate small learning community utilizing a central career theme. Each program also had established partnerships with local employers to help build the bridge between school and work for its students. Lastly, the early career academies maintained extensive funding evaluation data that clearly documented the success of the programs and supported its expansion efforts.

The 1990s showed extraordinary growth in the expansion of Career Academies nationwide with current numbers estimated at approximately 1,500 Career Academies nationwide. With this growth in the number of Academies, there has also been a shift in the primary goals and target population of most Career Academies. Specifically, there is now overarching agreement that the Career Academy approach should be distinct from traditional vocational education by seeking to support the goals of ESSA and CTE which aim to prepare students for both careers and college.

Previous research on Career Academies includes the most extensive longitudinal study conducted by MDRC’s Career Academy Evaluation, which reviewed the academies effects on

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student outcomes, such as graduation from high school, enrollment in post-secondary education, and future success in careers. Several of these studies compared the performance of Academy students with that of non-Academy students in the same high school with similar demographic and academic backgrounds. The results of the studies consistently demonstrated that Academy students earned more credits, had significantly better grades, attendance and graduation rates than non-Academy students. These results are particularly impressive, given that state-funded Partnership academies are required to recruit the majority of their students from economically or educationally disadvantaged backgrounds (Herlihy & Quint 2006; MDRC 2000; Kemple & Snipes 2000).

Despite the broad array of research on Career Academies, a number of questions still exist regarding the impact of Career Academies on student outcomes in high achieving students. Specifically, Career Academies may carry the perception of the earlier models of Career Academies from the 1980s that focused exclusively on vocational training. The focus of Career Academies today is on rigorous thematic instruction that will help prepare students for competitive colleges and careers.

The Career Academy Model

The Career Academy approach captures three core features that offer direct strategies to address several problems that have been identified in high schools, particularly those serving low-income communities and students at risk of school failure. First, a Career Academy is organized as a school-within-a-school in which students stay with a group of teachers over three or four years in high school. This arrangement is often referred to as “small learning communities.” The aim is to create a more personalized and supportive learning environment for students and teachers.

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Second, a Career Academy offers students a combination of academic and vocational curricula and uses a career theme to integrate the two. Third, a Career Academy establishes partnerships with local employers in an effort to build connections between school and work and to provide students with a range of career development and work-based learning opportunities.

Career Academies combine academic and career-related courses in an effort to enhance both the rigor and the relevance of the high school curriculum. The growth of career academies and the relevance of the Academies to today's education reform agenda have fueled the need for reliable evidence that this approach positively affects students' high school performance and their ability to transition to post-secondary education and careers.

While the basic organization of career academies have remained consistent since their inception, the goals and the target population have changed. The original Academies were designed primarily to prevent students from dropping out of high school and to increase student skills to prepare for work immediately after high school. There is now widespread agreement that Career Academies must do more, they must prepare students for both future careers and college. Additionally, Career Academies should include a broad section of students, including those that are highly motivated in school (Kemple & Snipes, 2000).

Career Academies seek to create an environment that links students with peers, teachers, and community partners in a focused, disciplined environment. These programs aim at building long-term relationships between students and teachers and community partners and improving achievement through highly focused smaller learning communities that operate within the infrastructure of the traditional comprehensive high school building. The small learning communities created by Career Academies allow students who may have trouble fitting into the larger school environment to connect what they are learning in school with their future career

aspirations and goals (McPartland et al., 1998). This emphasis on academics taught through an integrated and contextualized curriculum can improve students' learning experiences, while work-based learning and real life application enrich and diversify students' high school experience.

Stern et al. (1998) explained that although there were great variations between and within existing Career Academies, there were several key elements fundamental to the Career Academy Model:

1. **Smaller Learning Communities:** All Career Academies are organized into a school-within-a-school model, where cohorts of students are grouped together for two or more years with the same group of teachers and share several classes together each year. The group of teachers assigned to work with students in this smaller learning environment have only or mostly all academy students in their classes. The teachers are provided opportunities to meet together regularly and share in decision making related to curriculum content, instruction and administrative policies. The goal is to create a more personalized and supportive learning environment for students and teachers.
2. **College-Preparatory curriculum with a career theme:** The Career Academy model offers students a combination of academic and vocational studies and uses a career theme to integrate the two. Examples of common themes include health sciences, media, business and finance, and technology. The curricula includes academic courses that meet high school graduation requirements and technical courses that focus on the academy's fieldwork. Academy students typically participate in work-based learning opportunities that tie classroom activities to work internships with local employers. College and career counseling are

provided to students in order to educate them on options and planning for employment and post-secondary education.

3. Partnerships and employers: An integral part of the Career Academy model is its strategic partnerships with local employers in an effort to build connections between school and work. These partnerships help to provide students with a range of career development and work-based learning opportunities which serve as great motivators in the learning environment even for the most at-risk students. Each Career Academy creates an Advisory Committee which includes employment representatives from the local community, academic faculty, post-secondary representatives, and school administration. Employer representatives may serve to give advice on relevant curriculum, appear as guest speakers for students, supervise internships and sometimes serve as mentors for Academy students.

Maxwell and Ruben (2000) explained that, “The Career Academy is arguably the most well developed school-to-work program model focused on school-based learning.... Because of its comprehensive goals, the career academy model has been viewed as a catalyst for school change. (p. 28)

Research on Small Learning Communities

In response to the growing concerns of school size and high school transitions being roadblocks in achieving the gains mandated by the NCLB, the United States Department of Education, through the No Child Left Behind Act of 2001, proposed implementing smaller learning communities in schools. The Department of Education went as far as to create a Smaller

Learning Communities Grant Program. They indicated that smaller learning communities increase student performance and also may be safer because students feel less alienated, more nurtured and more connected to caring adults, and teachers feel that they have more opportunity to get to know and support their students” (Office of Vocational and Adult Education, 2009, p. 1). In turn, numerous school districts began trying to incorporate strategies for small learning communities into their current structure.

Research Findings on Career Academies

Since 1993, the Manpower Demonstration Research Corporation (MDRC) has been conducting a uniquely rigorous evaluation of the Career Academy approach that uses a random assignment research design in a diverse group of nine high schools across the United States. The high schools in the study are located in medium- and large-sized school districts and confront many of the educational challenges found in low-income urban settings. The participating Career Academies were able to implement and sustain the core features of the approach, and they served a cross-section of the student populations in their host schools.

The evaluation report (Kemple & Snipes, 2000) focuses on over 1,700 students who had applied for one of nine Career Academies participating in the evaluation. The participating Academies were able to implement the Career Academy model with fidelity and maintain the key features of the approach while adapting to a wide range of local needs and circumstances. The Career Academies in the study included a range of technical, service-oriented, and business-related career themes and are located in small cities and large urban school districts. The evaluation report documents the following findings (Kemple & Snipes, 2000):

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1. Career Academies provide a well-defined approach to creating more supportive high school environments and increasing students' exposure to career awareness and work-based learning activities.
2. The Career Academies in the study increased both the level of interpersonal support students experienced during high school and their participation in career awareness and work-based learning activities.
3. The Career Academies substantially improved high school outcomes among students at high risk of dropping out. For this group, the Academies reduced dropout rates, improved attendance, increased academic course-taking, and increased the likelihood of earning enough credits to graduate on time.
4. Career Academies should continue to serve a heterogeneous population of students. The pervasive positive impacts for students at high risk of dropping out may derive, in part, from exposure to a highly engaged peer group who, on balance, also benefit from exposure to several key dimensions of the Academy experience.
5. The Career Academies did not improve standardized math and reading achievement test scores.
6. If Career Academies do not complement their career-related curriculum and work-based learning activities with strong interpersonal and academic supports, they risk reducing school engagement for some students. A highly structured school-within-a-school organization can create a necessary set of conditions for providing these supports.
7. Career Academies should build on the effective organizational enhancements

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they bring to high school reform efforts if they are to improve academic achievement as measured by most standardized tests currently in use. Promising approaches may involve aligning Career Academy curricula with high standards and providing teachers with the incentives and capacity to deliver on such standards.

8. If Career Academies do not complement their career-related curriculum and work-based learning activities with strong interpersonal and academic supports, they risk reducing school engagement for some students. A highly structured school-within-a-school organization can create a necessary set of conditions for providing these supports.

In order to capture the most realistic picture and parallel the sample group under this investigation, this study will compare the differences in performance of students with similar academic backgrounds both inside and outside of the Career Academy. Comparing students with comparable academic backgrounds will help to mitigate the effects of students' prior experiences with the treatment of the Career Academy model in this study.

Kemple (2008) conducted a follow up study to evaluate the long-term impact of Career Academy participation on former students. The 2008 study conducted describes how Career Academies influenced students' labor market prospects and postsecondary educational attainment in the eight years following their expected graduation. The results are based on the experiences of more than 1,400 young people, approximately 85 percent of whom are Hispanic or African-American.

Key Findings- (Kemple, 2008):

- The Career Academies produced sustained earnings gains that averaged 11 percent (or \$2,088) more per year for Academy group members than for individuals in the non-

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Academy group — a \$16,704 boost in total earnings over the eight years of follow-up (in 2006 dollars).

- These labor market impacts were concentrated among young men, a group that has experienced a severe decline in real earnings in recent years. Through a combination of increased wages, hours worked, and employment stability, real earnings for young men in the Academy group increased by \$3,731 (17 percent) per year — or nearly \$30,000 over eight years.
- Overall, the Career Academies served as viable pathways to a range of postsecondary education opportunities, but they do not appear to have been more effective than options available to the non-Academy group. More than 90 percent of both groups graduated from high school or received a General Educational Development (GED) certificate, and half completed a postsecondary credential.
- The Career Academies produced an increase in the percentage of young people living independently with children and a spouse or partner. Young men also experienced positive impacts on marriage and being custodial parents.

This study presents findings on the long-term effects of Career Academies on outcomes associated with the transition from adolescence to adulthood, particularly on labor market participation, educational attainment, and family formation, over the eight years following scheduled graduation from high school. According to Kemple (2008), the Career Academies produced sustained employment and earnings gains, particularly among young men. While Career Academies had no impact, positive or negative, on educational attainment, half of the

young people in both the Academy and non-Academy groups earned a postsecondary credential. The Career Academies also showed positive effects on increasing family stability.

Research on Student Achievement

Stern et al. (1992) emphasized the ability of career academies to improve student achievement, but also called for more systematic studies exploring which specific aspects of career academies contribute to positive student outcomes. In a comparative approach between academy and non-academy students, Maxwell & Rubin (1997) supported the findings that academies positively affect students but also suggested that not all students benefit equally from the academy experience.

The findings demonstrated that many students acquired higher grades, scored higher on exams and were more engaged within the academy model. Although, students in the academy were found to be more engaged in school and benefit socially from the academy structure, some simply did not show much academic improvement. In fact, these students, compared to their non-academy counterparts, may not gain significantly from being enrolled in the academy. Maxwell and Rubin (2000), acknowledged that their quantitative analysis was unable to explain the causes of this outcome, and called for further exploration to assess the within and between academy processes that may explain differences in school engagement.

In order to fulfill the New Jersey State's graduation requirements for high school, students must demonstrate proficiency in Grade 10 English Language Arts (ELA) and Algebra I, through the NJSLA (formerly known as PARCC) or another standardized assessment approved by the state. The NJSLA is typically administered in the spring semester and consists of two or three

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parts for each assessment (may vary year to year). Each school is provided with a window of time to administer the NJSLA, allowing schools some flexibility in how the exam is administered.

According to the New Jersey State School Report Card of the identified school in this study, 34% of 10th grade students passed the PARCC Language Arts Assessment (PARCC was renamed to NJSLA in 2019) and 17% passed the PARCC Algebra I Assessment for the 2017-18 School Year. Passing includes students who have performed at a proficient or advanced proficient level of achievement. The state proficiency percentages for 10th grade language arts and Algebra I for the 2017-18 school year are 51% and 46% respectively (New Jersey Department of Education, 2018).

During the 2016-17 School Year the identified school demonstrated the following results, 28% of tenth graders passed the PARCC ELA and 15% of students passed the PARCC Algebra I assessment. While the state proficiency rates for 10th grade PARCC ELA and Algebra I for the 2016-17 school year were 46% and 42% respectively (New Jersey Department of Education, 2018).

Since the implementation of PARCC five years ago, there have been continued debates over the validity and value of the exams in measuring student proficiency. Students continue to struggle on these state assessments with almost half of our 10th graders statewide failing to meet proficiency standards on ELA and Algebra I. State officials cautioned against drawing too many conclusions from the statewide test scores alone, saying the data doesn't reflect an individual student's year-to-year growth. "What story is this data telling?" said Linda Eno, an Assistant Education Commissioner during an interview in September of 2019.. "We don't have a complete story just looking at this picture."

Standardized testing results are generally predictable, with individual student performance strongly correlated to family income and the education of a student's parents. But New Jersey switched to the PARCC exams in 2015, with officials in former Governor Chris Christie's administration saying the prior exams (HSPA) were too easy and didn't give the state an accurate gauge of student performance.

Despite the mediocre scores overall, state officials pointed to some evidence of success: Scores in 10th grade English have improved significantly, there's been major improvement in Algebra 2 since the first year of testing, and more students are participating in the exams overall. But state board members pointed to declining proficiency rates in several subjects as a concern. Education Commissioner Lamont Repollet said it's unfair to compare one year of fifth graders, for example, to another. Repollet stated, "Each grade level is different, each kid is different."

Student Engagement

Engagement has been defined in many fundamentally different ways. In this study, engagement is defined as the intensity of productive involvement with an activity. This definition includes one's involvement, focus, participation, and persistence on a task, all of which have been implicated in learning (Ben-Eliyahu et. al., 2018).

Active research on student engagement has occurred primarily in the past 25 years, there are questions and unresolved issues related to engagement but there is also general consensus regarding several factors of engagement theory and research, including: Student engagement is considered the primary theoretical model for understanding drop out and promoting school completion. School completion is defined as graduation from high school with

sufficient academic and social skills to partake in post secondary options and/or the world of work (Christenson et al., 2008; Finn, 2006).

Engaged students do more than perform academically; they also put forth effort, persist, self-regulate their behavior toward goals, challenge themselves to exceed, and enjoy challenges and learning (Klem & Connell, 2004). Student engagement is generally associated positively with desired academic, social, and emotional learning outcomes (Klem & Connell, 2004).

Engagement is a multidimensional construct that requires an understanding of affective connections within the academic environment (e.g., positive adult-student and peer relationships) and active student behavior (e.g., attendance, participation, effort, prosocial behavior). (Appleton, Christenson, & Furlong, 2008). Student engagement in classrooms can be of three types: behavioral, cognitive, and affective (Fredericks, Blumenfeld, & Paris, 2004). These three types are distinct yet interrelated. Behavioral engagement conveys the presence of general "on-task behavior." This entails effort and persistence along with paying attention, asking questions, seeking help that enables one to accomplish the task at hand, and participating in class discussions. Cognitive engagement demonstrates a students' investment aimed at understanding complex concepts and issues and acquiring difficult skills.

Cognitive engagement conveys a deep, rather than surface-level, processing of information where students gain higher order understanding of the subject matter and solve challenging problems. Affective engagement expresses emotional reactions linked to task investment. The greater the student's interest level, positive affect, positive attitude, positive value held, curiosity, and task absorption, the greater the affective engagement. Based on current research and understanding, we don't know how the three types of engagement interact, and we are not certain which antecedents are linked to which types (Ladd & Dinella, 2009).

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According to Kemple & Snipes, 2000, the Career Academy Model provides a well-defined approach that creates a more supportive high school environment allowing for students to feel connected to their peers and adults in the building. This study will evaluate the levels of Affective and Cognitive Engagement of students both inside and outside of the Academy in the high school being studied. Student engagement levels will be measured through the Student Engagement Instrument (SEI), a tool offered by the Check and Connect Student Intervention Program developed by the University of Minnesota. The levels of engagement will be compared to determine if there is a significant difference in the engagement levels of academy compared to non-academy students.

The Student Engagement Instrument (SEI) is a brief 35 item self-reporting survey measuring cognitive and affective engagement. Questions in the Student Engagement Instrument include questions such as:

“My education will create many future opportunities for me.”

“Adults at my school listen to the students.”

“Most teachers at my school are interested in me as a person, not just as a student.”

“When I do well in school it’s because I work hard.”

“I’ll learn, but only if my family/guardian(s) give me a reward.”

“What I’m learning in my classes will be important for my future.”

“The grades in my classes do a good job of measuring what I’m able to do.”

Several studies of the SEI have been conducted with students in grades 6-12. Additional research has confirmed the factor structure of the SEI (Betts, Appleton, Reschly, Christenson, & Huebner, 2010; Reschly, Betts, & Appleton, 2014) and provided evidence of measurement

invariance and score reliability across grades 6-12 and gender (Betts et al., 2010). Another study, conducted with students in grades 9-12, provided evidence of convergent and divergent validity with another measure of engagement and motivation (Reschly et al., 2014). With respect to concurrent validity, low to moderate correlations (in expected directions depending on the variable), have been found between SEI scores and other measures of school performance (e.g., achievement, attendance, disciplinary incidents; Reschly et al., 2014).

Gap in the Literature

The research on the positive effects of small school size on increasing student achievement has been consistent (Jimmerson, 2006, Howley, Strange & Bickel, 2000, Nathan & Thao 2001; Lee and Smith, 1996; Williams, 1990; Cotton, 1996). When compared with the available research on the effects of school size, the research on the School-within-a-School structure is less conclusive, extensive and often less rigorous. The limited existing research on Schools within a School has noted benefits in the areas of academic achievement, social behavior, attitudes, satisfaction with school, attendance and student to teacher relationships.

Additionally, there is limited research available on the moderating effects of student demographics on the impact of the Career Academy model on Student Achievement and Engagement. Student subgroups (Students with Disabilities (SWD), Limited English Proficient (LEP), Free/Reduced Lunch Eligible (FRLP)) often demonstrate lower achievement rates on average. During the 2018-19 School year, the median 10th Grade ELA scale score for students overall in New Jersey was 749, while SWD, LEP, and FRLP students scored 730, 707 and 684 respectively. In the state Geometry exam similar median results are found with a Median statewide score of 735 and with SWD, LEP and FRLP students scoring 713, 711, and 722 respectively.

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This study seeks to add to the literature on the impact of the Career Academy Model on improving student achievement and student engagement in schools, particularly focusing on the accessibility and potential benefits that student subgroups can achieve from the Career Academy Model. Students with Limited English Proficiency, in particular, may experience limited admission options to specialized programs that may require more advanced level of English Language proficiency. This study seeks to determine if all student subgroups can benefit from the Career Academy model.

In contrast, to other studies examining the impact of Career Academy participation, this study will analyze student Engagement data of students before joining the academy compared to one year after joining the academy. This pre-post data will help determine if students that choose to enroll in Career Academies are fundamentally more engaged in school compared to students that choose not to enroll. Additionally, the high school under investigation used specific National Standards of Practice for Career Academies that, if proven effective, can be utilized to replicate the school's program effectiveness and as a road map for the Career Academy model in additional schools.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study is to examine the impact of the Career Academy model in comparison to the traditional comprehensive high school model with respect to student achievement and student engagement within one urban high school in Central New Jersey. Student achievement and the often-related variable of student engagement are measured in this study due to their direct impact on students' on time graduation and post secondary success.

Career Academies, also referred to as small learning communities, are small high school programs with a theme around a career cluster area found inside larger traditional high schools. Traditional high schools in urban settings have been plagued with problems related to high dropout rates, poor attendance, and students underperforming academically. Proponents of small learning communities like the Career Academy model, argue that the comprehensive high school setting fails students because it fails to engage students in the learning process. One of the strengths identified in the Career Academy model is found in connecting student interests with a central theme that is hands-on and has practical application in real world contexts. Partnerships with local employers and community organizations allow students to gain exposure and increased awareness of career options and gain real work experience prior to graduating from high school.

This chapter is organized as follows: design of the study, explanation of career academies and comprehensive high schools, description of the high school program for the specific high school under investigation and determination of the sample. The procedures

section describes the development of how data were collected, the sample studied, and the sampling techniques. Lastly, this chapter also describes the data analysis plan.

Design of Study

The purpose of this study is to examine the impact of participation in high school career academies in comparison to the comprehensive high school program with respect to student achievement and student engagement within one urban high school in Central New Jersey. Students in the high school under investigation may opt to enter into the Communications-themed Career Academy during their 10th grade year in high school. All students participate in the same comprehensive high school program during their 9th grade year and are exposed to the Communications Academy theme through a variety of school-wide activities. In January of students' 9th grade year, students have the option to apply to participate in the Communications Academy starting in their 10th grade year. There is a short application process that includes a one page application with general student information and two short answer response questions. The first question requires students to share why they are interested in attending the Communications Academy and the second question asks students to share specific experiences that demonstrate their interests in the Communications Academy theme. Since all 9th Grade students in the high school under investigation are required to participate in Communications Themed activities (TV Production, Research, Graphic Design etc.), all students have some experiences to potentially draw from. Additionally, all 9th grade English Teachers take time to assist students during class time to complete the short response questions as needed.

Student applications are evaluated by a committee of school personnel including School Administrators, Department Supervisors, Academy Teachers, and School Counselors. Student Acceptance is solely based on student interests in the Academy Model and Communications

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Theme demonstrated through their short responses on the application, student academic performance does not impact students' ability to be admitted into the Academy. The Academy Admissions Committee also ensures that there are students represented from each Academic Level (General, Special Education and English Language Learners) in order to provide access to all levels of students found within the overall student population of the high school.

Table 1:

2018-19 School Year School Demographics: 10th grade Academy and Non-Academy Students

	Comprehensive High School (10th grade)	Communications Academy
Total Students	395 (209 Female; 186 Male)	122 (68 Female; 54 Male)
Black or African American	13 (3.2%)	6 (4.9%)
Hispanic	403 (94.8%)	114 (93.4%)
White	6 (1.5%)	1 (0.08%)
Students with Disabilities (SWD)	53 (13.4%)	9 (7%)
Limited English Proficient (LEP)	125 (31.6%)	25 (20%)
Economically Disadvantaged	364 (91.8%)	103 (84.4%)

The high school under investigation overall maintained a population of approximately 25% Limited English Proficient (LEP) students, 12% Special Educations (SWD), and 85% students eligible for Free and Reduced Lunch. The Academy Admissions Committee accepted 122 students during its first year that consisted of 20% LEP, 7% SWD, 87% Free/Reduced Lunch eligible students, and 40% Males.

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The model under investigation is a school-within-a school or Career Academy, which provides students with an alternative, smaller environment within the large comprehensive high school, there were 122 students accepted into the Academy and 119 Career Academy Students ultimately enrolled during the 2018-19 School Year. The other group under investigation participated in the traditional comprehensive high school program during their 10th grade year, there were 395 Non-Academy students during the 2018-19 School year. Both models under investigation work within a traditional 9 period day of 42-minute classes.

The methodology utilized for this study was quantitative as it is deemed the most appropriate method to analyze the data. Student achievement outcome variable, New Jersey State Required ELA and Math Assessments (PARCC for the 2017-18 School Year and NJSLA for the 2018-19 School Year) and Student Engagement data from the Student Engagement Instrument (SEI) were analyzed utilizing quantitative methods. Note that the name of the New Jersey State required assessments changed from the 2017-18 School Year to the 2018-19 School year; both exams are comparable in that they assess student knowledge of the Common Core Learning Standards for each respective subject area and are scored on the same 5 Proficiency Levels. To determine the degree of effectiveness the Career Academy model has had on specific student outcomes, this study has relied primarily on researched numerical data. Data were compared for student achievement outcomes including 9th grade PARCC ELA and 10th grade NJLSA ELA scores, 9th grade Algebra or Geometry PARCC scores, and 10th grade Geometry or Algebra II/Trigonometry II NJSLA scores. Note that the math exam administered to students was dependent on the math course that the student was enrolled in during that academic year. Student ELA and Math data before joining the academy and after one year of participation in the academy was compared as a measure of student growth and effectiveness of the career academy

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model in comparison to the Comprehensive High School Model. Student assessment scores were standardized using Z-scores for comparison purposes.

Student engagement levels, as measured on the Student Engagement Instrument (SEI), were evaluated for students enrolled in the Career academy, as well as Non-Career Academy students. In this study, engagement is defined as the intensity of productive involvement with an activity. This definition includes one's involvement, focus, participation, and persistence on a task, all of which have been implicated in learning (Ben-Eliyahu et. al., 2018). Student engagement in classrooms can be of three types: Behavioral, Cognitive, and Affective (Fredericks, Blumenfeld, & Paris, 2004). These three types are distinct yet interrelated. Behavioral engagement conveys the presence of general "on-task behavior." Cognitive engagement demonstrates a student's investment aimed at understanding complex concepts and issues and acquiring difficult skills. Lastly, Affective engagement expresses emotional reactions linked to task investment. The greater the student's interest level, positive affect, positive attitude, positive value held, and curiosity, the greater the affective engagement. (Ladd & Dinella, 2009).

The school under investigation administered the Student Engagement Instrument (SEI) to all 9th graders in June 2018 and to the same students at the end of their 10th grade year in June 2019. This data was collected by school administration for the purposes of their own program implementation; this available data was provided by school administration to the researcher of this study. The Student Engagement Instrument (SEI) is a research-based resource available through the Check and Connect Student Intervention developed by the University of Minnesota (Check and Connect, 2020). The Student Engagement Instrument (SEI) is a brief 35 item self-

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reporting survey measuring cognitive, behavioral and affective engagement and provides an overall Student Engagement score.

Student Engagement levels in 9th grade, prior to joining the academy, were compared to Student Engagement levels in 10th grade, one year after participating in the Academy or Comprehensive High School. Since existing literature shows us that Student Engagement is generally associated with desired academic, social, and emotional learning outcomes, this study analysed any differences that may exist among the engagement levels of students under investigation. Student engagement levels of academy and non-academy students were compared in order to identify any pre-existing differences among the groups under investigation. Career Academy students volunteered to apply and participate in the Career Academy program starting in their 10th grade year, it is presumed that fundamental differences may exist in the engagement levels of these students compared to students that chose not to participate.

Although, the school under investigation ensured that the breakdown of the accepted Career Academy students maintained a proportionate representation of Honors, General, Special Education, and English Language Learners in the Career Academy compared to the Comprehensive High School, this study will further examine if fundamental differences existed in the engagement levels of students that chose to participate in the Career Academy compared to students that chose not to participate and enrolled in the Comprehensive High School instead. Fundamental differences in student engagement levels may in turn affect students' academic performance and general academic growth in the long term despite participation in one program over the other (Career Academy versus Comprehensive High School). This study will examine the 9th grade SEI levels of both Career Academy and Comprehensive High School students

before and after one year of participation in both academic programs to determine if these fundamental differences exist and account for them in the data analysis.

Instrumentation

For the purpose of this study, the results from the New Jersey State Assessments in ELA and Math were utilized as a measure of student academic performance. For the 2017-18 School Year New Jersey administered the PARCC exam (Partnership for Assessment of Readiness for College and Careers) and during the 2018-19 school year it transitioned to the NJSLA (New Jersey Student Learning Assessment). Both exams are comparable as they are based on Common Core Learning Standards for each respective subject area and results are categorized into 5 performance levels. This study also utilized Student Engagement Level results from the Student Engagement Instrument (SEI) as another measure of student outcomes.

The PARCC and NJSLA are a set of state tests given to all students in grades 3 to 11 to measure the extent to which students are, or on track to being, college and career ready in the areas of Math and English Language Arts.

Not all students respond to the same set of items (same form), so instead of reporting students' raw scores (actual points earned on test items), scale scores are used to report student performance for PARCC and NJSLA assessments. The purpose of using scale scores is to report scores for all students on the same scale. This allows for an accurate comparison across different tests forms and administration years within a grade or subject and content area. Overall scale scores for both ELA and Math range from 650 to 850 for all grade levels. The PARCC and NJSLA English Language Arts report also provide scale scores for Reading and Writing. Reading scale scores range from 10-90 and writing scores range from 10-60. (Pearson, 2019).

Using the scale scores, each student is assigned to a Performance Level. Each performance level is a broad, categorical level defined by a student's overall scale score and is used to report overall student performance by describing how well students met the expectations for their grade level/course (Pearson, 2019). There are five performance levels for PARCC and NJSLA assessments:

- **Level 5: Exceeded Expectations**
- **Level 4: Met Expectations**
- **Level 3: Approached Expectations**
- **Level 2: Partially Met Expectations**
- **Level 1: Did Not Yet Meet Expectations**

Student Engagement levels were measured using the Student Engagement Instrument (SEI). The Student Engagement Instrument is a brief 35 item self-reporting survey measuring cognitive and affective engagement. The Student Engagement Instrument was administered by School Administration at the end of students' 9th grade year in June 2018 and at the end of their 10th grade year in June 2019. All students were required to complete the survey, students that were absent during the administration of the survey were required to complete it upon their return. Students that were not enrolled in the high school under investigation during both their 9th grade and 10th grade year were excluded from this study. Several studies of the SEI have been conducted with students in grades 6-12. Additional research has confirmed the factor structure of the SEI (Betts, Appleton, Reschly, Christenson, & Huebner, 2010; Reschly, Betts, & Appleton, 2014) and provided evidence of measurement invariance and score reliability across grades 6-12 and gender (Betts et al., 2010). Another study, conducted with students in grades 9-12, provided evidence of convergent and divergent validity with another measure of engagement

and motivation (Reschly et al., 2014). With respect to concurrent validity, low to moderate correlations (in expected directions depending on the variable), have been found between SEI scores and other measures of school performance (e.g., achievement, attendance, disciplinary incidents; Reschly et al., 2014).

The total Affective Engagement score is derived from student subscores in the areas of Teacher-Student Relationships (TSR), Peer Support at School (PSS), and Family Support for Learning (FSL). The Cognitive Engagement score is derived from student levels in the areas of Control and Relevance of School Work (CRSW), Future Aspirations and Goals (FG), and Intrinsic Motivation (IM). The students overall Student Engagement score is the average of the student Affective and Cognitive engagement scores. Student engagement scores range from 1 to 4, with 4 being the highest feelings of engagement for students.

Description of High School under Investigation

The school district under investigation typifies many of the challenges faced by large urban districts across the nation. The school district serves over 11,000 students and employs over 4,000 staff members. Most of the city's public school students are in the district's only high school, 2 middle schools or 6 elementary schools. According to the 2017-18 New Jersey state performance report, the high school under investigation had a total enrollment of 2,222 students which was divided as follows: Grade 9: 667; Grade 10: 573; Grade 11: 510 and Grade 12: 472. The student population is 4.7% Black or African American, 93.5% Hispanic, and 1.6% White. For the 2017-18 school year, 29.8% of the student population was classified as Limited English Proficient, and 9.4% of the student population were students with disabilities or students with

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Individualized Education Plans (IEPs). The district is considered a Title I school with the majority of students considered as Economically Disadvantaged, during the 2017-18 school year 89.2% of students in the high school under investigation were Economically Disadvantaged.

The high school utilized for this study is the only public school in the school district. All 9th graders in the district are housed in a separate building apart from the grade 10-12 high school program. Students in the 9th grade are exposed to a comprehensive high school experience where they are able to explore a variety of electives and interests. All 9th graders are required to participate in introductory lessons and activities of the theme of Communications and Media, which is the theme of the district's available Career Academy in 10th grade. The Career Academy under investigation was launched in September of 2018 in an effort to provide increased options and opportunities to the district's students (Grades 10-12). After a two-year planning period for the district, the district developed the "Communications Academy", which capitalized on the districts' existing TV Production Studio, partnership with the city's local access channel, Bilingual ability of its students, expressed interests of students, and marketability of transferable skills found in the field of Communications.

The Communications Academy in the high school under investigation was developed in partnership with building administration, district level administration, community agencies, and Communications Professors from New York University. The curriculum for the Communications Academy core classes (English, Math, Science, Social Studies, TV Production, Media) was revised to specifically embed the theme of communications throughout all content areas. Additionally, ongoing Professional development was provided to Communications Academy teachers by the district's Director of Curriculum and Instruction and Consultants from New York University. The curriculum revisions and professional development focused on

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incorporating both College-Prep level instruction for college-bound students as well as hands-on, practical application of material being learned for career-bound students.

In the middle of their 9th grade year, students were provided the opportunity to apply to the Career Academy for the 10th grade or continue with the Comprehensive high school program. Enrollment in the 10th grade Career Academy is voluntary, students may choose to apply for acceptance into the program. In order to be admitted, students must submit a one-page application with basic demographic information, parental permission, and a short response essay indicating the student's interest in pursuing the Career Academy. Program staff at the district and high school level reviewed student applications and selected students based on expressed interest only. Student grades are not factored into the selection decisions as the program is targeting both college-bound and non-college bound students.

The Academy under investigation focused on the career cluster of "Communications". The Communications Academy provides a three-year sequence of courses leading to a broad range of careers in International Communication and Diplomacy or Media Communications. Elective courses are offered in TV production and Design, International Diplomacy, Digital Media, and TV Broadcasting. Students in the Career Academy are required to take the same core academic courses required for graduation as their counterparts in the Comprehensive High School, but the academy students attend course sections as a cohort separate from the Comprehensive High School students in the same high school. The Communications Academy theme is embedded into all of their core academic subjects (English, math, science, and social studies) through carefully selected reading material, course resources and discussions incorporated by the Academy teacher selected to teach the course.

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Students in the academy are required to complete at least 40 hours of Service-Learning Projects where they are exposed to hands-on work experiences in community organizations so that they may gain real life work experiences while continuing their education. The program has been developed to utilize the National Standards for Career Academy framework and in collaboration with consultants from the Communications department from New York University. The academy curriculum coupled with Service Learning experiences, allows students to experience first-hand the importance of academic and professional skills. The academy helped to establish close relationships with businesses, providing students with sources of instruction and motivation beyond those provided by teachers.

The Career Academy under investigation adhered to the National Standards of Practice for Career Academies (National Career Academy Coalition, 2019):

- I. Defined Mission and Goals
- II. Academy Design: Well-defined structure within the high school, reflecting its status as a small learning community
- III. Host Community and High School: Strong partnership
- IV. Faculty and Staff: Appropriate and highly qualified staff selection
- V. Professional Development and Continuous Learning
- VI. Governance and Leadership: Explicit roles of key stakeholders and an advisory board
- VII. Teaching and Learning: Meets or exceeds national standards for college and career readiness
- VIII. Employer, Post-Secondary Education and Community Involvement

- IX. Student Assessment: Formative assessments incorporated to measure student progress in meeting/exceeding national and state standards.
- X. Sustainability: Engagement in a regular cycle of improvement.

Table I below outline the characteristics of the High School under investigation.

Determination of the Sample

The school site was selected because it had completed its first full school year of a Career Academy implementation and had 10th graders that had participated in the academy and a comparison group of 10th graders that had not. The sample for this study included the 55 Communications Academy students and the remaining 175 Non-Academy tenth grade students enrolled in one large, low socio-economic, high school in New Jersey. The Communications Academy group participated in courses to fulfill their core graduation requirement in course sections designed specifically for academy students with academy teachers, completed one year of the three year sequence of courses Communications Career Cluster, completed 10 hours of Service Learning Experiences, and participated in five student assemblies with guest speakers from experts in the field (College Professors and Industry Professionals). Non-Academy students enrolled in the school's Comprehensive High School program, participated in courses to fulfill their graduation requirements, completed elective course offerings in any field, but did not participate in Service-Learning Opportunities or guest speaker assemblies. Both groups of students attended classes in the same school building and had opportunities to take non-core classes together (physical education, World Language, non-career academy electives), use the same support services, and participate in the same extra-curricular activities.

The two groups being studied are tenth grade students that completed one year of the Career Academy and tenth grade students that did not participate in the career academy.

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Students of varying academic levels (Honors, General, Special Education, and English Language Learners) are present in both Academy and Non-Career Academy groups. During the enrollment process, the school under investigation ensured that there were students represented from each academic level (Honors, General, Special Education and ELLs) in the Career Academy. The Academy and non-academy students in this study all participated in the same 9th grade Comprehensive High School program within the district under investigation. Therefore, 9th grade data will be used to analyze student academic performance (PARCC Math and ELA scores) and compare to 10th grade performance for both groups (NJSLA Math and ELA scores) after one year of participation in the Career Academy or Comprehensive High School Program. Student Engagement Levels as measured by the district administered Student Engagement Instrument (SEI) in 9th grade and at the end of 10th grade will be used to also compare the differences, if any, among both groups before and after participation in the available 10th grade programs in the high school (Career Academy or Comprehensive HS Program).

The data for this study was de-identified, secondary data provided by school administration from school academic data (NJSLA and PARCC scores) and Student Engagement scores derived from the Student Engagement Instrument (SEI).

A regression analysis was conducted to determine what significant difference, if any, existed in student achievement and student engagement levels with respect to career academy participation and non-career academy participation. The main essence of this study is to determine if involvement in a high school career academy has a positive effect on student achievement and student engagement in a specific urban high school operating as a School within a School Model.

Procedure for Data Collection

All data used for this study was secondary data that was already available at the school level and provided to the Researcher for this study. There will be no site visits conducted for this study; the available data will be provided to the researcher by school administration on Excel Files saved on a flashdrive. School administration provided de-identified student academic data (PARCC and NJSLA Scores) and engagement data (SEI Scores) for all 9th graders that attended during the 2017-18 school year and the same group of students during their 10th grade year (2018-19). Student demographic data was also provided for individual students including, student race, ethnicity, program classification (General, Special education, and English Language Learner), free or reduced lunch eligibility, and gender.

A large, urban high school transitioning to the School within a School model in the state of New Jersey was selected for this study. A letter of explanation of the study and its intent was made along with a request for permission to utilize district data sources was sent to the district Assistant Superintendent (Appendix A). The Assistant Superintendent provided a return letter granting permission to contact the high school administrative office for data and use of the selected school for the premise of this study (Appendix B).

Method of Analysis

The research methodology employed within this study relied on quantitative methods. The purpose of this section is to present a description of the methods that were used to analyze the data collected in this study. The data analysis plan began with the methods used to present basic descriptive information of the Student Engagement Data and PARCC and NJSLA scores provided by school administrators to the researcher utilizing excel spreadsheets. The goal of this

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study is to analyze the performance of Career Academy and Non-Career Academy students and understand the possible influence of the career Academy experience on student outcomes.

This study will use a Regression Model to analyze differences (if any) in Academic Performance and Student Engagement scores of Career Academy students compared to Non-Career Academy students in the school under investigation. Since the required New Jersey State Assessment for ELA and Math changed from PARCC in 2018 to NJSLA in 2019, standardized scores will be needed for the purposes of this study. In order to compare the 9th grade PARCC results and the 10th grade NJSLA results, all scores will be standardized into Z-scores. The study will control for student engagement levels and academic track (honors, general, special education, and English Language Learners) by pairing similar students from the Career Academy and Non-Career Academy groups. Regression models for dependent and independent variables for each research question will be analyzed.

Research Questions

Question 1: What impact do Career Academies have on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA 10th Grade Math Scores, and SEI results.

Independent Variables: Career Academy Participation

Dependent Variables: 10th grade NJSLA ELA Scores, 10th Grade NJSLA Math Scores, Student Engagement Composite Scores

Question 2: To what extent, if any, does students' demographic variables (LEP classification, FRLP Eligibility, and Gender) moderate the impact of Career Academies on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA 10th Grade Math Scores, and SEI scores.

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Independent Variables: Career Academy Participation; Limited English Proficiency (LEP)

classification, Free/Reduced Lunch Program (FRLP) Eligibility, and Gender.

Dependent Variables: 10th grade NJSLA ELA Scores, 10th Grade NJSLA Math Scores, Student Engagement Composite Scores.

These questions will be explored through the analysis of standardized data made available through data already collected data by the High School under investigation. Academic data from PARCC and NJSLA ELA and Math scores will be provided by district administration for all 10th grade students in the high school under investigation (2018-29 SY). District administration will also provide student engagement scores from a Student Engagement Instrument (SEI) administered to students by the district in June 2018 and again in June 2019.

All data used for this study was provided to the researcher on Microsoft Excel spreadsheets saved on a flash drive. Student names were removed from the spreadsheet by school administration before providing the data to the researcher. The data collected for students participating in the Career Academy and students not participating in a Career Academy were compared for significant differences with respect to student achievement and student engagement. Student achievement is comprised of NJSLA ELA and Math scores, while student engagement is comprised of student cognitive and affective engagement scores. The rejection or retention of the 9 hypotheses will help frame the answers and interpretations of the 3 research questions.

Hypotheses:

Hypothesis 1: There is no significant difference in NJSLA ELA and Math scores between Career Academy and Non-Career Academy students.

Hypothesis 2: There is no significant difference in Student Engagement Levels between Career Academy and Non-Career Academy students.

Hypothesis 3: There is no significant difference in student performance among students based on their socio-economic background (free or reduced lunch compared to non-free or reduced lunch).

Hypothesis 4: There is no significant different in student performance among students classified as Limited English Proficient (LEP) (LEP compared to Non-LEP).

Hypothesis 5: There is no significant difference in student engagement levels among students based on their socio-economic background (free or reduced lunch compared to non-free or reduced lunch).

Hypothesis 6: There is no significant difference in 10th Grade NJSLA ELA and Math scores of males compared to females.

Hypothesis 7: There is no significant difference in student engagement levels of males compared to females.

Summary

Research on school size has consistently demonstrated an inverse relationship between school size and student performance and student engagement, smaller schools produce better results (Bloom & Unterman 2012; Jimmerson, 2006; Thao, 2001; Black, 2002; Cotton, 1996; Howley & Bickel, 2000). Additionally, according to the Career Academy evaluation report conducted by Kemple & Snipes (2000), it was found that Career Academies substantially improved high school outcomes among students at risk of dropping out and there was increased student engagement for students enrolled in the Career Academy program. This chapter outlined the methodology to be followed by this study. The methods for developing the data collection and the process for data analysis were reviewed. By creating a smaller learning environment within a large high school, can positive student outcomes be established? This study was designed to investigate and report on the possible progressive results that a school transformation

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from Comprehensive High School to a Career Academy Model might have on urban students. The study was based on an urban high school in Central New Jersey after one year of implementation of a Career Academy as an effort to increase student graduation rates, student academic performance, and student engagement. This methodology produced a variety of statistical results and findings that are discussed in the next chapter.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this study is to investigate the possible effects that participation in a high school Career Academy within a specific urban high school have on student achievement on State Standardized ELA and Math exams and Student Engagement levels as compared to students enrolled in a traditional comprehensive high school program within the same school. In this chapter, a detailed presentation of the data will be provided to the reader along with complete results of this investigation.

This study utilized the results of the state mandated New Jersey NJSLA and PARCC standardized exams in ELA and Math as a measure of student achievement and results from the Student Engagement Instrument (SEI) as a measure of student engagement levels. The Student Engagement Instrument (SEI) is a research-based tool provided by the Check and Connect Program developed by the University of Michigan. Student Achievement scores and Student engagement levels before entering the Academy and after one year of participation in the Career Academy or the Comprehensive High School were compared and analyzed. This study helps determine through analysis if student achievement outcomes and student engagement levels of Career Academy students in the specific Urban High School under investigation have improved in the areas of English Language Arts, Mathematics and Cognitive and Affective engagement.

After a review of the existing literature, two research questions were developed to determine whether Career Academy participation has an impact on student academic performance and engagement. This quantitative research explores the following questions:

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- What impact do Career Academies have on student achievement and engagement as measured by NJSLA English 10 Language Arts scores, NJSLA 10th grade math scores, and SEI results?
- To what extent, if any do students' demographic variables (LEP Classification, FRLP Eligibility and Gender) moderate the impact of Career Academies on student achievement and engagement?

Overview of Data

This study focused on the performance of tenth graders in the high school under investigation. There was a total of 119 students enrolled in the Career Academy and 395 Non-Academy students. For the purposes of this study, students with incomplete 9th or 10th grade ELA or Math scores or missing 9th and 10th grade student engagement scores were excluded from the sample for analysis. Students with incomplete data may have been absent during the administration of the New Jersey State Assessments and/or during the administration of the Student Engagement Instrument. Both the state assessments and the Student Engagement Instrument were administered by school staff. Differences in the total 10th grade student population compared to the students included in the sample are noted below in Tables 4.1 and 4.2.

Descriptive Statistics:

Student Sample Compared to 10th Grade Student Population

Table 4.1 - Sample Size compared to Available Student Population

	Total (N)	Academy Students	Comprehensive HS Students
All 10th Graders	514	119	395
In Sample	230	55	175

Table 4.2 - Descriptive Statistics for student groups in Sample and student groups for the entire 10th grade student population

	Academy Students		Comprehensive HS Students	
	N	Mean (percent)	N	Mean (percent)
In Sample: Percent of LEP students	9	16%	48	27%
Schoolwide 10 th Grade: Percent of LEP Students	15	13%	127	32%
In Sample: Percent of SWD students	2	3%	14	8%
Schoolwide 10 th Grade: Percent of SWD Students	7	6%	52	13%
In Sample: Percent of Free/Reduced Lunch Eligible students	48	87%	163	93%
Schoolwide 10 th Grade: Percent of Free/Reduced Lunch Eligible students	85	73%	363	92%
In Sample: Percent Male	22	40%	90	51%
Schoolwide 10 th Grade: Percent Male	48	40%	210	53%

This study included a total sample size of 230 students, of which 55 of them were enrolled in the Career Academy while the remaining 175 students were enrolled in the school’s comprehensive high school program. When comparing the sample of students included in this

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study to the entire 10th grade student population in the high school there are some notable differences in the student subgroups. For the Academy Students, the included sample had a higher percentage of Limited English Proficient (LEP) students and students eligible for Free/Reduced Lunch (FRLP), but had a lower percentage of students with Disabilities (SWD). For the Non-Academy students, the included sample had a lower percentage of SWD and LEP students; the percentage of students eligible for Free/Reduced Lunch and Males was about the same. Note that the student subgroup of Students with Disability (SWD) was not analyzed in this study due to the small sample number of SWDs in the Career Academy sample in (N=2).

In reviewing each student group within the sample for this study, there is a larger percentage of students identified as Limited English Proficient (LEP), Students with Disabilities (SWD), and eligible for Free or Reduced Lunch (FRLP) in the Comprehensive high school program compared to the Career Academy Program. The Comprehensive High School's group included 27% LEP, 8% SWD, and 93% FRLP students while the Career Academy consisted of 16% LEP, 3% SWD, and 87% FRLP students of each subgroup. This study did not examine the differences by race or ethnicity due to the homogeneous makeup of the student population of the school under investigation (95% Hispanic/Latino) or the subgroup of SWD due to small sample size (N=2).

Table 4.2 - Descriptive Statistics for student groups in Sample and student groups for the entire 10th grade student population

	Academy Students			Comprehensive HS Students		
	N	Mean (percent)	Std. Deviation	N	Mean (percent)	Std. Deviation
In Sample: Percent of LEP students	9	16%	0.373	48	27%	0.444
Schoolwide 10 th Grade: Percent of LEP Students	15	13%	0.343	127	32%	0.466
In Sample: Percent of SWD students	2	3%	0.135	14	8%	0.272
Schoolwide 10 th Grade: Percent of SWD Students	7	6%	0.236	52	13%	0.341
In Sample: Percent of Free/Reduced Lunch Eligible students	48	87%	0.336	163	93%	0.263
Schoolwide 10 th Grade: Percent of Free/Reduced Lunch Eligible students	85	73%	0.445	363	92%	0.269
In Sample: Percent by gender	22	40% Male	0.494	90	51%	0.501
Schoolwide 10 th Grade: Percent by gender	48	40% Male	0.493	210	53%	0.50

Overview of Student Achievement Scores: ELA and Mathematics

The required New Jersey State Assessment for ELA and Math was analyzed and compared as a measure of student achievement. During the 2017-2018 school year, the required state assessment for all NJ students was PARCC, while in the 2018-19 school year the assessment was renamed to NJSLA. Both the PARCC and NJSLA exams measure student proficiency in meeting the Common Core standards for each respective subject area and are therefore considered to be comparable. The ELA exam is administered to all students in each

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respective grade level despite, the Math exam may differ by grade level dependent on the students’ math course enrollment for the given academic year. The advanced students in the sample took Geometry as 9th graders and Algebra II / Trigonometry as 10th graders, while all other students took Algebra I as 9th graders and Geometry as 10th graders. The analysis for this study examined the average scores and growth from student’s 9th grade assessments to their 10th grade assessments in both ELA and Math.

Table 4.3 - Descriptive Statistics of Student Achievement Scores - ELA

	N	Mean	Median	Std. Dev	Min	Max
Career Academy – 9th Grade PARCC ELA	55	755	764	39.26	667	819
Career Academy – 10th Grade NJSLA ELA	55	759	763	45.90	650	850
Non-Career Academy: 9th Grade PARCC ELA	175	734	740	40.36	650	825
Non-Career Academy: 10th Grade NJSLA ELA	175	729	732	52.01	650	842
Total 9th Grade ELA	230	739	744	41.06	650	825
Total 10th Grade ELA	230	736	740	52.18	650	850

Among the 230 total students in the sample, the 9th grade PARCC ELA scores range from 650 to 825, with a mean score of 739.23 and a Standard Deviation of 41.06. The 10th grade NJSLA ELA scores ranged from 650 to 850, with a mean score of 736.43, and a Standard Deviation of 52.18. Although the 10th grade ELA scores were higher on average there was greater variability in the scores. When comparing the 10th grade NJSLA ELA scores of Academy and Non-Academy students we see that Academy students had a mean score of 763 with a Standard Deviation of 29.26, while Non-Academy students had a mean score of 729, and a standard deviation of 52.01. Career Academy student ELA scores increased from 755 to 759 on average, while Non-Career Academy student ELA scores decreased from 734 to 729 on

average. On average, Non-Career Academy students saw a 5 point drop in ELA scores from 9th grade to 10th grade.

Table 4.31 - Descriptive Statistics of Student Achievement Scores - Mathematics

	N	Mean	Median	Std. Dev	Min	Max
Career Academy: 9th Grade PARCC Math	55	745	748	30.76	650	791
Career Academy: 10th Grade NJSLA Math	55	735	736	27.34	675	820
Non-Career Academy: 9th Grade PARCC Math	175	734	736	26.25	667	793
Non-Career Academy: 10th Grade NJSLA Math	175	720	722	21.82	650	779
Total 9th Grade Math	230	737	739	27.73	650	793
Total 10th Grade Math	230	723	722	24.05	650	820

The 9th grade Math scores (Algebra I or Geometry) ranged from 650 to 793, with a mean score of 737, and a Standard Deviation of 27.73. While the 10th grade Math scores (Geometry or Algebra II/Trigonometry) ranged from 650 to 820, with a mean score of 723.99, and a standard deviation of 24.05. The 9th grade math scores were higher on average but also demonstrated greater variability in the scores. When comparing the 10th grade NJSLA Math scores of Academy and Non-Academy students we see that Academy students had a mean score of 745 with a Standard Deviation of 30.76, while Non-Academy students had a mean score of 734, and a standard deviation of 26.25. Career Academy student Math scores decreased from 745 to 735 on average, while Non-Career Academy Student Math scores decreased from 734 to 720 on average. On average, Non-Career Academy students saw a greater drop in math scores from 9th grade to 10th grade compared to Career Academy students, 14-point drop compared to a 10 point drop on average respectively.

Overall Student Engagement Scores

The Student Engagement Instrument (SEI) measures overall student Cognitive and Affective Engagement with possible engagement scores ranging from 1 being the lowest and 4 being the highest level of engagement. The 9th grade student engagement levels measure engagement levels before joining the Academy. Overall Career Academy students' 9th grade engagement levels ranged from 1.31 to 3.23, with an average of 2.07 and a standard deviation of 0.39. During the 10th grade year, after one year in the Academy, students' engagement levels ranged from 1.28 to 3.24. 10th grade Career Academy students had an average engagement level of 2.03 and a standard deviation of 0.42. Career Academy engagement levels were 0.04 lower after one year of participation in the academy.

When examining Non-Career Academy student engagement levels, we see their 9th grade engagement levels ranging from 1.31 to 3.57, with an average of 2.08 and a standard deviation of 0.33. During their 10th grade year Non-Academy students' engagement levels ranged from 1.28 to 3.10. Non-Academy students had an average engagement level of 2.02 and a standard deviation of 0.32. Non-Career Academy student engagement levels were 0.06 lower from their 9th to 10th grade academic years.

Table 4.4 - Descriptive Statistics of Student Engagement Levels

	N	Mean	Median	Std. Deviation	Minimum	Maximum
Career Academy: 9th Grade Student Engagement Scores	55	2.07	2.00	0.39	1.31	3.23
Career Academy 10th Grade Student Engagement Scores	55	2.03	1.95	0.42	1.28	3.24
Non-Career Academy: 9th Grade Student Engagement Scores	175	2.08	2.06	0.33	1.31	3.57
Non-Career Academy 10th Grade Student Engagement Scores	175	2.02	2.00	0.32	1.28	3.10

Findings - Student Achievement Scores

The purpose of this section in the chapter is to present the results of the analysis of the descriptive statistics using a series of t-tests. T-tests were used to compare the sample means of the two groups: (a) Career Academy students, and (b) Comprehensive High School Students. The overarching research questions will be analyzed through the interpretation of Multiple Regression Analyses. The chapter will focus on investigating and answering the primary research questions, which support the 9 hypotheses.

Comparing Career Academy and Non-Career Academy

Student Achievement Scores

The differences in the 10th grade ELA and Math scores between Career Academy and Non-Career Academy students was evaluated. This analysis compared categorical variables (Academy Participation) and continuous variables (10th grade ELA and Math state test

scores). An independent sample t-test was conducted since there are two variables that are independent of each other, Academy Participation and State test scores.

Table 4.5 - Group Statistics 10th Grade ELA and Math scores

	N	Mean	Median	Std. Deviation	Minimum	Maximum
Academy Students 10th Grade NJSLA ELA	55	759.45	763	45.91	650	850
Non-Academy Students 10th Grade NJSLA ELA	175	729.20	732	42.05	650	842
Academy Students 10th Grade NJSLA Math	55	735.27	736	27.35	675	820
Non-Academy Students 10th Grade NJSLA Math	175	720.45	722	21.82	650	779

Table 4.6 - T tests Comparing Career Academy and Non-Career Academy Students on 10th Grade Language Arts and Mathematics

		Levene's Test for Equality of Variances		T-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
10th Grade NJSLA ELA	Equal variances assumed	2.756	0.98	3.863	228	.000	30.255
10th Grade NJSLA Math	Equal variances assumed	3.345	0.69	4.124	228	.000	14.821

The average 10th grade ELA score for Academy students was 759.45, these scores tended to vary from the mean by 45.91. The average 10th grade ELA score for non-Academy students was 729.20 with a standard deviation of 52.05. Table 4.6 demonstrates that the differences between both 10th Grade ELA scores and 10th Grade Math scores were statistically significant among Career Academy compared to Non-Career Academy students. findings

indicate that the observed mean differences did exist between the Career Academy and Non-Career Academy students on 10th Grade ELA scores. The average 10th grade ELA score for Career Academy students was 30.35 points higher than the Non-Academy students.

The average 10th grade State Math Scores for Academy students was 735.27, with a standard deviation of 27.34. While the average 10th grade State Math scores for Non-Academy students was 720.45, with a standard deviation of 21.82. These findings indicate that the observed differences in the 10th grade math scores did also exist between Academy and Non-Academy students. The 10th grade average math scores for Academy students was 14.82 higher.

Findings - Student Engagement Scores

The differences in the 10th grade Student Engagement Levels between Career Academy and Non-Career Academy students was evaluated. This analysis compared categorical variables (Academy Participation) and a continuous variable (Student Engagement scores). An independent sample t-test was conducted since there are two variables that are independent of each other, Academy Participation and Engagement scores.

Table 4.5 - Group Statistics Student Engagement Scores

	N	Mean	Median	Std. Dev	Minimum	Maximum
Academy Students 9th Grade Engagement Scores	55	2.077	2.00	0.391	1.31	3.23
Non-Academy Students 9th Grade Engagement Scores	175	2.085	2.06	0.334	1.31	3.57
Academy Students 10th Grade Engagement Scores	55	2.037	1.95	0.417	1.28	3.24
Non-Academy Students 10th Grade Engagement Scores	175	2.024	2.00	0.32	1.28	3.10

Table 4.6 - T tests Comparing Career Academy and Non-Career Academy Students on 10th Grade Language Arts and Mathematics

		Levene's Test for Equality of Variances		T-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
9th Grade Student Engagement	Equal variances assumed	1.073	0.301	-0.158	228	.875	-0.009
10th Grade Student Engagement	Equal variances assumed	3.581	0.060	0.234	228	.815	0.0125

The average 10th grade Student Engagement score (one year after academy participation) for Academy students was 2.04, these scores tended to vary from the mean by 0.417. The average 10th grade Student Engagement score for non-Academy students was 2.02 with a standard deviation of 0.32. These findings indicate that no significant differences existed in average 9th grade or 10th grade student engagement scores of Career Academy compared to Non-Career Academy students (p=0.875 and p=0.815 respectively).

In summary, there were observed mean differences in the ELA and Math state test scores for Academy students. However, no significant differences in student engagement levels existed among the Career Academy or Non-Career Academy students in this sample.

Research Questions

Question 1: *What impact do Career Academies have on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA Geometry Scores, and SEI results?*

For research question 1, student 10th grade ELA, Math and Student Engagement scores are analyzed to determine if any differences exist among Career Academy and Non-Career Academy students. The first model (model 1a) used 9th grade ELA, Math and student engagement scores as independent variables and student performance on the 10th grade ELA exam as the dependent variable. The second model (model 1b) used the same independent variables but used student performance on the 10th grade Math exam as the dependent variable. Lastly, the third model (model 1c) also used the same independent variables but used 10th grade Student Engagement scores as the dependent variable.

Table 4.7 - Multiple Regression Model for 10th Grade Student ELA, Math and Student Engagement Scores

	Model 1a (10 th Grade ELA)	Model 1b (10 th Grade Math)	Model 1c (10 th Grade Engagement)
Constant	0.011 (.033)	-0.074 (.056)	-0.017 (.058)
Academy Participation	0.131 (.079)*	0.323 (.117)***	0.062 (.120)
9 th Grade ELA	0.809 (.047)***	0.174 (.069)**	-0.129 (.071)*
9 th Grade Math	0.043 (.045)	0.416 (.066)***	0.142 (.068)**
9 th Grade Student Engagement	-0.012 (.033)	.009 (.049)	0.652 (.050)***
Sample Size	230	230	230
R-squared	0.737	0.467	0.660

Note: ***p<0.01, **p<0.05, *p<0.10, Standard errors are shown in the parentheses

Dependent variable: Model 1a= 10th Grade ELA; Model 1b= 10th Grade Math; Model 1c=10th Grade Student Engagement

Model 1a: Based on the R-square results on Table 4.7, there was a 73.7% variation in student 10th grade ELA scores that can be explained by Academy Participation and Student 9th grade ELA, Math, and Engagement scores. The p-values in Table 4.7 evidence that 9th grade math scores and 9th grade student engagement scores are not significant predictors of 10th grade ELA performance. However, the data shows that student 9th grade ELA scores and Academy participation were statistically significant predictors of 10th grade ELA performance ($p=.047$ and $p=.079$ respectively). Table 4.7 also highlights some positive and negative correlations between the variables. On average, students that participated in the Academy had scores 0.13 standard deviations higher than Non-Academy students, accounting for their previous academic performance and engagement levels. As would be expected, 9th grade ELA performance was found to be a strong predictor ($p=.000$) of 10th grade ELA performance. According to this regression model for every one-unit increase in 9th grade ELA performance, there as an increase of 0.809 standard deviations from the mean of 10th grade ELA performance, when accounting for previous student performance and engagement levels. The Career Academy under investigation focuses on the theme of “Communications”, this theme naturally attracts students that are interested in self-expression in writing, speaking and/or media. This may explain the correlation between ELA performance and Academy Enrollment.

Model 1b: Table 4.7 shows a 46.7% variation in student performance on the 10th grade state exams that can be explained by the independent variables: Academy participation and 9th grade ELA, Math and Student engagement scores. Based on the p-values on table 4.7, academy participation, 9th grade ELA scores and 9th grade math scores were all found to be significant predictors of student scores on the 10th grade NJSLA exam. Academy participation and 9th grade Math scores had the highest p-values in this model (0.006 and .000 respectively). This implies

that students that participated in the academy had scores 10th grade Math scores that were 0.32 standard deviations higher than Non-Academy students, accounting for previous academic performance and engagement levels. When examining the predictor 9th grade math scores the data shows that for every one-unit increase in 9th grade math score, students' 10th grade Math scores increased by 0.42 standard deviations from the mean, when controlling for the other variables. Additionally, the predictor 9th grade ELA scores demonstrated that for every one-unit increase in 9th grade ELA score, students' 10th grade Math scores increased by 0.17 standard deviations from the mean, when controlling for the other variables.

Model 1c: In this model examining 10th grade Student Engagement, table 4.7 conveys a 66% variation in 10th grade student engagement scores that can be explained by the independent variables: Academy participation and 9th grade ELA, Math and student engagement scores. The p-values on Table 4.7 demonstrate that 9th grade ELA, math and student engagement scores were all found to be significant predictors of 10th grade student engagement scores. As would be expected, the 9th grade student engagement scores were found to be the highest predictor of 10th grade student engagement levels ($p=.000$). According to this regression model, for every one-standard deviation increase in 9th grade student engagement scores there was an increase in 10th grade student engagement scores of 0.652 standard deviations from the mean, when accounting for previous student performance. The second highest predictor of 10th grade student engagement scores was 9th grade math scores. This regression model shows that for every one-standard deviation increase in students' 9th grade math scores, we saw students' 10th grade engagement scores increased by 0.142 standard deviations from the mean. It's important to note that Career Academy participation was not found to be a significant predictor of student engagement levels

in this regression model. This demonstrates that Academy participation did not impact students' engagement levels on average compared to students that did not participate in the Academy.

Additional regression models that controlled for student demographics were also analyzed to examine if any patterns in the data existed when student demographic information was accounted for. The first model (model 2a) used 9th grade student performance and academics, as well as student classification of a Student with a Disability (SWD), Limited English Proficient (LEP), Free/Reduced Lunch Program (FRLP), and Gender as independent variables and student performance on the 10th grade ELA exam as the dependent variable. The second model (model 2b) used the same independent variables but used student performance on the 10th grade Math exam as the dependent variable. Lastly, the third model (model 1c) also used the same independent variables but used 10th grade Student Engagement scores as the dependent variable.

Table 4.8 - Multiple Regression Model for 10th Grade Student ELA, Math and Student Engagement Scores by subgroups (Gender, SWD, LEP, FRLP Eligible)

	Model 2a (10 th Grade ELA)	Model 2b (10 th Grade Math)	Model 2c (10 th Grade Engagement)
Constant	0.11 (.118)	-0.436 (.176)	0.057 (.183)
Academy Participation	0.145 (.078)**	0.333 (.117)***	0.047 (.122)
9 th Grade ELA	0.666 (.062)***	0.289 (.093)***	-0.165 (.097)
9 th Grade Math	0.027 (.046)	0.489 (.068)***	0.148 (.071)
9 th Grade Student Engagement	-0.020 (.032)	0.006 (.049)	0.656 (.051)***
Gender (% of Males)	.021 (.066)	0.134 (.099)	-0.152 (.103)
LEP	-0.405 (.118)***	0.267 (.177)	-0.061 (.184)
FRLP_Eligible	-.024 (.116)	0.253 (.173)	-0.029 (.180)
Sample Size	230	230	230
R-squared	0.753	0.483	0.442

Note: ***p<0.01, **p<0.05, *p<0.10, Standard errors are shown in the parentheses

Dependent variable: Model 2a= 10th Grade ELA; Model 2b= 10th Grade Math; Model 2c=10th Grade Student Engagement

Model 2a: This Regression model shows that 75.3% of the variability in student 10th grade ELA scores can be explained by the predictors in this model. The results on Table 4.8 show that the Predictors of Academy Participation and 9th grade ELA performance continue to be significant predictors of 10th grade ELA performance, when controlling for all other variables including student demographics. Additionally, the demographic predictors added to this model, Limited English Proficient classification, was found to be significant predictor of 10th grade ELA performance. Career Academy students classified as a Limited English Proficient had 10th grade

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ELA scores that were 0.405 standard deviations lower than students not classified with a disability when controlling for previous academic performance and engagement levels.

The variable, LEP Classification, demonstrated a negative correlation. Career Academy students that were considered as Limited English Proficient (LEP) had 10th grade ELA scores that were 0.405 standard deviations lower than students that were not LEP, when controlling for previous performance. It should be noted, that although not statistically significant, there was also a negative correlation between student eligibility for Free and Reduced Lunch and 10th grade ELA scores.

Model 2b: This Regression model shows that 48.3% of the variability in 10th grade Math scores can be explained by the predictors in this model. Table 4.8 shows that Academy Participation, 9th grade ELA scores, and 9th grade math scores continue to be significant predictors of student performance on the 10th grade state Math exam, when controlling for 9th grade academic performance, engagement and the demographic variables (gender, LEP, and FRLP eligibility). Unlike regression model 2a, it should be noted that in this model there is a positive correlation between the percentage of students classified as Limited English Proficient, and Eligible for the Free/Reduced Lunch program. Table 4.8, also shows that students that participated in the Career Academy had 10th grade math scores that were 0.333 standard deviations higher from the mean compared to Non-Academy students, when controlling for students' 9th grade academic performance, engagement, and demographic predictors.

Model 2c: Lastly, the regression model 2c shows that 44.2% of the variability in 10th grade student engagement scores can be explained by the predictors in this model. This model demonstrates only one significant predictor of 10th grade student engagement scores, the 9th grade student engagement scores, when controlling for all other variables in this model. These

results differ from model 1c, in that prior to adding student demographic variables, we found that 9th grade ELA and Math performance were also significant predictors of student engagement.

Although not statistically significant, it is noteworthy that this model shows a negative correlation in the percentage of students Classified as Limited English Proficient and Eligible for Free/Reduced Lunch. This implies that as the percentage of students from this subgroup increases the 10th grade student engagement levels decrease, when controlling for all other predictor variables.

Summary:

In analyzing the data from the 6 regression models, it is evident that a difference does exist in the 10th grade Academic performance for Career Academy students compared to Non-Career Academy students. The data in Tables 4.7 and 4.8, demonstrate that Career Academy students have significantly higher scores in the 10th Grade English Language Arts exam, 0.145 standard deviations from the mean, and 10th grade Mathematics Exam, 0.32 standard deviations from the mean, when controlling for 9th grade academic performance, engagement and student demographic variables. However, the regression models also show that a difference in 10th grade student engagement scores is not evident when we control for the independent variables in these models. Notably, the Career Academy students demonstrated higher scores on average in 10th Grade Mathematics than in ELA. Considering that the Career Academy under investigation is focused on the theme of “Communications”, that maintains an emphasis on written and oral self-expression it would be expected that a greater difference would exist among student ELA scores. For research questions #1, this data demonstrates that differences do exist in the academic achievement of Career Academy students after one year of participation, but no differences were found in student engagement levels.

Research Question 2: *To what extent, if any, do students' demographic variables (LEP classification, Free/Reduced Lunch eligibility, and Gender) moderate the impact of Career Academies on student achievement and engagement as measured by NJSLA English 10 Language Arts Scores, NJSLA 10th grade math scores, and SEI scores.*

For research question 2, the interaction effects of key student demographic indicators were examined to determine if any of these demographic variables moderated the impact of the Academy Model on student achievement and engagement. The interaction variables examined were: Classification as Limited English Proficient (LEP), Free/Reduced Lunch Eligibility (FRLP), and Gender (Males = 1). Note that the interaction effect of student classification of Students with Disability (SWD) were not analyzed due to the small sample number of SWDs in the Career Academy sample in this study (N=2).

Interaction Effect of Limited English Proficient Students

The first model (Model 3a) used 9th grade ELA, Math and student engagement scores, student demographic variables and the interaction effect of LEP classification on the 10th grade ELA exam as the dependent variable. The second model (3b) used the same independent variables but used student performance on the 10th grade Math exam as the dependent variable. Lastly, the third model (model 3c) also used the same independent variables but used 10th grade student engagement as the dependent variable. All three regression models controlled for previous academic performance and engagement levels in 9th grade.

Table 4.8 - Interaction Effect of LEP Eligibility: Multiple Regression Model for 10th Grade Student ELA, Math and Student Engagement Scores

	R-Squared	B (Unstandardized Coefficient)	Standard Error	Significance
Model 3a (10th Grade ELA)	0.755	0.255	0.203	0.209
Model 3b (10th Grade Math)	0.696	-0.226	0.305	0.458
Model 3c (10th Grade Engagement)	0.667	-0.294	0.316	0.354

These regression models show that 75.5% of the variability in 10th Grade ELA can be explained by the predictors in Model 3a, 69.6% of the variability in 10th Grade Math can be explained by the predictors in Model 3b, and 66.7% of the variability in 10th Grade Student Engagement Scores can be explained by the predictors in model 3c. According to the data shown on Table 4.8, these regression models do not show a significant interaction effect of LEP eligibility on the impact Career Academy participation on student 10th grade ELA, 10th Grade Math, or Student Engagement Levels (P=0.209, P=0.458, and p=0.354 respectively).

Interaction Effect of Free/Reduced Lunch Eligibility

In order to analyze the interaction effect of Free/Reduced Lunch Eligibility three regression models were examined on Table 4.9. Model 4a used 9th grade ELA, Math and student engagement scores, student demographic variables and the interaction effect of FRLP Eligibility as independent variables and the 10th grade ELA exam as the dependent variable. Model 4b used the same independent variables but used student performance on the 10th grade Math exam as the dependent variable. Lastly, Model 4c also used the same independent variables but used 10th grade student engagement as the dependent variable.

Table 4.9 - Interaction Effect of Free/Reduced Lunch Program (FRLP) Eligibility: Multiple Regression Model for 10th Grade Student ELA, Math and Student Engagement Scores.

	R-Squared	B (Unstandardized Coefficient)	Standard Error	Significance
Model 4a (10th Grade ELA)	0.869	0.278	0.244	0.256
Model 4b (10th Grade Math)	0.700	0.625	0.365	0.088
Model 4c (10th Grade Engagement)	0.668	0.455	0.380	0.233

These regression models show that 86.9% of the variability in 10th Grade ELA can be explained by the predictors in Model 4a, 70% of the variability in 10th Grade Math can be explained by the predictors in Model 4b, and 66.8% of the variability in 10th Grade Student Engagement Scores can be explained by the predictors in model 3c. According to the data shown on Table 4.9, regression models 4a (10th Grade ELA) and 4c (10th Grade Student Engagement) do not show a significant interaction effect of FRLP eligibility on the impact of student 10th grade ELA or Student Engagement Levels (P=0.256 and P=0.233 respectively). However, the regression Model 4b did show a moderately significant interaction effect of FRLP eligibility on the impact of Career Academy participation on 10th grade math scores (P=0.088). Table 4.9 shows that the participation in the Career Academy has a greater positive impact on students eligible for the Free or Reduced Lunch Program (FRLP) compared to students that are not eligible for Free or Reduced Lunch, when accounting for previous academic performance and engagement.

Interaction Effect of Gender

In order to analyze the interaction effect of Gender, where 1 equals Males and 0 equals females, three regression models were examined on Table 5. Model 5a used 9th grade ELA, Math and student engagement scores, student demographic variables and the interaction effect of Gender on the 10th grade ELA exam as the dependent variable. Model 5b used the same independent variables but used student performance on the 10th grade Math exam as the dependent variable. Lastly, Model 5c also used the same independent variables but used 10th grade student engagement as the dependent variable.

Table 5 - Interaction Effect of Gender (Male = 1): Multiple Regression Model for 10th Grade Student ELA, Math and Student Engagement Scores.

	R-Squared	B (Unstandardized Coefficient)	Standard Error	Significance
Model 5a (10th Grade ELA)	0.755	0.169	0.156	0.278
Model 5b (10th Grade Math)	0.484	0.134	0.234	0.567
Model 5c (10th Grade Engagement)	0.433	0.107	0.243	0.659

These regression models show that 75.5% of the variability in 10th Grade ELA can be explained by the predictors in Model 5a, 48.4% of the variability in 10th Grade Math can be explained by the predictors in Model 5b, and 66.8% of the variability in 10th Grade Student Engagement Scores can be explained by the predictors in model 3c. According to the data shown on Table 5, students' gender does not significantly moderate the impact of Career Academy participation on student 10th grade ELA, 10th Grade Math, and Student Engagement Levels (p=0.278, p=0.567, and p=0.659 respectively).

Summary – Research Question 2

In analyzing the data from the 6 regression models, it is evident that participation in the Career Academy has a greater positive impact on students eligible for the Free/Reduced Lunch Program (FRLP) on 10th Grade math scores compared to students not eligible for the FRLP (Table 4.9). This shows that the Career Academy is particularly beneficial for Low-Income students on their math performance. The regression models on Tables 4.8 and Table 5 reveal that Limited English Proficient classification and students' Gender did not significantly moderate the impact of the Career Academy on student achievement or student engagement.

Conclusion

When analyzing the impact of Career Academy participation on student performance in 10th Grade English Language Arts, 10th Grade Math, and 10th grade student engagement while controlling for 9th grade student performance and engagement, the data shows that Career Academy students had significantly higher academic achievement in ELA and Math. By controlling for students' 9th grade academic performance and engagement levels (before entering the academy) this study was able to demonstrate that the Career Academy under investigation effectively helped to raise student academic performance in ELA and Mathematics. The data in Tables 4.7 and 4.8, demonstrate that Career Academy students have significantly higher scores in the 10th Grade English Language Arts exam, 0.145 standard deviations from the mean, and 10th grade Mathematics Exam, 0.32 standard deviations from the mean, when controlling for 9th grade academic performance, engagement and student demographic variables.

Additionally, the data analysis shows that Career Academy participation was particularly effective in assisting low-income students (students eligible for free/reduced lunch) performance

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on the 10th grade state math assessments. Table 4.9 shows that participation in the Career Academy has a greater positive impact on students eligible for Free or Reduced Lunch compared to students not eligible for FRL. However, this study did not find that Gender or Limited English Proficiency had a moderating effect on the impact of the Career Academy. Meaning that both males and females equally benefited from the structure of the Career Academy and most importantly, Limited English Proficient students were also found to equally benefit from the Career Academy despite their language differences.

Limited English Proficient students in the state of New Jersey have a significantly lower 4 year graduation rate compared to average overall graduation rate with 75% of LEP students graduating on time compared to 90% of students overall graduating on time in 2018 (NJDOE 2018). This shows that LEP students are not experiencing the same level of success in high school compared to their general education classmates. In this study, LEP students equally benefited from the Career Academy Model demonstrating that this may be a viable option for this high risk population to allow LEP students to fulfill their graduation requirements and graduate on time. These findings also show that LEP students language ability does not prevent them from accessing the benefits of the Career Academy approach.

Unlike previous studies, this study did not find a significant difference in Career Academy student engagement levels when controlling for previous student performance and engagement. This study was able to capture existing differences that may exist among students that choose to apply for a specialized program like a Career Academy. It is important to note that this study found that student engagement levels for all students in the sample (Academy and Non-Academy) students saw a decrease in students' self-reported engagement levels on average from 9th grade to 10th grade year. Academy students had a 9th grade student engagement score of

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2.07 and 10th grade engagement score of 2.03 on average, compared to Non-Academy students that reported 2.08 on average engagement level in 9th grade and a 2.02 on average engagement level in 10th grade. The results of this study's analysis reveal that the engagement levels are not significantly impacted by Academy participation.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of the research presented in this study was to compare the effect that participation in a high school career academy has on student achievement and engagement as compared to participation in a traditional comprehensive high school program in a specific urban high school. In this report, there was information presented on the characteristics of a Career Academy as outlined by the National Career Academy Coalition, elements of a Comprehensive High School, and the effects that participation in a Career Academy has on student achievement as measured by New Jersey state Mathematics and English Language Arts assessments as well as Student Engagement levels as measured by a Student Engagement Instrument (SEI). Results and insights into the two overarching research questions through a consideration of quantitative analyses framed through the lens of the body of available research presented in Chapter II. This study reveals important implications as it pertains towards creating structures that best support urban high school student performance.

Career academies are one of several other education reform initiatives that present as possible solutions to target the challenges faced by large urban high schools. Career Academies create a small learning community for students and staff that aim to provide students with the support, monitoring, and relevant instruction to promote student success. Of course, small school size does not alone guarantee school improvement, but it does optimize the environment for a high-quality education. Kemple and Snipes (2000) succinctly concluded, “The career academy approach has attracted a great deal of attention in recent years, in part because its core features offer direct responses to a variety of problems that have been identified in high schools.”

(p.74). The strategy to restructure large high school campuses into smaller learning communities like Career Academies, may be an effective means to capture the benefits and replicate the results typically associated with small schools.

Summary of the Study

This study analyzed the academic achievement and engagement levels of Career Academy and Non-Career Academy 10th graders attending the same urban high school in New Jersey. De-identified, secondary data was provided by school administration to the researcher from administrative records and the school's student information system. The identified school was operating with the full implementation of a Career Academy as well as offering a traditional high school program. The study examined Career Academy and Non-Career Academy student NJ State standardized test scores in ELA, Math, and engagement scores before and after one year of participation in the Career Academy or the Traditional Comprehensive High School program. This study used the variables of standardized ELA and Math test data to measure student academic achievement and Student Engagement Scores from the Student Engagement Instrument (SEI). The Student Engagement Instrument is a research-based tool developed by the University of Michigan and is part of an intervention program called Check and Connect. A series of t-tests and regression models were utilized on the prescribed data in order to determine the impact of Career Academy participation compared to participation in a Traditional Comprehensive high school program on student achievement and engagement in the same urban high school. Findings and recommendations from this study can help policymakers, school and district administrators and educators better understand the potential benefits that characterize the Career Academy.

Discussion

The first research question asked if Career Academy participation had an impact on student achievement and engagement as measured by 10th Grade NJSLA ELA scores, NJSLA 10th grade Math, and Student Engagement Instrument results (SEI). The differences in 10th grade ELA and Math NJSLA scores between Career Academy and Non-Career Academy students was evaluated using independent samples t-tests. The average 10th grade ELA score for Academy students was 759.45 with a standard deviation of 45.91, while Non-Academy students' average ELA scores was 729.20 with a standard deviation of 52.05. The findings on Tables 4.5 and 4.6 indicate that there was an observed difference in 10th Grade ELA scores among Academy and Non-Academy students ($p=.000$); Academy students scored 30.35 points higher on average on the 10th Grade ELA exam. Additionally, Regression Model 1a was conducted to evaluate if these differences existed even after controlling for previous academic performance and student engagement levels. Table 4.7 shows that Academy Participation and 9th grade ELA scores were statistically significant predictors of 10th grade ELA performance ($p=0.079$ and $p= 0.047$ respectively).

When evaluating 10th grade math scores this study found that the average 10th grade NJSLA Math Score for Academy students was 735.27, with a standard deviation of 27.34. While the average 10th Grade State Math Scores of Non-Academy students was 720.45, with a standard deviation of 21.82. The findings on Table 4.5 and 4.6 indicate that there were also observed differences between Academy and Non-Academy students ($p=.000$); Academy students scored 14.82 points higher on average compared to Non-Academy students. Next, the Regression Model 1b was conducted to evaluate if these differences existed even after controlling for previous academic performance and student engagement levels. Table 4.7 shows that Academy

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Participation, 9th grade ELA PARCC scores, 9th grade PARCC math scores and 9th grade student Engagement Levels were all found to be statistically significant predictors of 10th grade Math NJSLA scores. Academy participation and 9th grade PARCC Math scores had the highest p-values in this model (0.006 and .000 respectively). This implies that students that participated in the academy had 10th grade NJSLA Math scores that were 0.32 standard deviations higher than Non-Academy students, when accounting for previous academic performance and engagement levels.

The third independent variable examined for this research question is Student Engagement level after one year of participation in the Career Academy. The average 10th grade Student Engagement score for Academy students was 2.04, these scores tended to vary from the mean by 0.417. The average 10th grade Student Engagement score for non-Academy students was 2.02 with a standard deviation of 0.32. These findings indicate that no significant differences in engagement levels existed between Academy and Non-Academy students. This study was able to capture the student engagement levels prior to entering the academy and control for previous academic performance and engagement levels to determine the true impact of Career Academy participation towards student engagement levels. Regression Model 1c examined the impact of the Career Academy on 10th grade student Engagement Levels, when controlling for student 9th grade ELA PARCC scores, 9th Grade Math PARCC scores and 9th Grade Student Engagement Levels. Although 9th grade ELA, Math and Engagement Scores were all found to be significant predictors of 10th grade student engagement levels, Academy participation was not a significant predictor ($p=0.122$).

The results for Research Question 1 are not consistent with the observations of the MDRC study outlined in the research chapter. Kemple and Snipes (2000) state that “The Career

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Academies did not improve standardized measures of reading and math achievement either on average or for any subgroup of students” (Kemple & Snipes, 2000, p. 15). According to Hughes, Bailey, and Mechur (2001), “Research indicates that school-to-work students’ achievement on standardized tests is inconclusive” (p. 17). The results of this study of the impact of Career Academy participation are not consistent with the research in terms of standardized test data. The results of this study indicate that Career Academy students performed significantly better on both ELA and Math state assessments compared to Non-Academy students, when controlling for previous academic performance and levels of engagement. Regarding the impact on student engagement, this study was consistent with the MDRC longitudinal study that also did not find conclusive results regarding the impact of Career Academy participation on engagement. Although Kemple & Snipes, 2000, indicated that the Career Academy approach “helps to create a more supportive high school environment where students feel connected to their peers and adults” the findings in the Kemple & Snipes (2000) study and this study do not indicate a significant difference in the engagement levels of Academy students compared to Non-Academy students.

The second research question asked if students’ demographic variables (Limited English Proficient Classification, Free/Reduced Lunch (FRLP) Eligibility, and Gender) moderated the impact of Career Academies on student achievement and engagement. The interaction effect of these variables was examined using 6 multiple regression models captured on Tables 4.8, 4.9 and 5.0. These models found one significant interaction effect, model 4b indicates that Free/Reduced Lunch eligibility had a significant moderating effect on the impact of Career Academy participation on 10th grade Math scores ($p=0.088$). Career Academy students that were eligible for Free/Reduced Lunch experienced a greater benefit from participating than students not

eligible for Free/Reduced Lunch. This shows that the Career Academy model is particularly beneficial for low-income students in improving their math performance.

Implications on Policy and Practice

This study shows that the Career Academy model can be an effective model in facilitating the success of students in the area of student achievement, particularly for students from low-income backgrounds. As large urban high schools seek options to structure their schools to best meet the challenging needs of students, the thoughtful implementation of Career Academies can prove to address the many challenges that large Comprehensive High Schools face. However, I also issue three areas of caution to policymakers and district administrators in reference to implications on policy and practice. First, the design, implementation and transition of a Comprehensive High School to a Career Academy Model requires years of planning, support and buy-in from key stakeholders throughout the school community. Long-term commitment is needed from District Administration, Building Administration, School Staff, District Trustees, and members of the community. In absence of this level of commitment, districts would be unable to implement the Model with fidelity thereby compromising its effectiveness and impact for students. Second, the Career Academy Model must provide college-preparatory curriculum and instruction; simple exposure to careers is not sufficient to prepare students for 21st century skills and post-secondary options. School districts are encouraged to follow research-based standards and practices when designing and implementing a Career Academy Model. The National Career Academy Coalition provides 10 National Standards of Practice that have been found to be essential in delivering a high-quality Career Academy program. These standards include: Defined Mission and Goals, Academy Design, Host Community and High School, Faculty and Staff, Continuous Professional Development,

The Impact of Career Academies

Governance and Leadership, Teaching and Learning, Employer/Post-Secondary/Community Involvement, Student Assessment and Accountability (NCAC, 2020). Third, the Career Academy approach may not be appropriate for all high school or for all students. Our findings help to raise important questions about the circumstances under which these rigorous programs can be most effective and about which students can most benefit by this approach of teaching and learning. For students, the Career Academy will enhance their experiences in high school by making learning more meaningful to increase student achievement, engagement, and preparedness for future college and career options. The implementation of the Career Academy model will require a significant shift in the pedagogical practices of teachers and administrators alike. This will require continuous professional development opportunities in the areas of curriculum design, instruction, data analysis and interdisciplinary planning.

This study outlines key findings and offers thoughts on policy lessons and implications of this study:

1. The findings demonstrate strong evidence that small learning communities found within a “school-within-a-school” model may be significant in promoting student academic success. The Career Academy structure creates a more personalized approach for students than would otherwise exist in large comprehensive high schools. Students enrolled in these academies experience significant academic benefits in ELA and Mathematics standardized test scores.
2. The impact of the Career Academy is beneficial to both male and female students and for students that are Limited English Proficient. For high schools that consistently struggle with uncertainty of how to support English Language

Learners, the Academy model may prove to be a structure that can support their academic progress.

3. The Academy model was found to be particularly beneficial to low-income students in their standardized math performance compared to the comprehensive high school under investigation. Providing low-income students with the additional structure, support and real-life school to work application is proven to be an effective strategy in supporting the academic achievement of our most vulnerable students.
4. All Career Academy programs require a significant shift in pedagogical practices. This model requires the time and commitment from educators to develop new teaching techniques, curriculum models and adapt the concepts to their respective situations. Implementation of the Career Academy model requires a redesign of school features, school facilities, additional funding and additional personnel resources.

Conclusions

This study was predicated on the primary research question of what impact Career Academy participation has on student achievement and student engagement in a specific high school compared to their Non-Career Academy counterparts in the same urban high school.

The statistical analysis utilized in this study (descriptive statistics, independent sample t-tests, and multiple regression), indicate that the effects of the Career Academy model on student achievement is positive compared to Non-Career Academy students. This study indicates that there is significant evidence to suggest that a measurable gain in

achievement exist for students who participated in the high school Career Academy. Low income students experienced an even greater impact from the Career Academy in their 10th grade Math scores compared to students not eligible for Free or Reduced Lunch. However, no significant impact was found in student engagement levels, demonstrating that the Career Academy did not impact students Affective and Cognitive engagement in school. In summary, according to this research design, the Career Academy students have shown significant improvement in achievement as compared to Non-Career Academy students but no differences in engagement levels were noted.

Implications for Future Research

The effectiveness of the Career Academy model relies on a variety of variables including the student population, the quality of the program design, fidelity of program implementation, staff preparedness, financial resources and district/community buy-in. This study focused on a specific urban high school with a concentration of low-income students (over 85%) and students of Hispanic descent (over 95%). Additionally, the high school spent over 2 years planning and designing the program with a significant amount of financial resources infused into the development of curriculum, staff and facilities.

It is not clear whether the Career Academy implementation alone was responsible for the achievement gains, or if in-house or district initiatives played a major role in the increases evidenced in all student achievement variables. The Career Academy in question benefited from hand-picked teachers, redesigned curriculum, professional development and consultation from NYU faculty, and a dedicated Academic Advisor to monitor student progress.

Recommendations for Future Research

The implementation of the Career Academy and variety of potential variables that impact the benefits of the Career Academy model provide direction for further exploration. This study has shown the effectiveness of the Career Academy model to enhance the high school experience and impact student achievement as compared to Non-Career Academy students within the same urban high school. Some of the areas noted for future research are noted below. Additional studies could be conducted:

- A. Within other school districts with a more heterogenous student population and district factor groupings.
- B. In another urban high school operating with Career Academies in other thematic areas, such as Technology, Health Sciences, and Law.
- C. Explore the impact of the integrated curricula, staff development, service-learning experiences, and other program elements of the Career Academy model.
- D. Determine the impact that high school Career Academies have on school climate.
- E. Compare the differences in impact of the Career Academy model to other small learning community models.
- F. Determine the effects on achievement and engagement of Career Academy students, specifically targeting Special Education students.

Administrators, Educational policy makers, educators, and community members need to work together to develop institutional support systems that create the best instructional methods

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within schools that support student academic achievement and preparedness for post-secondary opportunities. The Career Academy model outlined in this research offers the benefits of the small school concept but within a large high school setting typically found in urban areas. According to Maxwell and Rubin (2000a), “Career academies may well be worth the effort, since the right circumstances, the new curriculum, social support, and work experiences offered by the academies can make a very important, positive difference in the lives of many students. The challenge for educators is to create and replicate those circumstances for the right teachers and students, without losing academic rigor or growing so large that the special small-school qualities of academies would be lost.”

REFERENCES

- Ben-Eilyahua, A., Mooreb, D., Dorphc, R., Schunn (2018). Investigating the multidimensionality of engagement: Affective, behavioral, and cognitive engagement across science activities and contexts. *Contemporary Educational Psychology*. 53
- Betts, J., Appleton, J.J., Reschly, A.L., Christenson, S.L., & Huebner, E.S. (2010). A study of the reliability and construct validity of the Student Engagement Instrument across multiple grades. *School Psychology Quarterly*, 25, 84-93.
- Bloom, H. S., & Unterman, R. (2012). Sustained positive effects on graduation rates produced by new york city's small public high schools of choice. Retrieved from <http://www.mdrc.org/publications/614/overview.html>.
- Butts, R. F., & Cremin, L. A. (1953). A history of education in American culture. NY: Holt, Rinehart and Winston.
- Cannon, D.G. (1999). Reexamination of input and process factor effects on public school achievement. *Contemporary Education*, 70 (2), 48-51.
- Cardinal Principles of Secondary Education: A Report of the Commission on the Reorganization of Secondary Education, Appointed by the National Education Association. Bulletin, 1918, No. 35
- Cotton, K. (1996a). *Affective and social benefits of small-scale schools*. ERIC Digest. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.
- Cotton, K. (1996a). *School size, school climate, and student performance, close up*. Portland, OR: Northwest Regional Educational Laboratory.
- Cutshall, S. (2003). Is smaller better? When it comes to schools, size does matter, *Techniques*, 3, 22-25.
- Christenson, S. L., and Reschly, A. L. (2012). Handbook of Research on Student Engagement.
- Davenport, E. (1914, December). Vocational education and the state. *School and Home Education*, 131-133.
- Every Student Succeeds Act (ESSA. (2017, March 13). Retrieved September 11, 2018, from <https://www.ed.gov/ESSA>
- Fowler, W.J., Jr. (1992). What do we know about school size? What should we know? Paper presented at the Annual Meeting of the American Educational Research Association. San Francisco, CA.

The Impact of Career Academies

- Fowler, W.J., & Walberg, H.J. (1991). School size, characteristics, and outcomes, *Educational Evaluation and Policy Analysis*, 13 (2), 189-202.
- Gladden, R. (1998). The small school movement: A review of the literature. In M. Fine & J. I. Somerville (eds). *Small schools, big imaginations: A creative look at urban public schools*, (pp. 113-133). Chicago, IL: Cross City Campaign for Urban School Reform.
- Herlihy, C. M., & Quint, J. (2006). Emerging evidence on improving high school student achievement and graduation rates: The effects of four popular improvement programs. Washington, DC: National High School Center at the American Institutes for Research. R
- Howley, C., Strange, M., & Bickel, R. (2000). *Research about school size and school performance in impoverished communities*. ERIC Digest. ERIC Clearinghouse on Rural Education and Small Schools. EDO-RC-00-10.
- Kemple, J., Snipes, J. (2000). *Career Academies: Impacts on Students' Engagement and Performance in High School*. New York: Manpower Demonstration Research Corporation (MDRC). Retrieved July 21, 2019 from the World Wide Weg: <http://www.mdrc.org>.
- Jimerson, L. (2006). The hobbit effect: Why small works in public schools. Rural Trust policy brief series on public education. Arlington, VA: Rural School and Community Trust.
- Lee, V. & Smith, K. (2000). *Restructuring High Schools for Equity and Excellence*. Harvard Educational Review. New York Teachers College. Columbia Press.
- Maxwell, N.L. & Rubin, V. (1997). *The relative impact of a Career Academy on postsecondary work and educational skills in urban, public high schools*. Hayward, CA: The Human Resource Investment Research and Education Center.
- Maxwell, N.L. & Rubin, V. (2000a). *Career academy programs in California: Implementation and student outcomes*. Hayward, CA: The Human Investment Research and Education Center.
- Maxwell, N.L. & Ruvin V. (2000b). *High School career academies: A pathway to educational reform in urban school districts?* Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Mittestadt, S., & Reeves, D. (2003). Career academies: Cutting-Edge reform or passing fad. Techniques. pp.38-41.
- National High School Center. (2009, April). *Report on key practices and policies of consistently higher performing high schools*. Washington, DC: National High School Center at the American Institutes for Research Retrieved from http://betterhighschools.org/pubs/documents/ReportOfKeyPracticesandPolicies_10-31-06.pdf
- Nathan, J. & Thao, K. (2007). Smaller, safer, saner successful schools. Minneapolis: Center for School Change, Hubert H. Humphrey Institute of Public Affairs.

The Impact of Career Academies

- Oxley, D., & Kassissieh, J. (2008). From comprehensive high schools to small learning communities: Accomplishments and challenges. *FORUM: For Promoting 3–19 Comprehensive Education*, 50(2), 199–206.
- Raywid, M. A. (1995). *The subschools/small schools movement--taking stock*. Madison, WI: Center on Organization and Restructuring of Schools. (ERIC Document Reproduction Service No. ED 397 490)
- Raywid, M. A. (1996a). *Taking stock: The movement to create mini-schools, schools-within-schools, and separate small schools*. Urban Diversity Series No. 108. New York: ERIC Clearinghouse on Urban Education. Madison, WI: Center on Organization.
- Reschly, A.L., Appleton, J.J., & Pohl, A. (2014). Best practices in fostering student engagement. In A. Thomas and P. Harrison (Eds.) *Best Practices in School Psychology – 6th Ed.* Bethesda, MD: National Association of School Psychologists.
- Reschly, A.L., Betts, J., & Appleton, J.J. (2014). An examination of the validity of two measures of student engagement. *International Journal of School and Educational Psychology*, 2, 106-114.
- Smith, T. J. (2008, August). *Striking the balance: Career academies combine academic rigor and workplace relevance*. Washington, DC: National High School Center at the American Institutes for Research. Retrieved from http://www.betterhighschools.org/docs/MDRC_CareerAcademiesSnapshot_08-05-08.pdf
- Stern, D., Dayton, C. & Raby, M. (1998). *A report: Career Academies and high school reform*. Berkeley, CA: Career Academy Support Network.
- Stern, D., Dayton, C., & Raby, M. (2010). *Career Academies: A Proven Strategy to Prepare High School Students for College and Careers*. Berkeley, CA: Career Academy Support Network.
- Strange, M. (1997). Policy matters: Large schools work against poor students. *Rural matters*, Fall, p. 2.
- Quint, J. (2006). *Meeting five challenges of high school reform: Lessons from research on three reform models*. New York: MDRC.
- U.S. Department of Education. (1983). *A nation at risk: The imperative educational reform*. Washington, D.C.: The National Commission of Excellence in Education.
- U.S. Department of Education. (2001). *The Condition of Education*. National Center for Education Statistics.

APPENDICES

**APPENDIX A: Letter to the Assistant Superintendent
Requesting Permission to Conduct Study**

Mrs. Daisy Rodriguez, Doctoral Candidate
Seton Hall University
400 S Orange Ave
South Orange, NJ 07079

October 24th, 2019

Dr. Vivian Rodriguez, Assistant Superintendent of Schools
Perth Amboy City School District
178 Barracks Street
Perth Amboy, NJ 08861

Dear Dr. Rodriguez,

I am a doctoral candidate at Seton Hall University, and I am requesting permission to conduct my dissertation research in the Perth Amboy City School District.

My dissertation will focus on a quantitative study of high school career academies and specifically, the effect that participation in a career academy has on student achievement and student engagement as compared to non-academy participation in a specific urban high school. I believe that the Perth Amboy High School is an appropriate setting for my study since the school is in the process of transitioning from a Comprehensive High School to the Academy Model. The launch of the Communications Academy in September of 2018 is an ideal opportunity to capture the impact of the academy on students' experiences.

The data utilized for this study will be retrieved from public records, the NJDOE School Report Card, and the results of a Student Engagement Instrument (see attached). The NJSLA and the pre-test of the student engagement instrument will be utilized as the baseline data for both career academy students and traditional program students, these assessments were both administered at the end of 9th grade and at the end of 10th grade (after one year in the academy). This assessment will control for the same aptitude and engagement levels of both groups. This comparative analysis of the two distinct groups, academy and non-academy, will determine if a significant difference exists in student achievement (NJSLA in ELA and Math) and student Engagement with respect to career academy participation during high school. Your school district and students will not be specifically identified in this dissertation.

I look forward to your response and decision in reference to the implementation of this study. Thank you for your anticipated support and consideration.

Sincerely,


Mrs. Daisy Rodriguez

APPENDIX A:
Letter from Assistant Superintendent, Approval to Conduct Research



Perth Amboy Public Schools

Administrative Headquarters Building

178 Barracks Street
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(732) 376-6200

Vivian C. Rodriguez, Ph.D.
Assistant Superintendent of Schools

(732) 376-6200
ext. 30-111
Fax: (732) 638-1050

October 28, 2019

Mrs. Daisy Rodriguez

Dear Mrs. Rodriguez,

I am excited to endorse your proposal to research high school career academies in Perth Amboy high School. I am pleased that you have selected this timely topic to study that is of particular interest to the administration of the high school and the district office of Perth Amboy City School District. Although this is not a requirement or condition, we hope that you will share the results of your study with us so that we may consider them in the planning and implementation of future career academies in our district.

Please let me know if I can be of assistance throughout this process, best of luck on your dissertation.

Sincerely,

Vivian C. Rodriguez

Dr. Vivian C. Rodriguez
Assistant Superintendent for
Learning/Educational Services