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A Comparative Study of Career Academy Involvement and Non-Career Academy Involvement and Their Relationship to Student Achievement and Student Attendance in a Specific Urban High School in New Jersey

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A COMPARATIVE STUDY OF CAREER ACADEMY INVOLVEMENT AND
NON-CAREER ACADEMY INVOLVEMENT AND THEIR RELATIONSHIP TO
STUDENT ACHIEVEMENT AND STUDENT ATTENDANCE IN A SPECIFIC
URBAN HIGH SCHOOL IN NEW JERSEY

BY

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the Degree of Doctor of Education
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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, general high school educational programs with respect to student achievement and student attendance within one large New Jersey urban high school. It is the intent of this researcher to determine if either of the educational approaches significantly affects the achievement levels and attendance of students in the identified high school.

Student achievement and other selected variables were analyzed utilizing quantitative methods. To ascertain the degree of effectiveness this reform initiative had on specific student outcomes, this study has relied primarily on researched numerical data. The data for this study was retrieved utilizing public domain data from the NJDOE website and administrative records.

Data compared for student achievement outcomes included Grade Eight Proficiency Assessment (GEPA) results, High School Proficiency Assessment (HSPA) results, Scholastic Aptitude Test (SAT) results, and Grade Point Averages (GPA). Student attendance records for the graduating classes of 2003 and 2004 were evaluated for both students in a career academy, as well as students not in an academy. The data utilized for this study represent two groups of students (Career Academy and Non-Career Academy) who were not proficient on one or more parts of the Grade Eight Proficiency Assessment and have maintained comparable four-year Grade Point Averages in high school. The GEPA and GPA's were utilized as the baseline data for both groups under investigation.
The statistical analysis employed in this study (one-sample, independent and matched-pairs t-tests), supported by Cohen's estimated effect, indicates that the impact of the career academy model on student achievement and attendance is positive as compared to the non-career academy counterparts. The study determined that there is evidence to suggest that a measurable gain in achievement and attendance exists for students who participate in a career academy. Since all research questions were affirmed, it is this researcher's contention that the career academy model has had a positive effect on student achievement and student attendance within the prescribed urban high school.
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CHAPTER 1

INTRODUCTION

Background

In 1992, William Fowler said, “There is a natural predilection in American education toward enormity, and it does not serve schools well.” More recently, Rotherham (1999) has argued that “Smaller, more autonomous, flexible, and accountable schools should characterize education in the next century” (p. 52).

This study seeks to determine the effects that participation in a high school career academy has on student achievement and student attendance in an urban high school setting. There is increasing evidence that school size and poverty interact to affect student achievement. Research (Strange, 1997) from Alaska, California, and West Virginia indicate that: (1) Larger schools moderately benefit affluent students, compared to smaller schools, but they increase the negative effect of poverty on the educational 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. Researchers long have reported that the strongest predictor of student success or failure is the social condition in which children and families live. Schools cannot change these conditions; however, they can take steps to ameliorate the effects of poverty which affect so many children. Smaller
learning communities within existing high schools may be a viable alternative to the small schools movement.

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 goes to schools of 2,000 or more" (p. 22). This large school model came into existence after World War II, but the concept really took hold following the Soviet launching Sputnik in 1957. Smith and DeYoung (1988) identify several factors driving this long-term consolidation trend. One has been the desire of school administrators to "demonstrate their commitment to the forces of science, progress, and modernization" by seeking to make schooling 'efficient,' a notion importantly borrowed from the private sector" (p. 3). Smith and DeYoung also cite the 1957 launching of the Soviet space satellite Sputnik and the contemporary belief that catching up with the Soviet Union required bigger schools that could produce more scientists. The widely held belief at the time was that schools had to be enlarged to offer the kind of math and science students needed to compete technologically with the USSR.

The biggest advocate for larger schools in this era was education theorist James Bryant Conant of Harvard University, whose book The American High School Today (1958) asserted that the first priority of many states should be the "elimination of the small high school by district reorganization." In it, he concluded that large schools (over 750 students) can offer more comprehensive instructional programs of greater quality at lower costs than smaller schools. Furthermore, they note that compliance with the school desegregation and special entitlement programs originating in the 1960s have resulted in additional school mergers. Cotton (1996b) states that an effective size
for a high school is in the range of 400-800 students. Lee and Smith (1996) concludes that high school students learn best when the enrollment is between 600 and 900. Howley (1996) suggests that the most suitable size is likely to vary from place to place, with a community's relative poverty or affluence being a major factor. Small schools clearly provide an achievement advantage for impoverished students, while affluent students may fare better in larger schools.

According to Rotherham (1999), "The thinking behind large schools was that bigger meant more extracurricular opportunities, a more diverse curriculum, and more resources for students as a result of economies of scale. Intuitively, this makes sense; however, a growing body of research and public opinion indicates that it is misguided and that, when it comes to school size, smaller is actually better" (p. 50). Today, the challenge for school officials is to develop ways to create new small schools, or to redesign large schools into small-school environments.

Society is increasingly critical of public education in the United States. Students fail to learn good communication, thinking, numerical, technical, or workplace skills, and leave school unprepared to meet the demands of the marketplace. Many factors are cited as contributing to the poor performance of urban high school students. These factors include societal changes such as the growing proportion of young people who are from minority or immigrant populations, a breakdown of the social institutions that have traditionally supported young people and their families, and the change in the demands of a skilled workforce (Dayton, Raby, Stern, & Weisberg, 1992).
Dayton et al. (1992) stated:

The educational system is seen as contributing to the low performance of urban high school students through (a) tracking students by "ability," thereby reinforcing and exacerbating social and class stereotyping; (b) increasing the size and impersonality of high schools; (c) holding low expectations for students and not accepting them culturally; (d) offering uninspiring curricula that lack academic rigor and fail to provide the skills young people need after high school; (e) offering narrow vocational training for jobs with little future; and (f) failing to offer Limited English Proficient (LEP) students a successful transition to English. (p. 540)

While Career Academies have existed for over 25 years, the approach has gained greater prominence recently as states and school districts have increased their efforts to restructure schools. This restructuring is aimed at supporting students academically while providing them with marketable skills, work-based learning experiences, and smooth transitions to post-secondary education and productive employment. Interest in career academies was further accelerated with the passage of the federal School-to-Work Opportunity Act in 1994. This act provided federal funding and support for states to take a systematic approach in helping schools forge stronger partnerships with their local communities and with local employers to create opportunities for students to begin making connections between schooling and their career aspirations.

Central to the reform of vocational education was the concept of work-based learning, which is the planned, directed work experience of students in their regular
high school curriculum. In 1995, the U.S. Office of Technology Assessment stressed that work based learning must contribute to both the intellectual and career development of students (Office of Technology Assessment [OTA], 1995, p. 3). In addition, Lynch (2000) from the National School to Work Office has offered an operational definition for work based learning:

Work based learning is an educational approach that uses workplaces to structure learning experience that contributes to the intellectual, social, academic, and career development of students and supplements those with school activities that apply, reinforce, refine or extend the learning that occurs at a work site. By so doing, students develop attitudes, knowledge, skills, insights, habits, and associations from both work and school experiences and are able to connect learning with real-life activities. (p. 67)

There is a long history of positive support for work-based learning in the public school environment. This is especially true in the area of on-the-job apprenticeship models used to prepare older students for the transition from school to work. This model is used extensively in Europe, where students traditionally begin their coordinated workplace studies at approximately 16 years of age. The apprenticeship model of student training found overseas has not gained acceptance in the United States at the secondary school level. Instead, Hamilton and Hamilton (1997), state that a variety of work-based learning activities is now carried out in K-12 schools across the country. They include such activities as field trips, job shadowing, service learning, school-sponsored enterprises, youth jobs, employment training, and cooperative education or paid internships.
A popular educational reform initiative has presently emerged within public high schools and that is the concept of dividing the student population into smaller learning communities called career academies. They are organized as "schools-within-schools" in which groups of students (usually 30 to 60 per grade in grades 9 through 12 or 10 through 12) take several classes together each year with the same groups of teachers. The vision of this concept is to foster constructive relationships between and among students and teachers to increase students' engagement and success in high school. According to Elliott, Flanner and Gilroy (2002), students enter academies in either the ninth or tenth grade and continue through high school graduation, having taken all or most of their courses together from a group of teachers dedicated to the academy. The core academic curriculum courses, such as Mathematics, Language Arts, History and Science, are included with an organized theme of vocational courses linked to the academy. These vocational courses involve exploration and study of the career field (such as health, law, business, culinary arts or performing arts). Each academy focuses on a theme, to provide opportunities for teachers and students to integrate academic and occupation-related classes in an effort to create relevance to the real world.

High School career academies were originally designed to address the needs of at-risk students (Stern, Dayton, & Raby, 1992b). Stern et al. suggested that the reason at-risk students do not do well is that they feel that school is irrelevant to the real world. The intended solution provided by career academies is career-oriented education affiliated with local businesses that would make the connection between school and
work. Stern et al. believe that if students see this connection, they will stay in school and perform better.

Troubled high schools usually portray the same bleak statistical profiles. Many ninth grade students enter high school with varying academic backgrounds, including a majority with poor reading, writing and mathematics skills. As a consequence of poor attendance and weak skills, many ninth graders are retained. Many of these students will drop out of high school resulting in a significant decrease in the number of graduates. The rationale for the study is to provide a useful basis for future recommendations as to whether career academies are a catalyst for modifying and improving instructional programs in public high schools.

One promising indicator was uncovered in a study conducted by Maxwell and Rubin (1997), which found that at-risk youth who graduated from career academies were far more apt to attend college than their non-academy counterparts (Mittelsteadt & Reeves, 2003, p. 40). As Stern, Dayton, Piak and Weisburg (1985) concluded, “Career academies are flourishing because they have succeeded in solving some of the fundamental problems in 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). This study will explore whether the implementation of career academies in an urban high school results in improved student achievement and student attendance.
Purpose of the Study

The purpose of this study is to examine the effectiveness of high school career academies in comparison to the traditional general high school educational program with respect to student achievement and student attendance within one large New Jersey urban high school. The present structural design of the high school under investigation utilizes the block schedule, 4 x 4 model. Elliot, Hansen and Gilroy (2002) state that the career academies contain a mix of restructuring and pedagogical reforms that have positive effects on at-risk student populations. For example, McPartland (1994) argued that there are four essential qualities of school climate that motivate at-risk students to succeed: (a) opportunities for success in schoolwork, (b) a climate of human caring and support, (c) relevance of school to students' community and future, and (d) help with students' personal problems. Career academies contain elements that address each of these essential qualities, except for a specific component focused on students' personal problems. The school-within-a-school structure of career academies creates the potential for a caring and supportive climate to develop and function, and the career-oriented nature of academy instruction can bring relevance to schoolwork (Elliot, Hansen & Gilroy, 2002).

In the early 1980's, Career Academies in California grew out of the need to retain potential dropouts and prepare at-risk students for the labor force (Stern, Dayton, & Raby, 1992b). To date, the number of Career Academies in California has increased drastically. Stern, Dayton, and Raby (1998) suggested two reasons for this increase. First, they cited "evidence that academies are effective in improving student achievement"; they also cited research demonstrating that the design of Career
Acaedemies is "strongly congruent with the widely accepted principles of high school reform" (p. 2).

The school was selected because it represents a diverse population and varied career academy models. The career academies housed at this site are Business and Finance Academy, Travel and Tourism Academy and Tech Prep. The identified school is appropriate for this study because the various academies, Business and Finance, Travel and Tourism and Tech Prep have graduated eight, two, and fifteen classes, respectively. The basis of the dissertation was an analysis of fifty-six (56) high school students enrolled in a career academy and sixty (60) students not enrolled in a career academy and to determine if their involvement in a high school career academy had an effect on their achievement and attendance in a specific urban high school operating with both career academies and traditional high school programs. The identified groups are composed of students who have not passed one or more parts of the GEPA and have comparable high school grade point averages. The students examined in this study graduated in the years 2003 and 2004, were enrolled in the district in eighth grade when taking the Grade Eighh Proficiency Assessment (GEPA), and were enrolled in the district in high school when taking the High School Proficiency Assessment (HSAPA). A comparative analysis was conducted to determine if significant difference, if any, existed in student achievement and student attendance with respect to career academy participation and non-career academy participation.
Research Question

What effects does participation in a high school Career Academy have on student achievement outcomes and student attendance data in a specific public high school in comparison to participation in a traditional general high school program (Non-Academy) within the same public high school.

Subsidiary Questions

The research question will be addressed and supported by five subsidiary questions.

1. Is there a disparity as measured by standardized testing between Career Academy students and Non-Career Academy students?
2. Is there a disparity as measured by Grade Point Averages between Career Academy students and Non-Career Academy students?
3. Is there a disparity as measured by Student Attendance between Career Academy students and Non-Career Academy students?
4. Does participation in a high school Career Academy have an effect on the success of student achievement levels indicated by the HSPA?
5. Do the mean standardized test scores for Career Academy and Non-Career Academy groups differ from the minimum proficient score?

Hypotheses

The null hypotheses developed for the study were based upon the stated purpose of the study and the five questions presented for research and analysis, which support the purpose of this study. The following hypotheses are proposed for the study in this research project:
H01. There is no significant difference in GEPA language arts and mathematics scores between Career Academy students and Non-Career Academy students.

H02. There is no significant difference in HSPA language arts and mathematics scores between Career Academy students and Non-Career Academy students.

H03. There is no significant difference in SAT verbal and mathematics scores between Career Academy students and Non-Career Academy students.

H04. There is no significant difference in Grade Point Averages between Career Academy students and Non-Career Academy students.

H05. There is no significant difference in student attendance between Career Academy students and Non-Career Academy students.

H06. There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Career Academy group.

H07. There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Non-Career Academy group.

H08. There is no significant difference in GEPA language arts scores as compared to the minimum proficient score within the Non-Career Academy group.

H09. There is no significant difference in GEPA mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

H010. There is no significant difference in HSPA language arts scores as compared to the minimum proficient score within the Non-Career Academy group.

H011. There is no significant difference in HSPA mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.
Ho13. There is no significant difference in GPA language arts scores as compared to the minimum proficient score within the Career Academy group.

Ho14. There is no significant difference in HSPA mathematics scores as compared to the minimum proficient score within the Career Academy group.

Ho15. There is no significant difference in HSPA language arts scores as compared to the minimum proficient score within the Career Academy group.

The exploration of research will provide a foundation for the study and link to the findings in Chapter IV. In addition, the analysis of student achievement data and attendance data will determine whether career academies promote a more positive learning environment within the school building. This study seeks to broaden and deepen the literature on the relationship between participation in a high school career academy and the effect on student outcomes over a two-year period.

Limitations of the Study

The research base on the outcomes of schools-within-a-school arrangement is smaller and less conclusive than small schools research. Assertions 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 high school in the state of New Jersey; therefore, the findings may not be applicable to other high schools. One benefit of this study is that it enables the research to isolate certain effects of the career academy upon the individual school. The data collection allows explanation of relationships of student outcomes to the involvement in
career academies. In order to generalize any findings of this study to other settings, research is needed to account for the size, location, and nature of the school. Schools vary in their characteristics: the conclusions of this study are restricted to the sample under investigation.

The second limitation is that it encompasses only a two-year period. The graduates of the class of 2003 and 2004 took the GEPA in 1999 and 2000 and the HSPA in 2002 and 2003, respectively. Prior to 1999, the grade eight state assessment was the Early Warning Test (EWT). Prior to 2002, the grade eleven state assessment was the High School Proficiency Test (HSPT). Therefore, the graduating classes prior to 2003 could not be utilized in this particular study because different assessments were utilized to determine proficiency in Language Arts and Mathematics in both grade eight and grade eleven.

The third limitation is that students involved in the high school Career Academies primarily had Grade Point averages of seventy-five (75) or above; therefore, the sample for non-career academy students were selected under the same premise.

The fourth limitation is that differences in academy and non-academy outcomes may be caused by unmeasurable factors such as motivation, personal attributes and prior experiences, which may also influence outcomes.

The fifth limitation is that at this time, many of our special education students and English Language Learners are not enrolled in career academies. Prescriptive programs are outlined for these populations upon entry to high school.

The sixth limitation is that not all indicators related to student achievement will be represented.
Significance of the Study

This study will compare two approaches to educating high school students, 1) Career Academy Model and 2) Traditional Educational High School Program, within the identified urban high school, and their effectiveness on student outcomes. It is the intent of this researcher to determine if either of the educational approaches significantly affected the achievement level and attendance of students of the identified urban high school. As Stern, Dayton, Piask and Weisburg (1989) concluded, "Career academies are flourishing because they have succeeded in solving some of the fundamental problems in 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" (Mittelstadt & Reeves, 2003, p. 41).

As in other instances of educational reform, the decision to implement a significant curricular change has often been based on trends and expert opinion rather than on hard evidence. Comprehensive research in this area was somewhat significant. The school district being investigated is envisioning and planning to restructure the present design of the high schools into smaller learning communities including career academies and believes this approach is an essential first step to further promoting higher achievement levels for students. This study contributes to our understanding of the potential benefits as well as inherent difficulties of the career academy models as a vehicle for high school reform in large urban districts. Its analyses of issues related to student outcomes 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 described with socio-economic challenges, which may place them at a disadvantage in achieving academic, social or career goals.

Block Scheduling: The practice of extending class times and reducing the number of consecutive classes during an academic day. For the purpose of this study, the four by four block schedule is implemented, in which students attend four classes per day and receive full credit in one semester.

Career Academy: Academic cluster in a high school involving a core of teachers, and a heterogeneous group of students. The academy model is intended to create a community atmosphere for the students and staff. As defined by Stern, Dayton and Teby (1992b), a career academy has several defining 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 - both at-risk and high achievers.
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, business or information technology, that is supported by an integrated sequence of courses, experiences and strong partnerships with businesses and community partners.

G. Focuses on a career theme in a field in which demand is growing and good employment opportunities exist in the local labor market. The curriculum combines technical and academic classes each semester. Generic employability skills are also included. An academy keeps the option of attending college available for all students.

H. Allows for scheduling systems that provide consistent groups of academy students to move together in sequence.

I. Utilizes a block-scheduled format that integrates academic and career/technical education.

J. Supports a designated academy director or head teacher with counselor support.

K. Provides support from business and community for work-based learning experience, such as job shadowing, internships, mentoring, apprenticeships, etc.

L. Has students who are employed during vacation times, and in some academies, who are employed part time during the school year in jobs related to their field of study.

M. Involves the employer representatives from the academy career field to help plan and guide the program. They are involved as speakers, field trip hosts, job supervisors, and sometimes mentors for individual students.

N. Utilizes funds from a variety of sources.

Common Planning Time for Teachers: According to Elliott, Hanser and Gitroy (2002), "Academy teachers meet daily or weekly to develop curriculum, plan activities, and share reports of student problems and progress" (p. 73).
District Factor Group: This dissertation recognizes and adopts the definitions of district factor grouping which appears on the New Jersey Department of Education’s Web Page. The District Factor Groups (DFG) were first developed in 1975 for comparing students’ performance on statewide assessments across demographically similar school districts. Since the DFGs were created, they have been used for purposes other than analyzing test score performance. In particular, the DFGs played a significant role in determining the initial group of districts that were classified as Abbott districts. Additionally, subsequent to the Abbott IV court ruling, the DFGs were also used to define the group of school districts on which Abbott v Burke parity remedy aid would be based.

The DFGs represent an approximate measure of a community’s relative socioeconomic status (SES). The classification system provides a useful tool for examining student achievement and comparing similarly situated school districts in other analyses. The DFGs do not have a primary or significant influence in the school funding formula beyond the legal requirements associated with parity aid provided to the Abbott districts.

In updating the DFGs using the data from the most recent Decennial Census, efforts were made to improve the methodology while preserving the underlying meaning of the DFG classification system. After discussing the measure with representatives from school districts and experimenting with various methods, the DFGs were calculated using the following six variables that are closely related to SES:
1. Percent of adults with no high school diploma
2. Percent of adults with some college education
3. Occupational status
4. Unemployment rate
5. Percent of individuals in poverty
6. Median family income.

The variables described above were combined using a statistical technique called principal components analysis, which resulted in a single measure of socioeconomic status for each district. Districts were then ranked according to their score on this measure and divided into eight groups based on the score interval in which their scores were located. They range from A (lowest socioeconomic districts) to J (highest socioeconomic districts) and are labeled as: A, B, CD, DE, FG, GH, I, J.

Unlike the model used to create the DFGs based on the 1990 census data, this model has omitted population density as a relevant variable. The same statistical method (principal components analysis) was used to determine districts' relative SES. The method used to group the districts into DFG categories was also the same.

A number of methodological decisions were made to avoid classifying a school district in an inappropriate DFG category. First, communities in which there were fewer than 70 respondents to the Census questionnaire are omitted. Second, school districts in which more than half of the school-age population is enrolled in non-public schools were not classified in a DFG. Both of these limitations are consistent with methods used in the previous DFG report. Third, school districts' DFG ratings are adjusted to account for students who are part of sending-receiving relationships and, as such, live in other communities. This is the first time that such a method has been used. Note that since
students' characteristics are counted in the school district in which they attend school, non-operating school districts do not receive a DFG classification.

It has been suggested that the Decennial Census data may not accurately reflect the demographics of students enrolled in a district's schools. Despite this concern, the census data are used for two reasons. First, experimentation with other data demonstrates that there are no viable alternatives to the census data. Second, considerable research suggests that community characteristics, not only an individual's characteristics, are relevant in terms of the impact of demographics on student performance (New Jersey Department of Education, 2004c).

Freestanding School: It denotes a school with its own space, budget, and principal that may or may not share a building.

General High School Program: For the purpose of this study, subjects required for high school graduation adhere to state and district guidelines.

Grade Eight Proficiency Assessment: According to the New Jersey Department of Education (2004d), "In 1988, the New Jersey State Legislature passed a law (18A:7C-6.2) requiring that a test be given to all eighth-grade students in public schools in New Jersey to assess their progress toward mastering the skills they will need to graduate from high school" (p. 1). The GEPA is a state test given to eighth graders to measure whether they have gained the knowledge and skills identified in the Core Curriculum Content Standards. The GEPA replaced the Grade 8 Early Warning Test (EWT), which was administered from 1991 to 1992. Eighth-grade students will take the GEPA and receive scores in Language Arts Literacy, Mathematics and Science. For all three sections of the test, there will be a total score and subtotals for all the clusters of skills.
The total scores will be reported in one of three proficiency levels – Advanced Proficient, Proficient, or Partially Proficient. The total GEPA scores are reported as scale scores with a range of 100 to 300. The passing score is 200. Each section of the test is scored separately. In order to pass the entire GEPA, a student must obtain a passing score of 230 on each of the test sections.

Special education students will be working toward achieving the standards at levels appropriate for them with accommodations they need. These accommodations are defined in their Individualized Education Programs (IEPs). Every student with disabilities must take each subject area of the GEPA unless exempted by the IEP because the disability is so severe that the student has not been instructed in the knowledge and skills tested and cannot complete any of the item types on the test.

All Limited English Proficient (LEP) students must take the GEPA. LEP students may need accommodations during the testing, which can include a translation dictionary, translation of test directions, extended testing time, or a small group test environment (New Jersey Department of Education, 2004d).

High School Proficiency Assessment: The High School Proficiency Assessment is used to determine student achievement in reading, writing, and mathematics as specified in the New Jersey Core Curriculum Content Standards. First-time eleventh grade students who fail the HSFA in March of their junior year will have an opportunity to retest in October and March of their senior year. The New Jersey Grade 11 High School Proficiency Assessment (HSPA) consists of three sections – Language Arts (day 1), Language Arts (day 2), and Mathematics – and passing this assessment is one of the requirements for a high school diploma. Juniors who do not pass all three sections of
the assessment will have an opportunity to be retested on the section or sections they did not pass. The total HSPA Language Arts (day 1), Language Arts (day 2) and Mathematics scores are reported as scale scores with a range of 100 to 300. The passing score is 200. Each section of the test is scored separately. In order to pass the entire HSPA, a student must obtain a passing score of 200 on each of the test sections.

According to the New Jersey Department of Education (2004e), “In 1999, the New Jersey legislature passed legislation (18A: 7C-6.2) that requires all students who graduate from a public high school in New Jersey to demonstrate mastery of skills needed to function politically, economically, and socially in a democratic society” (p. 1). Accordingly, the Department of Education administered the High School Proficiency Test (HSFT 11) from 1993 to 2001 to all New Jersey eleventh grade students. Subsequently, the department replaced the HSP11 with the High School Proficiency Assessment (HSPA) for students who enter the eleventh grade on or before September 1, 2001.

Special education students will be working toward achieving the standards at levels appropriate for them with accommodations they need. These accommodations are defined in their Individualized Education Programs (IEPs). Every student with disabilities must take each subject area of the HSPA unless exempted by the IEP because the disability is so severe that the student has not been instructed in the knowledge and skills tested and cannot complete any of the item types on the test. If a child’s IEP does not include a specific exemption from passing any section of the HSPA, then that child must pass all sections of the HSPA as one of the requirements for a high school diploma. A student exempted from passing a section of the HSPA must
take the exempted section once. The score on the exempted section will not affect the student’s graduation status.

All limited English proficient (LEP) students must take the HSPA. LEP students may need accommodations during the testing, which can include a translation dictionary, translation of test directions, extended testing time, or a small group test environment (New Jersey Department of Education, 2004e).

High school students who do not demonstrate proficiency on one or more sections of the HSPA may participate in the Special Review Assessment process to demonstrate their attainment of the New Jersey Core Curriculum Content Standards (New Jersey Department of Education, 2004e).

High School Proficiency Test. In October 1993, the New Jersey Grade 11 High School Proficiency Test (HSPT 11) was first administered to regular eleventh grade students as a graduation requirement. It consisted of three sections: reading, mathematics, and writing. With the advent of the HSPA, the HSPT 11 is administered to adult high school and returning students only (New Jersey Department of Education, 2004e).

Magnet Programs. A specialty core focus such as business, math, science, creative arts, or a career theme or cluster, to attract students from the entire school district. For the most part, students in a magnet program stay together for their core classes and may take other courses with non-magnet students. Some magnet programs have competitive admission requirements while others are open to any interested student.

Manpower Demonstration Research Corporation (MDRC): The Manpower Demonstration Research Corporation is a non-profit, nonpartisan social policy research organization. In the field of education, they test reforms aimed at improving the
performance of public schools, especially in urban areas. They began evaluating the Career Academy approach in 1993 as a 5-year evaluation of career academies, covering nine academies and 1900 students.

National Academy of Finance (NAF) Works collaboratively with financial services, major corporations, and banks that provide technical expertise and special resources to enhance the educational experiences of students.

Ninth Grade/Freshman/Success Academy: Introductory academy courses are offered that prepare students for an intense career-focused program in twelfth grade.

New Jersey Core Curriculum Content Standards: This dissertation adopts the definition of the Core Curriculum Content Standards, which is found on the New Jersey Department of Education (2004g) web site. In 1996, the New Jersey State Board of Education adopted the New Jersey Core Curriculum Content Standards, an ambitious framework for educational reform in the State’s public schools. New Jersey’s standards were created to improve student achievement by clearly defining what all students should know and be able to do at the end of thirteen years of public education. Since the adoption of those standards, the New Jersey Department of Education has continuously engaged in discussion with educators, business representatives, and national experts about the impact of the standards on classroom practices. To assist teachers and curriculum specialists in aligning curriculum with the standards, the department provided local school districts with a curriculum framework for each content area. The frameworks provided classroom teachers and curriculum specialists with sample teaching strategies, adaptations, and background information relevant to each of the content areas. In addition, the statewide assessments were aligned to the Core
Curriculum Content Standards. This alignment of standards, instruction, and assessment was unprecedented.

The New Jersey Core Curriculum Content Standards describe what students should know and be able to do in nine academic areas: visual and performing arts, comprehensive health and physical education, language arts literacy, mathematics, science, social studies, world languages, technological literacy, and career education and consumer, family, and life skills. The last two standards areas replace the cross-content workplace readiness standards, adopted in 1996. Each of the nine content sections in this document begins with an introduction that articulates the vision for the content area and provides information on the revision process. Each content area has numbered standards (e.g., 3.1, 5.2) followed by a descriptive statement. The descriptive statement provides a brief overview of the content and skills enumerated in the standard (New Jersey Department of Education, 2004g).

The content standards themselves are concerned with the knowledge students should acquire and the skills they should develop in the course of their PK-12 experience. They are broad outcome statements that provide the framework for strands and cumulative progress indicators (CPIs). Strands are organizational tools that help teachers locate specific content and skills. Under each strand is a number of CPIs at specific benchmark grades. The CPIs provide the specific content or skills to be taught and are cumulative; that is, the progress indicators begin at a foundational or basic level and increase in complexity as the student matures, requiring more complex interaction with the content (New Jersey Department of Education, 2004g).
Currently, the State of New Jersey now performs standardized assessments in the CCS at the fourth grade (ESPA), eighth grade (OEPA), and eleventh grade levels (HSPA) which attempt to measure student achievement.

New Jersey Workplace Readiness Standards: These standards were created as part of the Core Curriculum Content Standards signed into law by the New Jersey State Board of Education on May 1, 1996. The original work groups assigned to develop the Workplace Standards in New Jersey submitted a list of 85 standards comprised of 1195 indicators to the Department of Education. The department eventually extracted five cross-content workplace readiness standards that must apply to all areas of instruction in public schools throughout the state (New Jersey Department of Education, 2004b).

Workplace Readiness Standards in New Jersey include the following generic work skills: develop career planning and workplace readiness skills; use technology, information and other tools; use critical thinking, decision making and problem solving skills; demonstrate self-management skills, and apply safety principles in the workplace (New Jersey Department of Education, 2004b). Progress indicators are aligned with these standards, which under state law, must now be infused, and assessed in all areas of public school curriculum.

No Child Left Behind Act of 2001: President Bush signed The No Child Left Behind Act of 2001 into law on January 8, 2002. The NCLB requires states to develop challenging content standards and academic assessments and it holds states and local districts accountable for results. Each state must create annual assessment based on the state’s standards. NCLB further requires that highly qualified teachers teach students
and that research-based methodologies are used in the classroom (New Jersey Department of Education, 2004).

SCANS Report. This report outlines a new set of instructional and vocational expectations that affect the secondary school educational program. The Secretary's Commission on Achieving Necessary Skills was commissioned by the United States Department of Labor to investigate the state of American high schools in response to the economic turmoil of the 1980's. The SCANS Commission spent twelve months consulting with business owners, public employees, managers, union officials, and workers. Its initial conclusions were simple and direct: American high school students must meet a new set of instructional and vocational competencies, if they are going to live a productive life. In short, the SCANS Report conjectured that the nation's schools must emulate the efforts of American businesses, which were in the process of transforming themselves into high tech, high performance organizations (U. S. Department of Labor, 1992, p. 14).

The SCANS Report offered the supposition that "more than half of our young people leave high school without the knowledge or foundation required to find and hold a good job" (Packer, 1992).

Scholastic Aptitude Test: The Scholastic Aptitude Test (SAT) consists of two sections—Verbal and Mathematics—and this assessment is utilized as one of the criteria for college acceptance. The total SAT Verbal and Mathematics scores are reported as scale scores with a range of 200 to 800.

School-to-Work Opportunities Act: This federal legislation was initiated by Congress in 1994 and was designed as a one-time, venture capital initiative to help states and
localities support the initial cost of establishing statewide systems that help youth transition into the world of work. The resultant 245 million dollars in seed money assisted states, which are willing to plan, develop and create partnerships with business leaders, labor representatives, Chambers of Commerce, and workplace investment boards (New Jersey School-To-Work Profiles, 1999).

The S-T-W Act also assumed the arduous task of synthesizing the often disparate sectors of the K-12 public schools, post secondaty institutions, employers, and community based organizations, which traditionally are involved in helping students prepare for future employment (American Youth Policy Forum, 2001). It is correct to view School-To-Work as a piece of federal legislation that did not contain any new work related programs or skills. Instead, the School-To-Work legislation, both on a national scale as well as in New Jersey, was promulgated to build on and incorporate a range of existing and promising career preparation activities, such as career academies, youth apprenticeship and cooperative education. As of September 30, 1999, a total amount of $36,340,000 in federal dollars had been invested in New Jersey public schools to support these types of programs (New Jersey School-To-Work Profiles, 1999).

Three main instructional components are contained in the federal School-To-Work legislation. They are School Based Learning, Work Based Learning and Connected Activities (Public Law 103-239, 1994). The components of this legislation are to be broadly interpreted as mandating the teaching of entry employment and employment skills, which would result in students being awarded, either formally or informally, skill certificates in a recognized occupational category. In addition, this
legislation promoted the possibility of workplace mentoring in all aspects of a particular industry.

For the purpose of this dissertation, references to the School-To-Work Act of 1994 will be defined in terms of public high school programs that embrace and comply with the tenets explicated in the aforementioned legislation.

Cooperative Education Programs: Transitional programs in the School-To-Work Program can be classified into two types: School for work programs, such as vocational courses, which provide immediate instruction with the expressed purpose of preparing students to enter work. Or, school and work arrangements, such as cooperative education, which allow students to work and attend school at the same time.

The data collection for the Tech Prep students used in this dissertation is geared toward the latter. The cooperative education program differs to a large degree from career-based learning, job shadowing, or other apprenticeship programs by involving high school students with direct work experience for approximately 15 hours per week under the supervision of a certified teacher. A certified professional teaches the cooperative education class during the scheduled school day. It is during that time that students receive not only exposure to a particular subject matter, such as business, health, marketing, or law, but also exposure to the types of generic workplace skills (reasoning, technology, and problem solving). Thus, for the purpose of this dissertation, the data obtained from the co-op students, both marketing and office, will represent an important substratum of what is termed the "School-To-Work" initiative in the state of New Jersey.
It is logical that some cooperative education programs sustain a significant portion of the School-To-Work umbrella. The cooperative education ideal has been part of the high school landscape for more than seventy years. According to the General Accounting Office, about eight percent of American High School juniors and seniors (433,000) work each year in supervised part-time jobs organized under cooperative education programs. This makes co-op education by far the most extensive source of work-based learning available to American high school students (Mendel, 1995).

General reports on cooperative education tend to suggest that participation of students in these programs exhibit more positive attitudes toward school and a stronger perceived connection between school and work. Cooperative education involves students in paid work experience that is related to their field of study. Under the STW Act of 1994, students enrolled in the cooperative education program cannot receive remuneration directly from the federal government. However, economic incentives for students are obtained from the employer side of the occupational equation. The fact is that cooperative education students may not do well in the post-secondary labor market because of their failure to obtain the type of formal certification recognized by other employers. The limitation of employment mobility, however, may be mitigated by the fact that those students who are enrolled in cooperative education programs and are hired by their employers after graduation tend to do better financially on a long term than those students who change employers at random (National Center for Research in Vocational Education, 1994).
Schools within a School (SWAS): Small, autonomous programs housed within larger school buildings (National Conference of State Legislatures, 2002).

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.

Smaller Learning Communities: Student-centered systems with student supports and safety nets. For the purpose of this study, the model investigated is the career academy.

Social Behavior: measured by truancy, discipline problems, violence, substance abuse, and gang participation.

Special Review Assessment: The Special Review Assessments (SRA) is an alternative assessment that provides students with the opportunity to exhibit their understanding and mastery of the HSPA skills in contexts that are familiar and related to their experiences. The SRA content is linked to the HSPA test specifications in order to ensure that students who are certified through the SRA process have demonstrated the same skills and competencies at comparable levels as students who passed the written HSPA test (New Jersey Department of Education, 2004a).

Student Achievement: For the purpose of this study, quantity and quality of courses, grade point averages, HSPA and SAT results

Vocational Education: Programs that prepare youth people for occupations that do not traditionally require advanced degree.
Organization of the Study

This research proposal is organized into five separate chapters. The first chapter of the study initially develops the appropriate and relevant background information on the topic of high school career academies and secondary education. This study will investigate the characteristics and effects of career academies on student achievement and student attendance in comparison to students not participating in a career academy in an urban high school. The first chapter highlights the statement of the problem, the purpose of the study, the hypotheses, the limitations of the study, the significance of the study and the definition of terms.

The second chapter offers an extensive literature review of high school career academy models. This chapter also explores research examining student achievement, and student attendance of students enrolled in a career academy.

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

The fourth chapter will present a statistical analysis and interpretation of the findings. Graphs produced by the software package SPSS are included to provide the reader with statistical benchmarks consistent with the overall study. Variables such as GEPA results, HSPA results, GPAs, SAT scores and attendance will be statistically analyzed using frequency distributions and independent t-tests.

The fifth chapter details the conclusions, implications, and recommendations for future research on this topic.
The study concludes with a reference list and appendices supporting the conclusions of the major research questions.
CHAPTER II
REVIEW OF THE LITERATURE

Introduction

This chapter will investigate the review of the literature and research on the impact of high school career academies on students achievement and student attendance. Further exploration of studies of small schools, schools-within-a-school models and high school career academies and their impact on the selected variables of study will be investigated. The literature is rich in the area of school size but the findings regarding the effects of high school career academies must be regarded as tentative. Compared with the research on the effects of school size, the research on SWAS structures is less extensive, less conclusive, and often less rigorous. Researchers have noted benefits of SWAS in the following areas: Academic achievement, social behavior, attitudes, satisfaction, student-teacher relations and attendance. The purpose of this study is to compare the effects of participation in a career academy and non-career academy involvement and its relationship to student achievement and student attendance in a specific urban high school.

A Nation at Risk, 1983 stated:

If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have
even squandered the gains in achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems, which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament. (p. 5)

In an age of exploding knowledge and rapid change in technology, information exchange, and communications, our students will need increasingly advanced levels of knowledge and skill to gain and retain high-wage employment that provides job satisfaction. The role of the educational system is to deliver instructional programs that provide an excellent education for students entering a complex, rapidly changing, and highly competitive world. The intent of the Cross-Content Workplace Readiness Standards is to support the educational reform initiated by the New Jersey Core Curriculum Content Standards. The standards seek to generate higher levels of achievement for all students and to assist districts in the development of curricula that fosters lifelong learning skills and skills necessary for an effective transition into the workplace and/or postsecondary education. Therefore, school districts are challenged to effectively implement the most appropriate curriculum design and instructional strategies to accomplish this mission.

Rationale for Reform

Maxwell and Rubin (2000b) stated:

The current 'comprehensive' high school has at least three defining characteristics. First, it is inclusive, striving to meet the needs of all students, including the academically gifted and the academically challenged, the vocational and the college-oriented student, the wealthy and the poor. Second,
the high school's curriculum is grounded in the core program of general
education that allows for differentiation in the course of study. This curriculum
differentiation is targeted to meet the needs of specific groups of students.
Third, a teacher-centered pedagogy dominates the learning environment.
Teachers view themselves, and are viewed by students, as curriculum area
experts who transmit information to students predominately by lecturing and
otherwise imparting facts and guidance. (p. 10)

Like most large, comprehensive high schools, urban high schools face the blight
of anachronism brought on by a rapidly changing world. Structured to provide college-
bound education for only a few students, high schools have been widely criticized for
leaving too many students woefully unprepared for increasingly technological
workplaces that are demanding not only a high school diploma, but also high-level
skills and post-secondary training as well. The goal is to ensure that all students
graduate with the knowledge and skills necessary to make successful transitions to
college and careers. At the same time, urban high schools face the additional challenge
of economic and demographic changes that have brought an unprecedented
concentration of poor and linguistically and ethnically diverse students to their doors.
This population has always had more difficulty succeeding in traditional high schools.
According to Caron (1999), the perceived ills of today's high schools include:
A. large school populations,
B. low student achievement,
C. minimal interest in academics,
D. irrelevant instruction, and
E. students who graduate without clear, realistic plans for their futures.

"Smaller size establishes the groundwork for deeper school reforms by improving and streamlining the relationship between faculty and administrators but, in itself, does not trigger these types of reforms... Smallness alone cannot create satisfying relationships or academic focus" (Gladden, 1998, p. 123). After several decades of building large schools, there has been a reconsideration of the trend because high schools, specifically in large urban districts, are struggling with increasing dropout rates, poor attendance, and lower scores on standardized tests. Educational leaders are investigating many methods to address the above stated concerns that plague our nation's high schools, including innovative restructuring of the organization and operation of the school.

Policy Context

It has long been known that some students do not perform well in traditional school settings. With the increased federal and state recommendations to institute smaller learning communities in large high schools, these mandates have encouraged the establishment of partnership academies, schools within schools, and school-to-work programs as part of a comprehensive strategy to meet the educational needs of low-performing students and provide them with alternatives to delinquency. Research on career-focused high school reform has increased significantly since the U.S. Departments of Education and Labor jointly funded the 1994 School-to-Work Opportunities Act (STWOA). STWOA was aimed at enhancing the relevance and rigor of school- and work-based learning and at creating career pathways between high school and post-secondary education and careers (Kemple & Snipes, 2000). Work-
based learning has been shown to help students master generic and specific skills for their future occupations and apply skills learned in the classroom to real work setting (Kazis & Goldberger, 1995; Wieler & Bailey, 1997), and STW internship programs have been shown to have some earnings advantages to graduates (Griffith, 1999).

Second, the U.S. Department of Education has committed itself to several initiatives aimed specifically at addressing problems that are unique to high schools. Many of these initiatives are being supported under the Comprehensive School Reform Demonstration developed within the Office of Educational Research and Improvement (OERI) and the New American High Schools established by the Office of Vocational and Adult Education (OVAE) (Kemple & Snipes, 2000).

On January 8, 2002, President George W. Bush signed into law the No Child Left Behind Act of 2001, which outlined the importance of establishing smaller learning communities in large public high schools. The Smaller Learning Communities Program is a $142 million competitive federal grant program to plan, implement or expand smaller learning communities in large high schools. According to Cutshall (2003), by reauthorizing the Smaller Learning Communities (SLC) program of 2000, the No Child Left Behind Act allows grantees to use their funds to (1) study the feasibility of creating smaller learning communities; (2) research, develop, and implement strategies for creating smaller learning communities; (3) provide professional development for school staff in the teaching methods that would be used in the smaller learning communities; (4) develop and implement strategies to include parents, business representatives, community-based organizations, and other community members in the activities of smaller learning communities.
Historical Review of Career Academies

According to Kemple and Snipes (2000), the initial Career Academies of the 1970s and 1980s were primarily vocational education programs targeted at students who appear to be at risk of dropping out of high school. The goals of these early programs were focused on keeping students engaged in school, providing them with work-related learning experiences both in and out of the classroom, and establishing defined pathways between high school and post-secondary employment. The first Career Academy, Electrical Academy, was established in 1969 in Philadelphia, Pennsylvania. Building on this Philadelphia experience, in the 1980s, the Edna McConnell Clark Foundation provided initial funding to establish Academies in Pittsburgh, Pennsylvania; Portland, Oregon; and Menlo-Atherton and Redwood City, California (known as the Peninsula Academies). The California State Legislature passed a bill providing funding for up to 10 school districts to establish new Academies (later referred to as California Partnership Academies) beginning in the 1985-1986 school year. Building on the California legislation and Partnership Academy model, Illinois, Florida, Hawaii, and other states have also established statewide networks of Academies. By the end of the 1980s, it is estimated that there were over 100 Academies in Philadelphia, California, and the cities that received Clark Foundation start-up grants or support from the American Express Company. In 1988, a consortium of business, labor, and education leaders established the Philadelphia High School Academies (PHSA), Inc., to oversee the network of 28 Academies in Philadelphia. Since then, a growing number of other cities have developed Academy networks,
including Atlanta, Baltimore, Chicago, Denver, Oakland, Pasadena, Seattle, and Washington, D.C.

According to Kemple and Snipes (2000), American Express in 1988 established the National Academy Foundation (NAF) to coordinate and facilitate the quality and expansion of Career Academies. Presently, NAF sustains a national network of career academies focusing on finance, travel and tourism, and information technology, providing curricular support, professional development, and technical assistance. NAF acts as an intermediary between schools and businesses, and supports the implementation of all components of the programs.

Since the late 1980s, there has been a shift in the goals and target population of most Career Academies. In particular, the emphasis is now that the Career Academy approach should be explicitly distinct from the traditional vocational education by seeking to prepare students for both work and college. Career academies now seek to include a broad range of students and to combine a rigorous academic curriculum with exposure to extensive information about an industry both in the workplace and in the classroom.

The 1990s have seen extraordinary growth in the number of Career Academies around the country. There are estimated to be more than 1,500 Career Academies nationwide, representing nearly a 15-fold increase in approximately 10 years; many more Academies are in the planning stages. Much of this growth can be traced to the increasing number of national, state, and district Academy support networks.
Career Academy Model

The Career Academy model integrates three major strands of high school reform policy initiatives unfolding at the federal, state, and local levels: restructuring large high schools into smaller learning communities; improving the rigor and relevance of academic and career-related curricula; and creating pathways from high school to further education and the labor market. According to Kemple and Snipes (2000), the original Academies were designed primarily to prevent dropping out of high school and to increase preparation for work among students who began high school at high risk of failure. There is now widespread agreement that Career Academies should seek to prepare students for both work and college, and they should include a broad cross-section of students, including those who are highly engaged in school. Over their 30-year history, Career Academies have been implemented in an estimated 1,300 to 2,000 high schools across the country. Career Academies consist of smaller learning communities that aim to create a more personalized and supportive learning environment for teachers and students. They combine academic and career-related courses in an effort to enhance both the rigor and relevance of the high school curriculum. This proliferation and the relevance of Academies to today’s education reform agenda have fueled the need for reliable evidence about how his approach affects students’ high school performance and their transition to further education and careers.

While the basic organizational features of career academies have remained the same since their inception, the goals and target population have changed. The original Academies were designed primarily to prevent students from dropping out of high
school and to increase preparation for work among students who began high school at risk of failure. There is now widespread agreement that Career Academies should seek to prepare students for both work and college, and that they should include a broad cross-section of students, including those who are highly engaged in school (Kemple & Snipes, 2000).

Career academies are schools within schools that link students with peers, teachers, and community partners in a disciplined environment, fostering academic success and emotional health. These programs aim at building long-term relationships between students and teachers, developing peer support and improving achievement through highly focused smaller learning communities operating within the infrastructure of the traditional school building. Career academies allow youth who may have trouble fitting into the larger school environment to belong to a smaller educational community and to connect what they learn in school with their career aspirations and goals. Career academies have considerable potential: they use career planning and exposure to increase students' engagement in schooling, while sharpening students' preparation for college and careers. The emphasis on academics through an integrated and contextualized curriculum can improve students' learning, while work-based learning and business involvement enrich and diversify students' high school experience. The career academy model has spread rapidly over the past 20 years and is now being promoted as an integral part of many high school reforms (McPartland et al., 1998). Although Stern et al. (1998) did not believe that an exhaustive definition of Career Academies was possible because of the many variations between and within them; they did attempt to outline several key elements fundamental to the Career Academy model:
1. Smaller learning communities: A Career Academy is organized as a school-within-a-school in which a cluster of students have some of the same teachers for at least two years and who share several classes each year. Groups of teachers from academic and vocational disciplines are scheduled to have only or mostly all academy students in their classes. These teachers meet with each other on a regular basis and share in decision making related to administrative policies, curriculum content, and instruction. One of these faculty members assumes responsibility for administrative tasks and usually serves as a liaison between the teachers and the school principal, building administrators, school district officials, and employer partners. The aim is to create a more personalized and supportive learning environment for students and teachers.

2. College-preparatory curriculum with a career theme: A Career Academy offers students a combination of academic and vocational curricula and uses a career theme to integrate the two. Examples of common themes are health care, business and finance, communications, media, and transportation technology. Academic courses that meet high school graduation requirements and college entrance requirements are linked with technical courses that focus on the academy’s fieldwork. Teachers sometimes have shared planning time to coordinate course content and instructional strategies. Employment and job readiness skills may be taught in the vocational
courses and in one or more academic courses. Work-based learning opportunities for students tie classroom activities to work internships with local employers. College and career counseling informs students about options and planning for employment and further education, which may or may not be related to the academy career themes.

3. Partnerships and employers: 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. An advisory group for the academy includes employment representatives from the local community, academic faculty, and district-wide administrators. Employer representatives give advice on curriculum, appear as guest speakers in classes, supervise student internships, provide financial or in-kind support, and sometimes serve as mentors for individual students. (pp. 21-24)

Maxwell and Rubin (2000b) stated:

The Career Academy is arguably the most well-developed school-to-work program model focused on school-based learning. It may, in theory, have the best chance of effectively combining school-based and work-based education, actively involving employers and other community partners, and engaging a truly heterogeneous cross section of students. Because of its comprehensive goals, the career academy model has been viewed as a catalyst for school change. (p. 28)
Research on Small Schools and Small Learning Communities

The division of large high schools into career academies supports the development of small, safe, and successful learning environments. There is remarkable consistency among the research studies that have been reported on schools size: Smaller is better. According to Lee and Smith (1996), small size seems to benefit minority and low-income students more than middle- and upper-class students. Many of the nation's largest high schools are in urban areas having high concentrations of disadvantaged students, who are ill served by large school size. Of course, small size does not, in and of itself, guarantee school improvement, but it does optimize the setting for high quality schooling.

Likewise, in his large-scale 1998 review of research, Gladden published corroborating findings: “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” (Gladden, 1998, p. 114). Nine 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” (Gladden, 1998, p. 126). According to the American Youth Policy Forum (2000), ethnic minorities, poor students, and students who speak English as a second language benefit the most from small learning environments, but unfortunately, they are over-represented in urban school districts with the largest schools. As the Director of the Small Schools Workshop at the University of Illinois at Chicago (UIC), Mike Klonsky has seen first hand what large impersonal schools can do to low-income and minority youth. “If you want places just to ‘warehouse' kids,”
Klonsky says, "[then] bigger is cheaper," but if you’re talking about making a connection to kids and improving graduation rates, then smaller schools are better (Ayers, Klonsky & Lyon, 2000).

Research suggests that:

A. Smaller learning environments are a condition for boosting student achievement (Wilfams, 1990).

B. Enrollment size has a stronger effect on learning in schools with large concentrations of poor and minority children (Cotton, 1996b).

C. Student attendance is better in small schools than in large ones, especially with minority or poor students (Cotton, 1996b).

D. Student attitudes toward school in general and toward particular school subjects are more positive in small schools. The attitudes of low-SES and minorities are especially sensitive to school size and improve greatly in small schools (Cotton, 1996b).

The smaller learning environments have notably affected the achievement levels for poor, mostly ethnic minority children. The effect is not only well documented, but also sizeable—"remarkably strong and consistent from state to state," as Howley, Strange, & Bickel (2000) put it in the report of their multi-state studies of school size in impoverished communities (p. 4). Specifically, they found that small schools reduce negative effects of poverty "by between 20 and 70 percent, and usually by 30-50 percent, depending on grade level" (p. 4). Likewise, in his large-scale 1988 review of research, Gladden (1998) published corroborating findings: 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) “Nine 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). Jewell (1989) writes, “…if minority students must struggle more to achieve a solid public education and if large districts and large schools find it increasingly difficult to achieve solid educational results for their students, we may be acting contrary to the interests of all concerned by organizing our public education system in a manner which assigns high proportions of minority youngsters to large schools within very large school districts” (p. 152).

According to Kathleen Cotton’s (1996b) 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. The effects of small schools on the achievement of ethnic minority students and students of low socioeconomic status (SES) are the most positive of all. “About half the student achievement research finds no difference between the achievement levels of students in large and small schools, including small alternative schools (Burke 1987; Caldas 1987; Edington and Gardner 1984; Gregory 1992; Haller, Monk, and Tien 1993; Hewley 1996; Huang & Howley 1993; McGuire 1989; Melnick, et al. ’86; Smith & De’Young 1988; Stockard & Mayberry 1992; Walberg 1992; Way 1983). The other half finds student achievement in small schools to be superior to that in large schools (Bates, 1993; Ebers, Keboe, & Stone 1982; Eichorststein 1994; Fowler & Walberg 1991; Kasthaw & Blank 1993; Miller, Elesworth, & Howeli 1986; Robinson-Lewis 1991; Walberg 1992).
Cotton (1996b) 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 thinking skills (p. 4).

Research Findings on Career Academies

The Manpower Demonstration Research Corporation has conducted a five-year evaluation of career academies, covering 9 academies and 1,900 students. The evaluation report (Kemple & Snipes, 2000) documents the following findings:

A. 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.

B. Among students who are most at risk of dropping out of high school, Career Academies are an effective means of preventing dropout, increasing school engagement, and helping students acquire the credentials they need to graduate and prepare for post-secondary education. Career academies reduced dropout rates by nearly one-third for at-risk students (those identified as least likely to do well in a traditional school environment).

C. 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.

D. Students enrolled in career academies attended high school more consistently, completed more academic and vocational courses, and were more likely to apply to college than their counterparts who were not enrolled in academies.

E. Career academies provide at-risk youth opportunities to set goals and reach academic and professional objectives that may otherwise been unobtainable.

F. 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.

G. Career Academies should build on the effective organizational enhancements they bring to high school reform efforts if they are to improve academic achievements 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.

According to Kemple and Snipes (2000), the Manpower Demonstration Research Corporation study focused its work on evaluating the impact of the career academy on the high-risk, medium-risk and low-risk subgroups. These subgroups were derived by formulating characteristics to determine the likelihood of students to drop out from school, with the high-risk category being those students with the highest probability of dropping out from school. According to Kemple and Snipes, "Among
students most at risk of dropping out, career academies significantly improved high school outcomes. The academies reduced dropout rates, improved attendance, increased academic course-taking, and increased the likelihood that students graduated on time" (Kemple & Snipes, 2000, p. 43).

The study states the following “When averaged across the diverse groups of students and sites participating in the evaluation, it appears that the Career Academies produced only modest improvements in students’ engagement and performance during high school” (Kemple & Snipes, 2000, p. ES-14). According to Kemple and Snipes (2000), it suggests that the Academies produced only slight (and not statistically significant) reductions in dropout rates and in student involvement in negative risk-taking behaviors. On average, the Academies produced modest increases in the percentage of students who earned sufficient credits to meet district graduation requirements and in student involvement in youth development activities. In general, according to the full sample findings, the Career Academies tended to produce small, positive (but not statistically significant) impacts on many student outcomes. These aggregate findings mask a great deal of underlying variation that sheds light on the potential strengths and limitations of the Academy approach.

The MDRC study also states: “The Career Academies did not improve standardized measures of reading and math achievement either on average or for any subgroup of students” (Kemple & Snipes, 2000, p. ES-15). Among students in the high-risk subgroup, average math and reading test scores for the Academy group were somewhat higher than scores for the non-Academy group. While none of the differences was statistically significant, test scores followed this subgroup’s trend of
increases in academic course-taking and total credits earned toward graduation. Academy students in the low- and medium-risk subgroups had slightly lower reading test scores than their non-Academy counterparts. This is consistent with the slight (but not statistically significant) reduction in academic course taking, which was found to be more highly correlated with reading test scores than was non-academic course taking. There was almost no difference in math test scores between Academy and non-Academy students in the low- and medium-risk subgroups.

Several factors may account for these test score findings. First, qualitative field research information collected for this evaluation indicated that academic curricula and instruction in most of the Career Academies did not differ substantially from those of typical high schools; Academy teachers were required to cover the same basic material as teachers of the same subjects in the rest of the high school. Second, there were some important differences between the sample of students who completed the math and reading achievement tests and those who did not. Finally, the types of standardized measures of achievement used in this evaluation, and in many school districts, may not adequately capture learning gains that Academy students achieve relative to their non-Academy counterparts (Kemple & Snipes, 2000, p. ES-16-ES-17).

In an effort to paint the most realistic picture and parallel the sample group under this investigation, I will report findings for the low-risk subgroup. The low-risk subgroup represents the combination of characteristics associated with the lowest probability of dropping out of school.

According to Kemple and Snipes (2000), a number of studies have focused on the California Partnership Academies. Several of these studies compared the
performance of Academy students with that of other students in the same high schools and who had similar demographic characteristics and prior records of low grades, high absenteeism, and disciplinary problems. The results indicated that the Academy students earned more credits and had significantly better attendance, grades, and graduation rates than students had in the comparison groups. These studies also found that Academy students and graduates outperformed their non-Academy peers.

Kemple and Snipes (2000) state:

Outside California, several other studies using similar methodologies also reported positive results. Evaluations of academies in Philadelphia found that Academy students had higher attendance and graduation rates than the citywide average. An evaluation of Academies affiliated with the Junior Reserve Officers' Training Corps (JROTC) found positive effects on attendance, credits earned, grades, and dropout prevention. (p. 7)

Research-Student Achievement

According to Hughes, Bailey, and Mechur (2001), "research indicates that participation in school-to-work can improve high school students' attendance, grades and graduation rates" (p. 11). Stern et al. (1992a) emphasized the ability of career academies to improve student achievement, but also called for more systematic studies exploring the specific aspects of career academies that contribute to positive student outcomes. Using a comparative approach between academy and non-academy students, Maxwell & Rubin (1997) supported the finding that academies positively affect students but also suggested that not all students benefit equally from the academy experience. Their data showed that many students acquire higher grades, score higher
on exams, and are more content within the academy. Yet, outcomes for some academy students are not as positive. Although most academy students are able to engage in and benefit from the academy structure, some simply do not show much improvement. In fact, these students, compared to non-academy students, may not gain substantially from being enrolled in the academy. Maxwell and Robin (2000) acknowledged that their quantitative analysis was unable to explain why this was so, although they did call for further exploration to assess the within- and between-academy processes that may explain differences in school engagement.

State Assessments

For a student to fulfill the New Jersey State’s requirements for high school graduation, each must pass the state-mandated High School Proficiency Assessment that is administered in the junior year. The assessment is administered once a year in March. It is composed of two parts over a three-day period, Language Arts and Mathematics.

According to the New Jersey School Report Card of the identified high school under investigation, 46.3% of the juniors passed the Language Arts section of the High School Proficiency Assessment and 32.6% of the juniors passed the Mathematics section of the High School Proficiency Assessment for the 2002-2003 academic year the first time taken. Passing includes students who have performed at a proficient or advanced proficient level of achievement. The state proficiency percentages for Language Arts and Mathematics for the 2002-2003 academic year are 80.1% and 65.9%, respectively (New Jersey Department of Education, 2004h).
Of the juniors, 53.6% passed the Language Arts section of the High School Proficiency Assessment and 38.8% of the juniors passed the Mathematics section of the High School Proficiency Assessment for the 2003-2004 academic year the first time taken. Passing includes students who have performed at a proficient or advanced proficient level of achievement. The state proficiency percentages for Language Arts and Mathematics for the 2003-2004 academic year are 82.2% and 70.1%, respectively (New Jersey Department of Education, 2004h).

The New Jersey Department of Education (2004f) conducted a comparison study of HSPA 2002 and GEPA 1999 results (Appendix C). The Department of Education announced that the results of the High School Proficiency Assessment (HSPA) administered in 2002 shows a significant gain in performance by the same students over a three-year period. This is the first time that the department is able to track the performance by the same students on comparable standards-based tests and it shows significant improvements on two core curriculums,” said Education Commissioner William L. Librera (New Jersey Department of Education, 2004f, pp. 1-2).

As I read the results, I see improvements not only from partially proficient to proficient, but also improvement to advanced proficient,” said Dr. Librera (New Jersey Department of Education, 2004f, p. 2). “The schools took this cohort’s GEPA results and used them to successfully refocus classroom instruction” (New Jersey Department of Education, 2004f, p. 2).
The comparison of the results of the Grade Eight Proficiency Assessment administered in 1999 to last year’s HSPE – which was taken by this year’s graduating high school seniors – show:

A. An increase in language arts literacy and mathematics by all students.
B. An increase in language arts literacy and mathematics among the general education population.
C. An increase in language arts literacy and mathematics by special education students.
D. An increase in language arts literacy by students with Limited English Proficiency (LEP). The math scores by LEP students remained basically flat between GEPA 99 and HSPE 02 (New Jersey Department of Education, 2004f).

“If you have based your learning experience on what students should know and be able to do, as New Jersey does with its Core Curriculum Content Standards, then you need to be able to check them on those criteria statewide,” said Richard Ten Eyck (New Jersey Department of Education, 2004f, p. 2) assistant commissioner for Educational Programs and Assessment. “The value of these test results side by side is that they enable you to see a reliable and significant improvement in many categories” (New Jersey Department of Education, 2004f, pp. 2-3).

The Department released a chart comparing the HSPE 02 and GEPA 99 results that highlight the significant results for different student segments:

Total Students
A. Decreases in partially proficient in language arts literacy and math.
B. Increase from proficient to advanced proficient in language arts literacy.
C. Increase from partially proficient to proficient in mathematics.
General Education Students
A. Significant decreases in partially proficient in both language arts literacy and mathematics.
B. Significant increase in proficient in mathematics.
C. Significant growth in advanced proficiency in language arts literacy.

Special Education Students
A. Increase in the number of students tested.
B. Decreases in partially proficient in language arts literacy and mathematics.
C. Increase in proficient in language arts literacy and mathematics.

Limited English Proficient Students
A. Significant increase in the number of students tested.
B. Decrease in partially proficient in language arts literacy.
C. Increase in proficient in language arts literacy.

The findings are attached on a chart produced by the State Department of Education (New Jersey Department of Education, 2004).

Scholastic Aptitude Test

The academic performance of our students is weak by international standards. Educational outcomes for the city’s high school students are considered inadequate by most standards. According to Maxwell and Rubin (2000b), “Standardized test scores showed poor academic achievement of the city students, with combined SAT scores ranging from 633 to 881, well below national standards of 899” (p. 59). Concern about these low levels of knowledge and skill levels was greatly intensified by the decline in assessment test results during the 1970's. According to the study conducted
by MacIver (2001), "Average SAT scores over the course of the partnership period did not increase significantly, and unfortunately remained below 800 (more than 200 points below the national average)" (p. 5). According to Hughes, Bailey and Meechur (2001), "Research indicates that school-to-work students' achievement on standardized tests is inconclusive" (p. 17). Kenple and Stipes (2000), "The career academies did not improve standardized measures of reading and mathematics achievement either on average or for any subgroup of students" (p. 25). According to the School Report Card, for the 2002-2003 academic year, 241 students took the SAT. The mean SAT scores for school under investigation are Math 590 and Verbal 354 for a combined score of 744. The state mean SAT scores are Math 518 and Verbal 500 for a combined score of 1018 (New Jersey Department of Education, 2004b).

**Grade Point Averages**

Wasley, et al (p. 26): The 2000 Bank Street College of Education study of Chicago small schools, Small Schools: Great Strides compared the grade point averages of schools-within-a-school, their host schools, freestanding small schools and other Chicago Public Schools high schools that were not small and did not contain SWSs. Their analysis showed that students in small schools had GPAs slightly higher than those students attending the host schools or other large CPS high schools as represented in Figure 1.
Grade Point Averages

Schools Within SWAS Host Freestanding Other CPS
A School Schools Small Schools Schools

Figure 1. Grade Point Averages
Research has found mixed results concerning the effect of academy enrollment on a student’s GPA. Hanier and Stasz (1999) found positive academic outcomes for academy students, at least in the short term, while others did not. However, it is possible that effects on GPA could be caused by greater motivational levels or through a more personalized experience with close relationships to adults.

According to Orr, Bailey, Hughes, Karp and Kienzi (2004), the career academy experience did not have any measured influence on student GPAs, either positive or negative. At least this suggests that a program can include college preparatory courses, career-related courses and a paid internship without weakening a student’s academic achievement.

In the 2001, School-to-Work: Making a Difference in Education: A Research Report to America, Hughes, Bailey and Mechur (2001) state that “Students in school-to-work initiatives earn GPAs that are at least as high as comparable other students, if not higher” (p. 17). According to Maxwell and Rubin (2000b), “The GPAs of academy students is nearly half a grade higher than that of non-academy students” (p. 112). Maxwell and Rubin (2000a), state that participation in well-implemented career academies raised students’ GPAs. This conclusion was based on a comparison to non-academy students in the same district.

Research-Student Attendance

According to the School Report Card, the student attendance rate for the 2002-2003 academic year was 92.8% as compared to the state average of 94.3% (New Jersey Department of Education, 2004b). The student attendance rate for the 2003-2004
academic year was 92.7% as compared to the state average of 94.4% (New Jersey Department of Education, 2004).

According to Cotten (1996a), “Not only do students in smaller schools have higher attendance rates than those in large schools, but students who change from large schools to smaller, alternative secondary schools generally exhibit improvements in attendance, again, the minority or low-SES student is the most profoundly affected” (Fowler, 1995; Fowler & Walberg, 1991 & Rutter, 1988). According to Hughes, Bailey & Meehan (2001), “Almost every study shows that students in school-to-work have better attendance than comparable students. None indicate that they come to school less often” (p. 19). The Center for Collaborative Education, 2001, p. 11: states that small schools in Boston attain a 93% attendance rate, 7% higher than other Boston Public Schools (BPSs) which reach only 85% as represented in Figure 2.
Figure 2. Percentage Attendance Rates

Table 1

<table>
<thead>
<tr>
<th></th>
<th>SWS</th>
<th>Freestanding</th>
<th>Multi-school</th>
<th>Non-Small School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Number of Days Missed per Semester in Core Courses</td>
<td>8.1</td>
<td>9.8</td>
<td>10.5</td>
<td>13.6</td>
</tr>
</tbody>
</table>

Lakshman, 1999: DeWitt Clinton school raised their attendance by 17% by creating small schools as represented in figure 3.
Figure 3. School Attendance
According to Orr, Bailey, Hughes, Karp and Kienzl (2004), "Academy students were in school six more days (out of a school year of 180 days) than non-academy students" (p. 33). This suggests that participation in the academy did positively influence attendance more than it did for the comparison group. According to Kemple and Snipes (2000) in the Manpower Demonstration Research Corporation, "The academies also significantly increased average attendance throughout high school for students in the high-risk subgroup" (p. 19).

In the 2001, School-to-Work: Making a Difference in Education: A Research Report to America, Hughes, Bailey and Mechur state that "Students in school-to-work stay in school and complete their diploma. Almost every study shows that students in School-to-Work have better attendance than comparable students" (p. 19). According to Orr (1996), Wisconsin apprentices maintained good attendance throughout their time in the program. Comparison students' attendance rates fell over the same time period. According to Hanser and Stesz (1999), Students in a California academy achieved similar attendance rates as more rigorously screened magnet students in the same schools.

The research literature as it is reported above forms a catalyst for the next chapter in this dissertation, which determines the methods and procedures that will guide this investigation.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this study is to examine the effectiveness of high school career academies in comparison to the traditional high school educational program with respect to student achievement and student attendance within one large, New Jersey, urban high school. Student achievement and other selected variables are measured in this study because these variables are the core elements of the school reform movement. The traditional high school organization of forty-minute periods, discrete subject areas, and teachers working isolated in their classrooms may have worked at one time, but it is clear that it no longer meets the needs of a rapidly changing society and world. The career academy model investigated in this study is organized within the 4 X 4 block schedule. This schedule design offers two semesters with four eighty-minute classes within each semester; a zero period class prior to block one class is also available.

Today’s high school students must be prepared to make connections across cultures and fields of knowledge. They must be prepared to meet the challenges of the 21st century and take on work that requires independent thinking and problem solving. Educational leaders will be able to utilize the information presented in this paper in order to make informed decisions about high school educational reform.
Career academies, which locate small, career-based high schools inside larger, traditional high schools, are one of the fastest growing school reform models to address many of the problems that have long plagued large comprehensive high schools. High dropout rates, poor attendance, and students underperforming academically are some of the problems that exist in urban school districts. Proponents of smaller learning communities – as career academies are often called – argue that the traditional high school setting fails students because it does not engage them in the learning process. Teenagers often do not make a connection between what they learn in the classroom and its application in real-world contexts. Partnerships with local employers allow students to gain an awareness of career options in a given field and to experience learning opportunities in a work setting.

This chapter is organized as follows: design of the study, explanation of the career academies and traditional, general 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. This chapter also describes the data analysis plan.

Design of Study

The purpose of this study is to examine the effectiveness of high school career academies in comparison to the traditional, general high school educational program with respect to student achievement and student attendance within one large, New Jersey, urban high school. The model of exploration is a school-within-a school or career academy, which attracts teachers interested in experimentation with school structure and pedagogy, and it provides students with an alternative environment within
the large comprehensive high school. The other group studied participated in a traditional general high school program. Both models under investigation are working within the 4 X 4 semester block schedule of 80 minute classes.

The methodology utilized for this study was quantitative as it is deemed the most appropriate vehicle to analyze the data. Student achievement outcome variables and student attendance data were analyzed utilizing quantitative methods. To ascertain the degree of effectiveness this reform initiative has had on specific student outcomes, this study has relied primarily on researched numerical data. Data were compared for student achievement outcomes including Grade Eight Proficiency Assessment results, High School Proficiency Assessment results, SAT results and Grade Point Averages.

Student attendance records were evaluated for students enrolled in a career academy, as well as non-academy students. The data reflects the number of days absent from school in their senior year of high school. The study will seek to evaluate students in both the students involved in a career academy and students not involved in a career academy. The students from both groups chosen for this study were not proficient on one or more parts of the Grade Eights Proficiency Assessment (GEPA), excluding the science section. The GEPA was utilized as the baseline data for both groups (academy and non-academy) under investigation. The students examined in this study graduated from the district high school in the year 2003 or 2004.

Instrumentation

For the purpose of this study, grade point averages, HSPA results, SAT results and days absent from school were the variables utilized to measure student outcomes.
The GEPA is a state test given to eighth graders to measure whether they have gained the knowledge and skills identified in the Core Curriculum Content Standards. Eighth-grade students will take the GEPA and receive scores in Language Arts, Literacy, Mathematics and Science. For all three sections of the test, there will be a total score and subtotals for all the clusters of skills. The total scores will be reported in one of three proficiency levels—Advanced Proficient, Proficient, or Partially Proficient. The total GEPA scores are reported as scale scores with a range of 100 to 300. The passing score is 200. Each section of the test is scored separately. In order to pass the entire GEPA, a student must obtain a passing score of 200 on each of the test sections.

The High School Proficiency Assessment is used to determine student achievement in reading, writing, and mathematics as specified in the New Jersey Core Curriculum Content Standards. First-time eleventh grade students who fail the HSPA in March of their junior year will have an opportunity to retest in October and March of their senior year. The New Jersey Grade 11 High School Proficiency Assessment (HSPA) consists of three sections—Language Arts (day 1), Language Arts (day 2), and Mathematics—and passing this assessment is one of the requirements for a high school diploma. Juniors who do not pass all three sections of the assessment will have an opportunity to be retested on the section or sections they did not pass. The total HSPA Language Arts (day 1), Language Arts (day 2) and Mathematics scores are reported as scale scores with a range of 100 to 300. The passing score is 200. Each section of the test is scored separately. In order to pass the entire HSPA, a student must obtain a passing score of 200 on each of the test sections.
The Scholastic Aptitude Test (SAT) consists of two sections: Verbal and Mathematics – and this assessment is utilized as one of the criteria for college acceptance. The total SAT Verbal and Mathematics scores are reported as scale scores with a range of 200 to 800.

Explanation of Career Academy Model and Traditional General High School Program at the Specific High School Under Investigation

The city’s public education system typifies many of the circumstances and challenges faced by large urban school districts throughout the nation. The district serves over 37,000 students and employs over 6,000 staff members. Most of the city’s (public) school students are in the district’s ten comprehensive high schools and thirty elementary schools. According to the New Jersey School Report Card, the high school under investigation for this study housed the career academies and had a total enrollment of 1,527.5 students in the 2002-2003 academic year, which was divided as follows: Grade 9 - 342.5, Grade 10 - 319.0, Grade 11 - 324.0, Grade 12 - 284.0 and special education (ungraded) - 258.0. The student population is 26.3% African American, 51.5% Hispanic, 6.4% Caucasian, 5.2% Asian/Pacific Islander and 7.6% other. For the 2002-2003 academic year, 23.6% of the student population was classified as IEP (Limited English Proficient) and 16.8% of the student population has IEP’s (Individualized Education Program) regardless of placement/program. The school is classified as district factor group A (New Jersey Department of Education, 2004h).

The high school utilized for this study is one of six public high schools in the city. The block schedule model of 4 X 4 classes allows for extended class time, encouraging a student-centered learning environment. The school community promotes
the ideal that education is a shared learning experience that enriches and empowers the individual. It provides a high quality educational program that enables the student to meet all state mandated requirements, and to enter college or the work force with the skills necessary for success.

In addition to meeting the district and state requirements for graduation, the high school offers a comprehensive education program and houses a variety of career academies. The Career Academies under investigation for this study are organized as a school-within-a-school, starting in the ninth grade. The Academies coordinate student coursework around a career theme and form partnerships with local employers to provide students with career awareness and work-based learning opportunities.

Enrollment in all of the career academies was voluntary; students chose to apply for acceptance to the Academies. In order to be admitted, students had to submit written applications in the spring of eighth grade and obtain parental permission and letter of recommendation from teachers and counselors for admission to a four-year program. Program staff at the district and high school level reviewed the applications and selected students with potential to succeed in the program. The program is not viewed as exclusively for either college-bound or non-college bound students.

The three career academies being studied are The Business and Finance Academy, Travel and Tourism Academy and Tech Prep (Office and Marketing). The Finance Academy provides a four-year sequence of courses leading to a broad range of careers in the business field with particular emphasis in the area of financial services. Courses are offered in business, economics, banking, financial planning and a youth apprenticeship program that allows students to experience employment while
continuing their education. Students have an opportunity to take 35 credits (five courses) in electives. The course sequencing has been designed to complement the career academy for the specified area of study. The program has been developed in partnership with the National Academy Foundation (NAF) for financial services, major corporations and banks that provide technical expertise and special resources to enhance the educational experiences of the students. The Academy of Travel and Tourism prepares students for life in the 21st century by offering an integrated curriculum that fosters an appreciation for multi-cultural diversity and global awareness. The program has been developed in partnership with the National Academy Foundation (NAF) for Travel and Tourism and major corporations. The Tech Prep Program consists of two divisions of study: cooperative business education and marketing education. These programs are designed to provide students with the skills, knowledge and experience necessary for today's technological workforce. In the senior year, students have an opportunity to work in various office and marketing apprenticeships. Students receive on-site training under the supervision of the office personnel while taking related skills courses under the supervision of the program coordinator. The academy curriculum, coupled with internship experiences, allows students to experience first hand the importance of academic and professional skills. The career academies studied from the selected urban high school encourage students to succeed not only in the classroom, but also in the world of work. Academies also establish close relationships with businesses, providing students with sources of instruction and motivation (cognitive, behavioral, and financial) beyond those provided by teachers.
The three career academy models under investigation adhered to all of the program criteria.

a. Students are provided with the core academic subjects required for graduation.

b. Students are provided with course work related to their career pathway during their four years of high school.

c. Job Shadowing opportunities are available for students in their junior year.

d. Students are provided with direct, on-the-job work experience.

e. Students are awarded a maximum of twenty credits of Youth Apprenticeship in their senior year.

f. Students are supervised by an accredited teacher who performs on-site observations and evaluations.

g. Students are required to fulfill a set amount of total on-the-job hours.

h. Students are mentored by an adult employee present at their work site in their senior year.

Tables 2, 3 and 4 outline the characteristics of the smaller learning communities under investigation in this study (EScholar, 2004).
### Table 2

**Characteristics of the Business and Finance Academy**

<table>
<thead>
<tr>
<th>Graduating Class of</th>
<th>Number of students enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>15</td>
</tr>
<tr>
<td>1996</td>
<td>19</td>
</tr>
<tr>
<td>1997</td>
<td>22</td>
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<tr>
<td>1998</td>
<td>41</td>
</tr>
<tr>
<td>1999</td>
<td>28</td>
</tr>
<tr>
<td>2000</td>
<td>38</td>
</tr>
<tr>
<td>2001</td>
<td>41</td>
</tr>
<tr>
<td>2002</td>
<td>41</td>
</tr>
<tr>
<td>2003</td>
<td>34</td>
</tr>
<tr>
<td>2004</td>
<td>50</td>
</tr>
<tr>
<td>2005</td>
<td>36</td>
</tr>
<tr>
<td>2006</td>
<td>43</td>
</tr>
<tr>
<td>2007</td>
<td>20</td>
</tr>
</tbody>
</table>

### Table 3

**Characteristics of the Travel and Tourism Academy**

<table>
<thead>
<tr>
<th>Graduating Class of</th>
<th>Number of students enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>13</td>
</tr>
<tr>
<td>2003</td>
<td>22</td>
</tr>
<tr>
<td>2004</td>
<td>23</td>
</tr>
<tr>
<td>2005</td>
<td>39</td>
</tr>
<tr>
<td>2006</td>
<td>31</td>
</tr>
<tr>
<td>2007</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 4

Characteristics of the Tech Prep Program/Coop Program

<table>
<thead>
<tr>
<th>Graduating Class of</th>
<th>Number of students enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>35</td>
</tr>
<tr>
<td>1997</td>
<td>34</td>
</tr>
<tr>
<td>1998</td>
<td>15</td>
</tr>
<tr>
<td>1999</td>
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</tr>
<tr>
<td>2000</td>
<td>55</td>
</tr>
<tr>
<td>2001</td>
<td>49</td>
</tr>
<tr>
<td>2002</td>
<td>42</td>
</tr>
<tr>
<td>2003</td>
<td>23</td>
</tr>
<tr>
<td>2004</td>
<td>23</td>
</tr>
<tr>
<td>2005</td>
<td>28</td>
</tr>
<tr>
<td>2006</td>
<td>32</td>
</tr>
<tr>
<td>2007</td>
<td>45</td>
</tr>
</tbody>
</table>

Methods are employed that favor a hands-on, active approach to learning; foster higher-order thinking skills, and underscore the value of collaboration. For both the Career Academy students and Non-Career Academy students, the graduates of 2003 and 2004 are required to successfully complete 140 credits in courses designed to meet all the Core Curriculum Content Standards and state and local requirements. Cross-content workplace readiness may be satisfied through infusion into existing courses, course equivalents, or career education courses. The district requirement of 140 credits is divided as follows: English - 25 credits, Mathematics - 15 credits, Social Studies - 15 credits, Science - 15 credits, World Language - 10 credits, Physical Education and Health - 20 credits, Visual and Performing Arts - 5 credits, and Electives - 35 credits. It is important to note that the State requirement for graduation is 110 credits. Starting with those students entering grade nine in the 1999-2000 academic year, it is required that all students demonstrate proficiency in all sections of the HSPA or SRA process and meet all other graduation requirements. Complementing the academic program is a
broad range of extracurricular activities that nurture and highlight our students’ talents and that prepare them for the workplace. The curriculum includes four Advanced Placement courses.

The high school provides a high quality educational program for its multi-ethnic student body. The school represents a microcosm of the world community with close to twenty languages and cultures represented by the student body. Table 5 outlines the compositional make-up of the school (EScholar, 2004).

Table 5

High School Enrollment, Number of 2004 and 2003 Graduates in a Career Academy for this Study, Ethnic Breakdown, Number of Students Eligible for Free/Reduced Lunch in the School Under Study

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Black</th>
<th>White Asian/ Pacific Islander</th>
<th>Hispanic</th>
<th>Other</th>
<th># of students eligible for free/reduced lunch</th>
<th>% of students eligible for free/reduced lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Grades 9-12</td>
<td>1465</td>
<td>429</td>
<td>171</td>
<td>754</td>
<td>111</td>
<td>593</td>
</tr>
<tr>
<td>Career Academy Class of 2003</td>
<td>107</td>
<td>32</td>
<td>16</td>
<td>52</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Career Academy Class of 2004</td>
<td>81</td>
<td>25</td>
<td>10</td>
<td>42</td>
<td>4</td>
<td>28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Black</th>
<th>White Asian/ Pacific Islander</th>
<th>Hispanic</th>
<th>Other</th>
<th># of students eligible for free/reduced lunch</th>
<th>% of students eligible for free/reduced lunch</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Grades 9-12</td>
<td>1465</td>
<td>429</td>
<td>171</td>
<td>754</td>
<td>111</td>
<td>593</td>
</tr>
<tr>
<td>Career Academy Class of 2003</td>
<td>107</td>
<td>32</td>
<td>16</td>
<td>52</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>Career Academy Class of 2004</td>
<td>81</td>
<td>25</td>
<td>10</td>
<td>42</td>
<td>4</td>
<td>28</td>
</tr>
</tbody>
</table>
Note. Table 5 shows the number of students enrolled in the high school as of June 2004, graduates in the career academy for the class of 2004 and 2003, the ethnic breakdown of students, and the number of students eligible for free lunches. Students are eligible for free lunch if their families earn below $10,000 a year.

Determination of the Sample

The school site was selected because it had seniors who had participated in a full program experience in a Career Academy and comparison seniors who had not. The Academy of Finance (AOF), Academy of Travel and Tourism (AOTT) and Tech Prep have been in existence since 1991, 1998 and 1975, respectively. The Academy of Finance (AOF) and Academy of Travel and Tourism (AOTT) are NAF affiliated whereas Tech Prep is not. Career Academy students were selected from the graduating classes of 2003 and 2004, and a comparison sample of Non-Career Academy graduates. The sample for this study includes fifty-six (56) high school students enrolled in a career academy and sixty (60) students not enrolled in a career academy from one large, low socio-economic, urban area in New Jersey. Graduates of the Career Academy group participated in courses to fulfill their graduation requirements, a sequence of career-related courses and a paid internship. Graduates of the Non-Career Academy group participated in courses to fulfill their graduation requirements but were much less likely to have participated in the other features. Both samples of students attended classes in the same building and had the opportunity to take several courses together throughout their high school career, use the same support services, and participate in the same extra-curricular activities.
A purposeful sampling is being used, as three specific career academy populations at one specific high school are targeted for the study. The two groups being studied are students who have participated in career academy and students who have participated in a traditional high school program (non-academy related) for at least three years of high school. The comparison group was chosen in such a way as to increase the comparability of the two groups of graduates on important characteristics. The Grade Eight Proficiency Assessment (GEPA) and the Grade Point Average (GPA) were utilized as the baseline data for both career academy students and non-career academy students. The study includes students from both groups who are not proficient in one or more parts of the GEPA and have maintained comparable cumulative four-year GPAs. This assessment will control for about the same aptitude and intelligence in both groups. The GEPA is not designed to promote students from one grade to the next, but is a diagnostic tool that aids in determining whether students are on track to obtain the skills and knowledge they will need to pass the High School Proficiency Assessment in grade 11. The students examined in this study graduated in the years 2003 and 2004 from the specific high school where the study was conducted. They were enrolled in the district in eighth grade when taking the Grade Eight Proficiency Assessment (GEPA) and enrolled in the district for high school when taking the High School Proficiency Assessment (HSPA).

The data for this study were retrieved utilizing public domain data from the NJDOE website. The specific site was that of the NJDOE School Report Card. The specific data pertaining to the academy and non-academy populations were retrieved from the EScholar website and administrative records.
A comparative analysis was conducted to determine what significant difference, if any, existed in student achievement and student attendance with respect to career academy participation and non-career academy participation. The essence of the study is to determine if involvement in a high school career academy has a positive effect on student achievement and student attendance in a specific urban high school operating with both career academies and mainstreamed programs.

The following tables outline the characteristics of the Career Academy sample population and the characteristics of the Non-Career Academy sample population for this study (EScholar, 2004).
### Table 6

**Characteristics of the Career Academy Sample Population for the Study**

<table>
<thead>
<tr>
<th>Career Academy</th>
<th>Graduation Year</th>
<th>Regular</th>
<th>Spec Ed</th>
<th>ESL</th>
<th>Spec Ed &amp; ESL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academy of Finance</td>
<td>2003</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Academy of Finance</td>
<td>2004</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Academy of Finance (subtotal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academy of Travel &amp; Tourism</td>
<td>2003</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Academy of Travel &amp; Tourism</td>
<td>2004</td>
<td>12</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Academy of Travel &amp; Tourism (subtotal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech Prep (not NAF affiliated)</td>
<td>2003</td>
<td>13</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Tech Prep (not NAF affiliated)</td>
<td>2004</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Tech Prep (not NAF affiliated) (subtotal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy Sample Population</td>
<td>2003</td>
<td>25</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>26</td>
</tr>
<tr>
<td>Career Academy Sample Population</td>
<td>2004</td>
<td>29</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>Total Career Academy Sample Population</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

### Table 7

**Characteristics of the Non-Career Academy Sample Population for the Study**

<table>
<thead>
<tr>
<th>Graduation Year</th>
<th>Regular</th>
<th>Spec Ed</th>
<th>ESL</th>
<th>Spec Ed &amp; ESL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Career Academy</td>
<td>2003</td>
<td>22</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>2004</td>
<td>21</td>
<td>8</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total Non-Career Academy Population</td>
<td>2003</td>
<td>22</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total Non-Career Academy Population</td>
<td>2004</td>
<td>21</td>
<td>8</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>
Procedure for Data Collection

Our primary methods of data collection were the following: site visits to the school and sample academies, NJDOE public website entitled NJDOE School Report Card, EScholar website entitled EScholar-The Answer is Learning and school administrative records. The site visits for this study occurred during the fall of 2003 and spring of 2004. The site visit findings enabled the documentation of the program components and further investigate of the relationship between program features. Data for the analysis for student achievement, i.e., Grade Eight Proficiency Assessment (GEPA) results, High School Proficiency Assessment (HSPA) results, SAT results, grade point averages and student attendance were provided through the administrative records for both the Career Academy group and Non-Career Academy group reviewed in the summer of 2004.

A large, urban high school in the state of New Jersey was selected for this study. Initial contact was made with the State Superintendent of Schools. A letter of recommendation to attest to the significance of this study was written by my mentor to the Superintendent of Schools for the selected district (Appendix D). A letter of explanation of the study and its intent was made along with a request for permission to utilize district data sources (Appendix E). The Superintendent provided a return letter granting permission to contact the district office for data and use of the selected high school for the premise of this study (Appendix F).

Methods of Analysis

The research methodology employed within this study relied on quantitative evaluative strategies. The premise of this study is to investigate and report the degree of
effectiveness Career Academies may have had on a specific population. The purpose of this section is to present a description of the methods that were used to analyze the data collected in the study. The data analysis plan began with the methods used to present basic descriptive information retrieved from pre-existing data from the NJ School Report Card, EScholar and administrative records for the students enrolled in the high school, graduating in the years 2003 and 2004. The quantitative data was acquired through the New Jersey state-mandated GSPA and HSPA standardized test results. The goal of this study was to analyze Career Academy and Non-Career academy graduates and understand the possible influence of the academy experience on student outcomes. Each of the research questions within this study will be explored and interpreted as they relate to specific hypotheses devised within the context of the study.

Research Question

What effects does participation in a high school Career Academy have on student achievement outcomes and student attendance data in a specific public high school in comparison to participation in a traditional general high school program (Non-Career Academy) within the same public high school?

Subsidiary Questions

Subsidiary Question 1

Is there a disparity as measured by standardized testing between Career Academy students and Non-Career Academy students?

Subsidiary Question 2

Is there a disparity as measured by Grade Point Averages between Career Academy students and Non-Career Academy students?
Subsidiary Question 3

Is there a disparity as measured by Student Attendance between Career Academy students and Non-Career Academy students?

Subsidiary Question 4

Does participation in a high school Career Academy have an effect on the success of student achievement levels indicated by the HSPA?

Subsidiary Question 5

Do the mean standardized test scores for Career Academy and Non-Career Academy groups differ from the minimum proficient score?

These questions will be explored through the analysis of the standardized data made available through the NJDOE website, E-Scholar and administrative records. T-tests statistical analyses were utilized in formulating conclusions based on the 15 null hypotheses, which support the 6 research questions. The data collected on students participating in a Career Academy and students not participating in a Career Academy were compared for significant differences with respect to student achievement. Student achievement is comprised of HSPA results, SAT results and GPAs. The data collected on students participating in a Career Academy and students not participating in a Career Academy were compared for significant differences with respect to student attendance. Student attendance is comprised of yearly averages of days absent from school. The rejection or retention of the 15 hypotheses will frame the answers and interpretations of the six research questions.
Hypotheses

Hypothesis 1. There is no significant difference in GEPA language arts and mathematics scores between Career Academy students and Non-Career Academy students.

Hypothesis 2. There is no significant difference in HSPA language arts and mathematics scores between Career Academy students and Non-Career Academy students.

Hypothesis 3. There is no significant difference in SAT verbal and mathematics scores between Career Academy students and Non-Career Academy students.

Hypothesis 4. There is no significant difference in Grade Point Averages between Career Academy students and Non-Career Academy students.

Hypothesis 5. There is no significant difference in student attendance between Career Academy students and Non-Career Academy students.

Hypothesis 6. There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Career Academy group.

Hypothesis 7. There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Non-Career Academy group.

Hypothesis 8. There is no significant difference in GEPA language arts scores as compared to the minimum proficient score within the Non-Career Academy group.

Hypothesis 9. There is no significant difference in GEPA mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

Hypothesis 10. There is no significant difference in HSPA language arts scores as compared to the minimum proficient score within the Non-Career Academy group.
Hypothesis 11. There is no significant difference in HSPA mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

Hypothesis 12. There is no significant difference in GEPA language arts scores as compared to the minimum proficient score within the Career Academy group.

Hypothesis 13. There is no significant difference in GEPA mathematics scores as compared to the minimum proficient score within the Career Academy group.

Hypothesis 14. There is no significant difference in HSPA language arts scores as compared to the minimum proficient score within the Career Academy group.

Hypothesis 15. There is no significant difference in HSPA mathematics scores as compared to the minimum proficient score within the Career Academy group.

Summary

Effective school research has clearly delineated the benefits of small schools. Transforming large high schools into smaller subunits within the same building may be a viable option to maximize the positive effects of a small school environment. This chapter outlined the methodology to be followed by this study. The population of career academy groups being studied was described. The methods for developing the data collection and the process for data analysis were reviewed. By achieving smallness in large high schools, can positive outcomes be established? This study was designed to investigate and report on the possible progressive results that reform efforts of career academies might have on urban students. The study was based in a large urban high school with a history of various reform efforts. This methodology produced a variety of statistical results and findings that are described in the next chapter.
CHAPTER IV
ANALYSIS OF THE DATA

Introduction

The purpose of this study is to investigate the possible effects that high school career academies within a specific urban high school have on student achievement and student attendance as compared to a traditional educational program. In this chapter, the reader will find a detailed presentation of the data obtained from the researcher. They will also find the complete results of this investigation.

This study uses the results of the state mandated New Jersey GEPA and HSPA standardized tests as a tool for a quantitative research design as described by Krathwohl (1998). Student achievement outcomes and student attendance data are analyzed and compared for the graduating classes of 2003 and 2004. This study determines through analysis if student achievement outcomes and student attendance of urban students have improved in the area of language arts, mathematics and cumulative grade point averages. This chapter utilized the statistical software package SPSS 11.0. Six research questions, supported by 15 hypotheses will be analyzed and discussed in the present and ensuing chapter.

Findings

The purpose of this chapter is to present the results of the analyses of the descriptive statistics using a series of t-tests. T-tests were employed to compare the
sample means of the two groups: (a) Career Academy students, and (b) Non-Career Academy students. The overarching research question will be analyzed through the interpretation of Cohen’s squared point biserial correlation coefficient. The chapter will focus on investigating and answering the primary research questions, which support the 5 hypotheses.

Research Question
What effects does participation in a high school career academy have on achievement outcomes and student attendance data within an identified public high school in comparison to participation in a traditional general high school program (Non-Academy) within the same public high school?

This research question will be addressed and supported by 5 subsidiary questions. The 5 subsidiary questions are supported by 15 hypotheses, which are investigated through the analysis of t-tests.

Subsidiary Question 1
Is there a disparity as measured by standardized testing between the Career Academy students and Non-Career Academy students?

This question is supported by hypothesis 1, 2, and 3. Hypothesis 1, 2 and 3 are investigated and analyzed using t-tests displayed in Tables 8-13. T-tests displayed in tables 9, 11, and 13 will add support to the conclusions of subsidiary question (1).

Hypothesis 1
There is no significant difference in GEPA language arts and mathematics scores between Career Academy students and Non-Career Academy students.
Table 8

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy</td>
<td>56</td>
<td>209.11</td>
<td>21.477</td>
<td>2.870</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>60</td>
<td>153.00</td>
<td>25.705</td>
<td>3.346</td>
</tr>
<tr>
<td>GEPA Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy</td>
<td>56</td>
<td>185.93</td>
<td>11.951</td>
<td>1.597</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>60</td>
<td>176.42</td>
<td>13.008</td>
<td>1.679</td>
</tr>
</tbody>
</table>

Table 9

T tests Comparing Career Academy and Non-Career Academy Students on GEPA Language Arts and Mathematics

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>sig.</td>
<td>t</td>
</tr>
<tr>
<td>GEPA Language Arts</td>
<td>.354</td>
<td>.247</td>
<td>3.631</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>sig.</td>
<td>t</td>
</tr>
<tr>
<td>GEPA Mathematics</td>
<td>.92</td>
<td>.662</td>
<td>4.092</td>
</tr>
</tbody>
</table>
The findings in Tables 8 and 9 are noted below. (a) The Career Academy mean of 209.11 for GEPA Language Arts was higher than the Non-Career Academy mean of 193.00; (b) The Career Academy mean of 185.93 for GEPA Mathematics was higher than the Non-Career Academy mean of 176.42.

These findings indicate that observed mean differences did exist between the Career Academy students and Non-Career Academy students on GEPA language arts and mathematics scores. The mean for the Career Academy students was higher than the mean for the Non-Career Academy students.

**Hypothesis 2**

There is no significant difference in HSPA language arts and mathematics scores between Career Academy students and Non-Career Academy students. T-tests were used to determine if significant differences exist between Career Academy students and the traditional high school program students (Non-Career Academy) on HSPA language arts and mathematics scores. The results are presented in Tables 10 and 11.
Table 10:

<table>
<thead>
<tr>
<th>HSPA Mean Scores</th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language Arts Group</td>
<td>Career Academy</td>
<td>56</td>
<td>218.48</td>
<td>13.205</td>
</tr>
<tr>
<td></td>
<td>Non-Career Academy</td>
<td>59</td>
<td>199.05</td>
<td>30.380</td>
</tr>
<tr>
<td>HSPA Mathematics Group</td>
<td>Career Academy</td>
<td>56</td>
<td>204.45</td>
<td>18.058</td>
</tr>
<tr>
<td></td>
<td>Non-Career Academy</td>
<td>60</td>
<td>188.33</td>
<td>20.777</td>
</tr>
</tbody>
</table>

Table 11:

T tests Comparing Career Academy and Non-Career Academy Students on HSPA Language Arts and Mathematics

Levene's Test for Equality of Variances

<table>
<thead>
<tr>
<th>HSPA Language Arts</th>
<th>F</th>
<th>sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18.537</td>
<td>.000</td>
<td>4.487</td>
<td>80.043</td>
<td>.000</td>
<td>19.43</td>
</tr>
</tbody>
</table>

Levene's Test for Equality of Variances

<table>
<thead>
<tr>
<th>HSPA Mathematics</th>
<th>F</th>
<th>sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.493</td>
<td>.224</td>
<td>4.520</td>
<td>114</td>
<td>.000</td>
<td>16.11</td>
</tr>
</tbody>
</table>

Note: The results suggest significant differences in HSPA scores between Career and Non-Career Academy students, with the Career Academy group typically scoring higher.
The findings in Tables 10 and 11 are noted below. (a) The Career Academy mean of 218.48 for HSPA Language Arts was higher than the Non-Career Academy mean of 199.05; (b) The Career Academy mean of 204.45 for HSPA Mathematics was higher than the Non-Career Academy mean of 188.33.

These findings indicate that observed mean differences did exist between the Career Academy students and Non-Career Academy students on HSPA language arts and mathematics scores. The mean for the Career Academy students was higher than the mean for the Non-Career Academy students.

**Hypothesis 3**

There is no significant difference in SAT Verbal and Mathematics scores between Career Academy students and Non-Career Academy students.

Table 12

**SAT Mean Scores**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT Verbal Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy</td>
<td>51</td>
<td>369.41</td>
<td>69.149</td>
<td>9.683</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>31</td>
<td>313.23</td>
<td>71.665</td>
<td>12.871</td>
</tr>
<tr>
<td>SAT Math Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy</td>
<td>51</td>
<td>494.71</td>
<td>58.390</td>
<td>8.175</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>31</td>
<td>341.94</td>
<td>68.868</td>
<td>12.369</td>
</tr>
</tbody>
</table>
### Table 13

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>sig.</td>
</tr>
<tr>
<td>SAT Verbal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.434</td>
<td>.512</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>sig.</td>
</tr>
<tr>
<td>SAT Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>1.517</td>
<td>.222</td>
</tr>
</tbody>
</table>

The findings in Tables 12 and 13 are noted below. (a) The Career Academy mean of 369.41 for SAT verbal was higher than the Non-Career Academy mean of 313.23; (b) The Career Academy mean of 404.71 for SAT math was higher than the Non-Career Academy mean of 341.94.

These findings indicate that observed mean differences did exist between the Career Academy students and Non-Career Academy students on SAT verbal and math scores. The mean for the Career Academy students was higher than the mean for the Non-Career Academy students.
Subsidiary Question 2

Is there a disparity as measured by Grade Point Averages between the Career Academy students and Non-Career Academy students?

This question is supported by hypothesis 4. Hypothesis 4 is investigated and analyzed using t-test displayed in Tables 14 and 15.

Hypothesis 4

There is no significant difference in GPAs between Career Academy students and Non-Career Academy students.

Table 14

<table>
<thead>
<tr>
<th>GPA Mean Scores</th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Point Averages (GPA) Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Academy</td>
<td>56</td>
<td>85.60416</td>
<td>4.62776</td>
<td>.615872</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>60</td>
<td>82.42177</td>
<td>2.383751</td>
<td>.307741</td>
</tr>
</tbody>
</table>

Table 15

Tests Comparing Career Academy and Non-Career Academy Students on GPAs

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>sig.</td>
<td>t</td>
</tr>
<tr>
<td>Grade Point Average Equal variances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>assumed</td>
<td>30.397</td>
<td>.000</td>
</tr>
</tbody>
</table>
The findings in Tables 14 and 15 are noted below. (a) The Career Academy mean of 85.60416 for GPA’s was higher than the Non-Career Academy mean of 82.42177.

These findings indicate that observed mean differences did exist between the Career Academy students and Non-Career Academy students on GPAs. The mean for the Career Academy students was higher than the mean for the Non-Career Academy students.

Subsidiary Question 3

Is there a disparity as measured by student attendance between the Career Academy students and Non-Career Academy students?

This question is supported by hypothesis 5. Hypothesis 5 is investigated and analyzed using t-tests displayed in Tables 16-17.

Hypothesis 5

There is no significant difference in student attendance data between Career Academy students and Non-Career Academy students.

Table 16

Attendance Data

<table>
<thead>
<tr>
<th>Attendance Group</th>
<th>N</th>
<th>Mean</th>
<th>Std.</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Academy</td>
<td>56</td>
<td>10.46</td>
<td>9.757</td>
<td>1.304</td>
</tr>
<tr>
<td>Non-Career Academy</td>
<td>60</td>
<td>16.32</td>
<td>9.710</td>
<td>1.254</td>
</tr>
</tbody>
</table>
Table 17

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means (2-tailed)</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>Equal variances assumed</td>
<td></td>
</tr>
</tbody>
</table>

The findings in Tables 16 and 17 are noted below. (a) The Career Academy mean of 10.46 for days absent from school was lower than the Non-Career Academy mean of 16.32.

These findings indicate that observed mean differences did exist between the Career Academy students and Non-Career Academy students as they relate to student attendance. The mean for the Career Academy students was lower than the mean for the Non-Career Academy students.

Subsidiary Question 4

Does participation in a High School Career Academy have an impact on the success of student achievement levels as indicated by the tSPA?

This question is supported by hypotheses 6 and 7. Hypotheses 6 and 7 are investigated and analyzed using t-tests displayed in Tables 19 and 21.

Hypothesis 6

There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Career Academy group.
### Table 18

**GEPA and HSPA Language Arts and Mathematics Means for Career Academy Students**

<table>
<thead>
<tr>
<th>Pair</th>
<th>GEPA Language Arts</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HSPA Language Arts</td>
<td>56</td>
<td>21.477</td>
<td>2.870</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>218.48</td>
<td>13.205</td>
</tr>
<tr>
<td>2</td>
<td>GEPA Mathematics</td>
<td>56</td>
<td>11.951</td>
<td>1.597</td>
</tr>
<tr>
<td></td>
<td>HSPA Mathematics</td>
<td>56</td>
<td>18.958</td>
<td>2.413</td>
</tr>
</tbody>
</table>

### Table 19

**Paired T tests on Career Academy GEPA and HSPA Language Arts and Mathematics Scores**

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEPA Mathematics</td>
<td>-18.52</td>
<td>16.144</td>
<td>2.157</td>
<td>-22.84</td>
<td>-14.19</td>
<td>-8.584</td>
<td>55</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>HSPA Mathematics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data in Tables 18 and 19 shows that observed differences in GEPA and HSPA language arts and mathematics improvement scores were found within the Career Academy model.
Hypothesis 7

There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Non-Career Academy group.

Table 20

<table>
<thead>
<tr>
<th>Pair</th>
<th>GEPA Language Arts</th>
<th>HSPA Language Arts</th>
<th>GEPA Mathematics</th>
<th>HSPA Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>N</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
</tr>
<tr>
<td>1</td>
<td>193.00</td>
<td>59</td>
<td>25.705</td>
<td>3.346</td>
</tr>
<tr>
<td>2</td>
<td>199.05</td>
<td>59</td>
<td>30.380</td>
<td>3.955</td>
</tr>
<tr>
<td>1</td>
<td>176.42</td>
<td>60</td>
<td>13.008</td>
<td>1.679</td>
</tr>
<tr>
<td>2</td>
<td>188.33</td>
<td>60</td>
<td>20.177</td>
<td>2.665</td>
</tr>
</tbody>
</table>

Table 21

Paired T tests on Non-Career Academy GEPA and HSPA Language Arts and Mathematics Scores

<table>
<thead>
<tr>
<th>Pair</th>
<th>GEPA Language Arts</th>
<th>HSPA Language Arts</th>
<th>GEPA Mathematics</th>
<th>HSPA Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>1</td>
<td>-6.05</td>
<td>19.782</td>
<td>2.575</td>
<td>-11.21</td>
</tr>
<tr>
<td>2</td>
<td>-11.92</td>
<td>16.864</td>
<td>2.177</td>
<td>-16.27</td>
</tr>
</tbody>
</table>

The data in Tables 20 and 21 shows that observed differences in GEPA and HSPA language arts and mathematics improvement scores were found within the Non-Career Academy model.
Subsidiary Question 5

Do the mean standardized test scores for Career Academy and Non-Career Academy groups differ from the minimum proficient score?

This question is supported by hypotheses 8, 9, 10, 11, 12, 13, 14 and 15. Hypotheses 8 thru 15 are investigated and analyzed using t-tests displayed in Tables 22-37.

Hypothesis 8

There is no significant difference in GEPA Language Arts scores as compared to the minimum proficient score within the Non-Career Academy group.

Table 22

<table>
<thead>
<tr>
<th>GEPA Language Arts Mean for Non-Career Academy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>53</td>
</tr>
</tbody>
</table>

Table 23

One-Sample T test on Non-Career Academy GEPA Language Arts Scores

<table>
<thead>
<tr>
<th>GEPA Language Arts</th>
<th>Test Value = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>df</td>
</tr>
<tr>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>-2.080</td>
<td>59</td>
</tr>
</tbody>
</table>
Hypothesis 9

There is no significant difference in GEPA Mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

Table 24

**GEPA Mathematics Mean for Non-Career Academy Students**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA Mathematics</td>
<td>60</td>
<td>176.42</td>
<td>13.008</td>
<td>1.679</td>
</tr>
</tbody>
</table>

Table 25

**One-Sample T tests on Non-Career Academy GEPA Mathematics Scores**

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA Mathematics</td>
<td>-14.044</td>
<td>59</td>
<td>.00</td>
<td>-23.58</td>
<td>-26.94 to -20.22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 10

There is no significant difference in HSPA Language Arts scores as compared to the minimum proficient score within the Non-Career Academy group.

Table 26

**HSPA Language Arts Mean for Non-Career Academy Students**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language Arts</td>
<td>58</td>
<td>799.05</td>
<td>30.380</td>
<td>3.955</td>
</tr>
</tbody>
</table>
Table 27

One-Sample T tests on Non-Career Academy HSPA Language Arts Scores

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language</td>
<td>-2.40</td>
<td>58</td>
<td>.811</td>
<td>-.95</td>
<td>-8.87</td>
<td>6.97</td>
</tr>
</tbody>
</table>

Hypothesis 11

There is no significant difference in HSPA Mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

Table 28

HSPA Mathematics Mean for Non-Career Academy Students

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Mathematics</td>
<td>60</td>
<td>188.33</td>
<td>20.177</td>
<td>2.605</td>
</tr>
</tbody>
</table>

Table 29

One-Sample T tests on Non-Career Academy HSPA Mathematics Scores

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Mathematics</td>
<td>-4.479</td>
<td>59</td>
<td>.000</td>
<td>-11.67</td>
<td>-16.88</td>
<td>-6.45</td>
</tr>
</tbody>
</table>
Hypothesis 12

There is no significant difference in GEPA Language Arts scores as compared to the minimum proficient score within the Career Academy group.

<table>
<thead>
<tr>
<th>GEPA Language Arts Mean for Career Academy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>56</td>
</tr>
</tbody>
</table>

Table 30

One-Sample T tests on Career Academy GEPA Language Arts Scores

<table>
<thead>
<tr>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.173</td>
<td>55</td>
<td>.002</td>
<td>9.11</td>
<td></td>
<td>3.36</td>
<td>14.86</td>
</tr>
</tbody>
</table>

Hypothesis 13

There is no significant difference in GEPA Mathematics scores as compared to the minimum proficient score within the Career Academy group.

<table>
<thead>
<tr>
<th>GEPA Mathematics Mean for Career Academy Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>56</td>
</tr>
</tbody>
</table>

Table 32
Table 33

One-Sample T tests on Career Academy GEPA Mathematics Scores

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA Mathematics</td>
<td>-8.111</td>
<td>55</td>
<td>.000</td>
<td>-14.07</td>
<td>-17.27, -16.87</td>
</tr>
</tbody>
</table>

Hypothesis 34

There is no significant difference in HSPA Language Arts scores as compared to the minimum proficient score within the Career Academy group.

Table 34

HSPA Language Arts Mean for Career Academy Students

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Sd. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language</td>
<td>56</td>
<td>218.48</td>
<td>13.205</td>
<td>1.765</td>
</tr>
<tr>
<td>Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 35

One-Sample T tests on Career Academy HSPA Language Arts Scores

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Language</td>
<td>10.474</td>
<td>55</td>
<td>.000</td>
<td>18.48</td>
<td>14.95, 22.02</td>
</tr>
<tr>
<td>Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis 15

There is no significant difference in HSPA Mathematics scores as compared to the minimum proficient score within the Career Academy group.

Table 36

<p>| HSPA Mathematics Mean for Career Academy Students |
|----------------------------------------|----------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSPA Mathematics</td>
<td>56</td>
<td>264.45</td>
<td>18.058</td>
</tr>
</tbody>
</table>

Table 37

One-Sample T tests on Career Academy HSPA Mathematics Scores

<table>
<thead>
<tr>
<th>Test Value = 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>HSPA Mathematics</td>
</tr>
</tbody>
</table>

Summary of Findings

This chapter will conclude with a brief summation of the supporting hypotheses of the five subsidiary questions as well as the overall research question. A complete evaluation of each hypothesis, in addition to future recommendations will be reported in Chapter V. The analyses of the null hypothesis data presented in Chapter IV highlight the following results of the study.
Hypotheses

Hypothesis 1: There is no significant difference in GEPA language arts and mathematics scores between Career Academy students and Non-Career Academy students. Hypothesis 1 was rejected. The findings within the administered t-test did conclude that differences did exist between Career Academy students and Non-Career Academy students on GEPA language arts and mathematics scores. In addition, the mean scores on the GEPA for the Career Academy students were higher than the mean for Non-Career Academy students.

The data provided were generated through the application of a t-test for two independent samples. The means for the Career Academy group regarding GEPA scores for Language Arts and mathematics scores are 299.11 and 185.93, respectively. The means for the Non-Career Academy group regarding GEPA scores for Language Arts and mathematics scores are 193.00 and 176.42, respectively. Our research problem is reflected in the following questions: Does the mean for the Career Academy group for GEPA Language Arts differ from the mean of the Non-Career Academy group? Does the mean for the Career Academy group for GEPA Mathematics differ from the mean of the Non-Career Academy group? More specifically, the null and alternate hypotheses would include these representations, respectively:

H₀:μ₁ - μ₂ = 0, H₁:μ₁ - μ₂ ≠ 0 and H₀:μ₁ - μ₂ = 0

Given the fact that the t-ratios were reported as 3.63 and 4.092 for the Language Arts and Mathematics GEPA, respectively, we should reject the null hypothesis for both. We should reject the null hypothesis for both because the critical t-value for a two-tailed test with 114 degrees of freedom at the .05 alpha level is 2.00.
Simply stated, our t ratios are larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 and .006 for the Language Arts and Mathematics sections.

Overall, there is evidence to suggest that we should reject the null hypothesis for both sections of the Language Arts and Mathematics sections of the GEPA. Therefore, it is possible that the Career Academy group means for both sections of the GEPA are not similar to the Non-Career Academy groups means for both sections of the GEPA.

Hypothesis 2: There is no significant difference in HSPA language arts and mathematics scores between Career Academy students and Non-Career Academy students. Hypothesis 2 was rejected. The findings within the administered t-test did conclude that differences did exist between the Career Academy group and Non-Career Academy group on the HSPA language arts and mathematics scores. In addition, the mean scores on the HSPA for the Career Academy group were higher than the mean for Non-Career Academy group.

The data provided were generated through the application of a t test for two independent samples. The means for the Career Academy group regarding HSPA scores for Language Arts and Mathematics scores are 218.48 and 204.45, respectively. The means for the Non-Career Academy group regarding HSPA scores for Language Arts and Mathematics scores are 199.05 and 188.33, respectively. Our research problem is reflected in the following questions: Does the mean for the Career Academy group for HSPA Language Arts differ from the mean of the Non-Career Academy group? Does the mean for the Career Academy group for HSPA Mathematics differ from the mean of
the Non-Career Academy group? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu_1 - \mu_2 = 0$, $H_0: \mu_1 - \mu_2 \neq 0$.

Given the fact that the $t$ ratios were reported as 4.487 and 4.520 for the Language Arts and Mathematics HSPA, respectively, we should reject the null hypothesis for both. We should reject the null hypothesis for the HSPA Language Arts because the critical $t$ value for a two-tailed test with 80.643 degrees of freedom at the .05 alpha level is 2.06. We should reject the null hypothesis for the HSPA Mathematics because the critical $t$ value for a two-tailed test with 114 degrees of freedom at the .05 alpha level is 1.98. Simply stated, our $t$ ratios are larger than the critical $t$ value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 and .000 for the Language Arts and Mathematics sections.

Overall, there is evidence to suggest that we should reject the null hypothesis for both sections of the Language Arts and Mathematics sections of the HSPA. Therefore, it is possible that the Career Academy group means for both sections of the HSPA are not similar to the Non-Career Academy groups means for both sections of the HSPA.

Hypothesis 3: There is no significant difference in SAT Verbal and Mathematics scores between Career Academy students and Non-Career Academy students. Hypothesis 3 was rejected. The findings within the administered $t$-test did conclude that differences did exist between the Career Academy group and Non-Career Academy group on the SAT verbal and mathematics scores. In addition, the mean scores on the
SAT for the Career Academy group were higher than the means for Non-Career Academy group.

The data provided were generated through the application of a t test for two independent samples. The means for the Career Academy group regarding SAT scores for Verbal and Mathematics scores are 369.41 and 404.71, respectively. The means for the Non-Career Academy group regarding SAT scores for Verbal and Mathematics scores are 313.23 and 341.94, respectively. Our research problem is reflected in the following questions: Does the mean for the Career Academy group for SAT Verbal differ from the mean of the Non-Career Academy group? Does the mean for the Career Academy group for SAT Mathematics differ from the mean of the Non-Career Academy group? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu_1-\mu_2 = 0$, $H_0: \mu_1-\mu_2 \neq 0$.

Given the fact that the t ratios were reported as 3.519 and 4.408 for the Verbal and Mathematics SAT respectively, we should reject the null hypothesis for both. We should reject the null hypothesis for the SAT Verbal and Mathematics because the critical t value for a two-tailed test with 80 degrees of freedom at the .05 alpha level is 2.00. Simply stated, our t ratios are larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .001 and .000 for the SAT Verbal and Mathematics sections, respectively.

Overall, there is evidence to suggest that we should reject the null hypotheses for both the Verbal and Mathematics sections of the SAT. Therefore, it is possible that
the Career Academy group means for both sections of the SAT are not similar to the Non-Career Academy groups means for both sections of the SAT.

Hypothesis 4: There is no significant difference in GPAs between Career Academy students and Non-Career Academy students. Hypothesis 4 was rejected. The findings within the administered t-test did conclude that differences did exist between the Career Academy group and Non-Career Academy group on the Grade Point Averages. In addition, the means scores on the GPAs for the Career Academy group were higher than the mean for the Non-Career Academy group.

The data provided were generated through the application of a t test for two independent samples. The mean for the Career Academy group regarding GPAs is 85.60416. The mean for the Non-Career Academy group regarding GPAs is 82.42177.

Our research problem is reflected in the following questions: Does the mean for the Career Academy group for GPAs differ from the mean of the Non-Career Academy group? More specifically, the null and alternate hypotheses would include these representations, respectively: \( H_0: \mu_1 = \mu_2 \), \( H_0: \mu_1 = \mu_2 \neq 0 \).

Given the fact that the t ratio was reported as 4.627 for the GPAs we should reject the null hypothesis. We should reject the null hypothesis for GPAs because the critical t value for a two-tailed test with 81.238 degrees of freedom at the .05 alpha level is 2.00. Simply stated, our t ratio is larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 for the GPAs.
Overall, there is evidence to suggest that we should reject the null hypothesis for the GPAs. Therefore, it is possible that the Career Academy group mean for GPAs are not similar to the Non-Career Academy group mean for GPAs.

Hypothesis 5: There is no significant difference in student attendance data between Career Academy students and the Non-Career Academy students. Hypothesis 5 was rejected. The findings within the administered t-test did conclude that differences did exist between the Career Academy group and Non-Career Academy group for Attendance. In addition, the means scores on the days absent from school for the Career Academy group were lower than the mean for the Non-Career Academy group.

The data provided was generated through the application of z t test for two independent samples. The mean for the Career Academy group regarding student attendance is 10.46. The mean for the Non-Career Academy group regarding attendance is 16.32. Our research problem is reflected in the following questions: Does the mean for the Career Academy group for attendance differ from the mean of the Non-Career Academy group? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu_1 = \mu_2 = 0$, $H_a: \mu_1 \neq \mu_2 \neq 0$.

Given the fact that the t ratio was reported as -2.236 for attendance, we should reject the null hypothesis. We should reject the null hypothesis for attendance because the critical t value for a two-tailed test with 114 degrees of freedom at the .05 alpha level is 2.00. Simply stated, our t ratio is larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .902 for attendance.
Overall, there is evidence to suggest that we should reject the null hypothesis for attendance. Therefore, it is possible that the Career Academy group mean for number of days absent from school is not similar to the Non-Career Academy group mean for number of days absent from school.

Hypothesis 6: There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Career Academy group. Hypothesis 6 was rejected. The findings within the administered matched pairs t-test did conclude that differences did exist between the Career Academy for the GEPA and HSPA in both Language Arts and Mathematics. In addition, the mean scores for the Career Academy group on the GEPA and HSPA Language Arts are 209.11 and 218.48, respectively. In addition, the mean scores on the GEPA and HSPA Mathematics are 185.93 and 204.45, respectively.

The data provided were generated through the application of a t-test for matched pairs. Our research problem is reflected in the following question: Does the mean for the Career Academy group for HSPA differ from the mean of the GEPA in both Language Arts and Mathematics? More specifically, the null and alternate hypotheses would include these representations, respectively: \( H_0: \mu_D = 0 \), \( H_1: \mu_D \neq 0 \).

Given the fact that the t ratio was reported as -3.659 and -8.584 for Language Arts and Mathematics, respectively, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 55 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data is statistically significant at the .05 alpha level. In
addition, the levels of significance indicated on the SPSS printout are .001 and .000 for Language Arts and Mathematics, respectively.

Overall, there is evidence to suggest that the mean of the HSPA differs from the mean of the GEPA in both Language Arts and Mathematics for the Career Academy group. It appears that involvement in a career academy may contribute to this difference.

Hypothesis 7: There is no significant improvement in GEPA and HSPA language arts and mathematics scores within the Non-Career Academy group. Hypothesis 7 was rejected. The findings within the administered matched pairs t-test did conclude that differences did exist between the Non-Career Academy for the GEPA and HSPA in both Language Arts and Mathematics. In addition, the mean scores for the Non-Career Academy group on the GEPA and HSPA Language Arts are 193.00 and 199.05, respectively. In addition, the mean scores on the GEPA and HSPA Mathematics are 176.42 and 188.33, respectively.

The data provided were generated through the application of a t-test for matched pairs. Our research problem is reflected in the following question: Does the mean for the Non-Career Academy group for HSPA differ from the mean of the GEPA in both Language Arts and Mathematics? More specifically, the null and alternate hypotheses would include these representations, respectively: \( H_0: \mu_D = 0, H_1: \mu_D \neq 0 \).

Given the fact that the t ratio was reported as -2.349 and -5.474 for Language Arts and Mathematics, respectively, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 58 degrees of freedom for Language Arts and 59 degrees of freedom for Mathematics at
the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data are statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .022 and .000 for Language Arts and Mathematics, respectively.

Overall, there is evidence to suggest that the mean of the HSPA differs from the mean of the GEPA in both Language Arts and Mathematics for the Non-Career Academy group.

Hypothesis 8: There is no significant difference in GEPA Language Arts scores as compared to the minimum proficient score within the Non-Career Academy group. Hypothesis 8 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Non-Career Academy group for GEPA Language Arts. In addition, the mean score for the GEPA Language Arts is 193.00.

The data provided were generated through the application of a t test for one sample. The mean for the Non-Career Academy group regarding GEPA Language Arts for 59 students is 193.00. Our research problem is reflected in the following question: Does the mean for the Non-Career Academy group for the GEPA Language Arts differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu = 200$, $H_1: \mu \neq 200$.

Given the fact that the t ratio was reported as -2.080 for GEPA Language Arts, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 59 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data are statistically significant at the .05 alpha level. In addition, the levels of significance
indicated on the SPSS printout are .042 for GEPA Language Arts; therefore, these results will occur by chance 42 out of 1000 times.

Overall, there is evidence to suggest that the Non-Career Academy group’s mean score for the GEPA Language Arts is significantly worse than the minimum proficient score.

Hypothesis 9: There is no significant difference in GEPA Mathematics scores as compared to the minimum proficient score within the Non-Career Academy group.

Hypothesis 9 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Non-Career Academy group for GEPA Mathematics. In addition, the mean score for the GEPA Mathematics is 176.42.

The data provided were generated through the application of a t-test for one sample. The mean for the Non-Career Academy group regarding GEPA Mathematics for 60 students is 176.42. Our research problem is reflected in the following question: Does the mean for the Non-Career Academy group for the GEPA Mathematics differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: \( H_0: \mu = 200 \), \( H_1: \mu \neq 200 \).

Given the fact that the t ratio was reported as -14.044 for GEPA Mathematics, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 59 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 for GEPA Mathematics; therefore, these results will occur by chance zero out of 1000 times.
Overall, there is evidence to suggest that the Non-Career Academy group’s mean score for the GEPA Mathematics is significantly worse than the minimum proficient score.

Hypothesis 10: There is no significant difference in HSPA Language Arts scores as compared to the minimum proficient score within the Non-Career Academy group. Hypothesis 10 was retained. The findings within the administered one sample t-test did conclude that differences did not exist for the Non-Career Academy group for HSPA Language Arts. In addition, the mean score for the HSPA Language Arts is 199.05.

The data provided were generated through the application of a t-test for one sample. The mean for the Non-Career Academy group regarding HSPA Language Arts for 59 students is 199.05. Our research problem is reflected in the following question: Does the mean for the Non-Career Academy group for the HSPA Language Arts differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu = 200$, $H_1: \mu \neq 200$.

Given the fact that the t-ratio was reported as -2.40 for HSPA Language Arts, we should retain the null hypothesis. We should retain the null hypothesis because the critical t-value for a two-tailed test with 58 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t-ratio is smaller than the critical t-value. Our data is not statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .811 for HSPA Language Arts; therefore, these results will occur by chance 811 out of 1000 times.
Overall, there is evidence to suggest that the Non-Career Academy group’s mean score for the HSPA Language Arts is not significantly worse than the minimum proficient score.

Hypothesis 11: There is no significant difference in HSPA Mathematics scores as compared to the minimum proficient score within the Non-Career Academy group. Hypothesis 11 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Non-Career Academy group for HSPA Mathematics. In addition, the mean score for the HSPA Mathematics is 188.33.

The data provided were generated through the application of a t test for one sample. The mean for the Non-Career Academy group regarding GEPA Mathematics for 60 students is 188.33. Our research problem is reflected in the following question: Does the mean for the Non-Career Academy group for the HSPA Mathematics differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: \( H_0: \mu = 200 \), \( H_1: \mu \neq 200 \).

Given the fact that the \( t \) ratio was reported as -4.479 for HSPA Mathematics, we should reject the null hypothesis. We should reject the null hypothesis because the critical \( t \) value for a two-tailed test with 58 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our \( t \) ratio is larger than the critical \( t \) value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 for HSPA Mathematics; therefore, these results will occur by chance zero out of 1000 times.
Overall, there is evidence to suggest that the Non-Career Academy group’s mean score for the HSPA Mathematics is significantly worse than the minimum proficient score.

Hypothesis 12: There is no significant difference in GEPA Language Arts scores as compared to the minimum proficient score within the Career Academy group. Hypothesis 12 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Career Academy group for GEPA Language Arts. In addition, the mean score for the GEPA Language Arts is 209.11.

The data provided were generated through the application of a t test for one sample. The mean for the Career Academy group regarding GEPA Language Arts for 56 students is 209.11. Our research problem is reflected in the following question: Does the mean for the Career Academy group for the GEPA Language Arts differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: H0:µ= 200, H1:µ≠ 200.

Given the fact that the t ratio was reported as 3.173 for GEPA Language Arts, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 54 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data are statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .002 for GEPA Language Arts; therefore, these results will occur by chance 2 out of 1000 times.
Overall, there is evidence to suggest that the Career Academy group's mean score for the GEPA Language Arts is significantly better than the minimum proficient score.

Hypothesis 13: There is no significant difference in GEPA Mathematics scores as compared to the minimum proficient score within the Career Academy group. Hypothesis 13 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Career Academy group for GEPA Mathematics. In addition, the mean score for the GEPA Mathematics is 185.93.

The data provided were generated through the application of a t test for one sample. The mean for the Career Academy group regarding GEPA Mathematics for 56 students is 185.93. Our research problem is reflected in the following question: Does the mean for the Career Academy group for the GEPA Mathematics differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: H₀: μ = 200, H₁: μ ≠ 200.

Given the fact that the t ratio was reported as -8.811 for GEPA Mathematics, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 54 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data are statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 for GEPA Mathematics; therefore, these results will occur by chance zero out of 1000 times.
Overall, there is evidence to suggest that the Career Academy group’s mean score for the GEPA Mathematics is significantly worse than the minimum proficient score.

Hypothesis 14: There is no significant difference in HSPA Language Arts scores as compared to the minimum proficient score within the Career Academy group.

Hypothesis 14 was rejected. The findings within the administered one sample t-test did conclude that differences did exist for the Career Academy group for HSPA Language Arts. In addition, the mean score for the HSPA Language Arts is 218.48.

The data provided were generated through the application of a t test for one sample. The mean for the Career Academy group regarding HSPA Language Arts for 56 students is 218.48. Our research problem is reflected in the following question: Does the mean for the Career Academy group for the HSPA Language Arts differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: H₀:μ= 200, H₁:μ≠ 200.

Given the fact that the t ratio was reported as 10.474 for HSPA Language Arts, we should reject the null hypothesis. We should reject the null hypothesis because the critical t value for a two-tailed test with 54 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is larger than the critical t value. Our data is statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .000 for HSPA Language Arts; therefore, these results will occur by chance zero out of 1000 times.
Overall, there is evidence to suggest that the Career Academy group's mean score for the HSPA Language Arts is significantly better than the minimum proficient score.

Hypothesis 15: There is no significant difference in HSPA Mathematics scores as compared to the minimum proficient score within the Career Academy group.

Hypothesis 15 was retained. The findings within the administered one sample t-test did conclude that differences did exist for the Career Academy group for HSPA Mathematics. In addition, the mean score for the HSPA Mathematics is 204.45.

The data provided were generated through the application of a t test for one sample. The mean for the Career Academy group regarding HSPA Mathematics for 56 students is 204.45. Our research problem is reflected in the following question: Does the mean for the Career Academy group for the HSPA Mathematics differ from the mean score? More specifically, the null and alternate hypotheses would include these representations, respectively: $H_0: \mu = 200, H_1: \mu \neq 200$.

Given the fact that the t ratio was reported as 1.843 for HSPA Mathematics, we should retain the null hypothesis. We should retain the null hypothesis because the critical t value for a two-tailed test with 54 degrees of freedom at the .05 alpha level is 2.02. Simply stated, our t ratio is less than the critical t value. Our data is not statistically significant at the .05 alpha level. In addition, the levels of significance indicated on the SPSS printout are .071 for HSPA Mathematics; therefore, these results will occur by chance 71 out of 1000 times.

Overall, there is evidence to suggest that the Career Academy groups mean score for the HSPA Math is not significantly better than the minimum proficient score.
Research Question

The overarching research question that drives this study can be answered through the interpretation of the value of the squared point biserial correlation coefficient, $r_{pb}^2$, which gauges the importance of statistically significant results. The research question is as follows: What effects does participation in a high school career academy have on achievement outcomes and student attendance data within an identified public high school in comparison to participation in a traditional general high school program (Non-Academy) within the same public high school? According to Witt & Witt, it can be interpreted similarly, that is, as the proportion (from 0 to 1) of variance in the dependent variable that is predictable from or explained by the independent variable. The formula for the proportion of explained variance of two samples is as follows:

\[
R^2 = \frac{r^2}{r^2 + df}
\]

Witt & Witt (2001) state:

One rough rule of thumb, suggested by Cohen, is that the estimated effect (estimated difference between population means) is small (and could lack importance) if $r$ squared $pb$ is in the vicinity of .01; the estimated effect is medium (and could have some importance) if $r_{pb}^2$ is in the general vicinity of .06; and the estimated effect is large (and probably has importance) if $r_{pb}^2$ is in the vicinity of, or exceeds, .14. (p. 357)
HSFA Language Arts

Proportion of Explained Variance (Two Samples)

\[ R^2 = \frac{t^2}{t^2 + df} \]

\[ R^2 = \frac{4.487^2}{4.487^2 + 80.043} \]

\[ R^2 = \frac{20.133169}{20.133169 + 80.043} \]

\[ R^2 = \frac{20.133169}{100.176169} \]

\[ R^2 = 0.200977629 \]

This large value of .20 for the HSPA Language Arts scores suggests that 20 percent of the variance in HSPA Language Arts scores is explained by (or caused by) whether students participate in a Career Academy. The remaining 80 percent of the variance in HSPA Language Arts scores is not explained by participation or non-participation in a Career Academy.

HSFA Mathematics

Proportion of Explained Variance (Two Samples)

\[ R^2 = \frac{t^2}{t^2 + df} \]

\[ R^2 = \frac{4.520^2}{4.520^2 + 114} \]

\[ R^2 = \frac{20.4304}{20.4304 + 114} \]

\[ R^2 = \frac{20.4304}{134.4304} \]

\[ R^2 = 0.151977528 \]
This large value of .15 for $r^2pb$ suggests that 15 percent of the variance in HSPA Mathematics scores is explained by (or caused by) whether students participate in a Career Academy. The remaining 85 percent of the variance of HSPA Mathematics scores is not explained by participation or non-participation in a Career Academy.

**SAT Verbal**

Proportion of Explained Variance (Two Samples)

\[
R^2 = \frac{t^2}{t^2 + df} \\
R^2 = \frac{3.519^2}{3.519^2 + 80} \\
R^2 = \frac{12.383361}{12.383361 + 80} \\
R^2 = \frac{12.383361}{92.383361} \\
R^2 = .134043196
\]

This large value of .15 for $r^2pb$ suggests that 15 percent of the variance in SAT Verbal scores is explained by (or caused by) whether students participate in a Career Academy. The remaining 85 percent of the variance of SAT Verbal scores is not explained by participation or non-participation in a Career Academy.
SAT Math

Proportion of Explained Variance (Two, Samples)

\[ R^2 = \frac{t^2}{t^2 + df} \]
\[ R^2 = \frac{4.408^2}{4.408^2 + 80} \]
\[ R^2 = \frac{19.430464}{19.430464 + 80} \]
\[ R^2 = \frac{19.430464}{99.430464} \]
\[ R^2 = .195417613 \]

This large value of .19 for \( R^2 \) suggests that 19 percent of the variance in SAT Math scores is explained by (or caused by) whether students participate in a Career Academy.

The remaining 81 percent of the variance of SAT Math scores is not explained by participation or non-participation in a Career Academy.

Grade Point Average

Proportion of Explained Variance (Two Samples)

\[ R^2 = \frac{t^2}{t^2 + df} \]
\[ R^2 = \frac{4.627^2}{4.627^2 + 81.238} \]
\[ R^2 = \frac{21.409129}{21.409129 + 81.238} \]
\[ R^2 = \frac{21.409129}{102.647129} \]
\[ R^2 = .202570168 \]
This large value of .21 for \( r^2 \text{pb} \) suggests that 21 percent of the variance in Grade Point Averages (GPAs) is explained by (or caused by) whether students participate in a Career Academy. The remaining 79 percent of the variance of GPAs is not explained by participation or non-participation in a Career Academy.

**Attendance**

Proportion of Explained Variance (Two Samples)

\[
R^2 = \frac{t^2}{t^2 + df}
\]

\[
R^2 = \frac{-3.236^2}{-3.236^2 + 114}
\]

\[
R^2 = \frac{10.471696}{10.471696 + 114}
\]

\[
R^2 = \frac{10.471696}{124.471696}
\]

\[
R^2 = .084129134
\]

This fairly large value of .08 for \( r^2 \text{pb} \) suggests that 8 percent of the variance in the number of days absent from school is explained by (or caused by) whether students participate in a Career Academy. The remaining 92 percent of the variance of the number of days absent from school is not explained by participation or non-participation in a Career Academy.
CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of the research presented in this study was to compare the effects that participation in a high school career academy has on student achievement and student attendance as compared to participation in a traditional high school program in a specific urban high school. In this report, information has been presented on the characteristics and elements of the Career Academy, the characteristics and elements of the Comprehensive High School, and the effects that participation in the High School Career Academy has on student achievement and student attendance. Insights and answers into the overarching research question and corresponding subsidiary questions emerged through a consideration of quantitative analyses, framed in conjunction with the body of research in Chapter II. Consistent with past research on career academies, this study reveals important implications as it pertains to policy and practice.

Career academies are only one possible education reform initiative contributing to optimism among minority students and promoting school success. Of course, small size does not, in and of itself, guarantee school improvement, but it does optimize the setting for high quality schooling. As Kemple and Snipes (2000) 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 approach of redesigning the large school building may be an effective means to capture the benefits and replicate the qualities associated with small schools.

Summary of the Study

This study utilized public domain data retrieved through the New Jersey Division of Education (NJDOE) website and administrative records. The information utilized, consisted of standardized CEPA and HSPA results, SAT results, Grade Point Averages and Student Attendance data. The identified school was operating with both full implementation of career academies as well as offering a traditional high school program. The intent of this study was to measure through various statistical procedures the variance between high school students participating in a career academy and those participating in a traditional high school program. This study used the variables of standardized test data, grade point average and attendance data to measure the effect that participation in a career academy has on student achievement and attendance. A series of t-tests and the interpretation of the value of the squared point biserial correlation coefficient were utilized on the prescribed data in order to determine the effectiveness of participation in a high school career academy as compared to participation in a traditional high school program within the same public high school. Findings and recommendations from this study should help policymakers, administrators and educators better understand the strengths that characterize one of the most prominent school-to-work education reforms today - the career academy.
Discussion

The first subsidiary question asked if there was a disparity as measured by standardized testing between the Career Academy students and Non-Career Academy students. The question was premised about three hypotheses. Hypothesis 1 compared the mean differences of the dependent variable, GEPA scores, to the independent variable group (Career Academy and Non-Career Academy). The sources of the means in achievement were from the 1999 and 2006 GEPA administered in the month of March each year in all New Jersey public schools. The GEPA is a standards-based assessment, measuring the performance of the students' mastery of the core curriculum content standards after grade eight. Results from the t-test conclude that differences do exist between Career Academy students and Non-Career Academy students on GEPA language arts and mathematics scores. The means for the Career Academy group regarding GEPA scores for language arts and mathematics scores are 209.11 and 185.93, respectively. The means for the Non-Career Academy group regarding GEPA scores for language arts and mathematics scores are 193.00 and 176.42, respectively. The t-test analysis indicated that this result was significant (Sig. two-tailed p < .000).

The above results indicate that a difference existed between career academy and non-career academy students even prior to the start of high school as evidenced by analysis of GEPA data.

Hypothesis 2 replicates the findings of hypothesis 1. The difference is the dependent variable, which is now the HSPA achievement results. The source of the means in achievement were from the 2002, 2003 and 2004 HSPA administered in the month of March each year in all New Jersey public high schools. The HSPA is the
eleventh grade version of the New Jersey standards-based assessment. This assessment is utilized as the instrument to determine if students exhibit mastery of the New Jersey Core Curriculum Content Standards. Results from the t-test conclude that differences do exist between Career Academy students and Non-Career Academy students on HSPA Language Arts and Mathematics scores. The means for the Career Academy group regarding HSPA scores for Language Arts and Mathematics scores are 218.48 and 204.45, respectively. The means for the Non-Career Academy group regarding HSPA scores for Language Arts and Mathematics scores are 199.05 and 188.33, respectively. The t-test analysis indicated that this result was significant (Sig. two-tailed p = .000); The Career Academy group scored 19.43 points higher in HSPA Language Arts and 16.12 points higher in HSPA Mathematics than the Non-Career Academy group.

The estimated effect (estimated difference between population means) for HSPA Language Arts is .20 suggesting that 20 percent of the variance in HSPA Language Arts scores is explained by (or caused by) whether students participate in a Career Academy. The squared point biserial coefficient of .20 suggests that the Career Academy has a large effect on HSPA Language Arts scores.

The estimated effect (estimated difference between population means) for HSPA Mathematics is .15 suggesting that 15 percent of the variance in HSPA Mathematics scores is explained by (or caused by) whether students participate in a Career Academy. The squared point biserial coefficient of .15 suggests that the Career Academy has a large effect on HSPA Mathematics scores.
The t-test results in conjunction with Cohen’s estimated effect ratio give a pure statistical report of the differences that exist between Career Academy students and Non-Career Academy students as measured by standardized tests.

The above results indicate that a difference exists between Career Academy and Non-Career Academy students on the HSPA in Language Arts and Mathematics.

The results of hypothesis 2 are not consistent with the observations of the MDRC study outlined in the research chapter. Kemple and Snipes (2000) state that “The Career Academies did not improve standardized measures of reading and math achievement either on average or for any subgroup of students” (Kemple & Snipes, 2000, p. ES-15).

Hypothesis 3 replicates the findings of hypothesis 2. The difference is the dependent variable which is now SAT Verbal and Mathematics scores. The sources of the means in achievement were from the 2002, 2003 and 2004 ETS SAT score reporns. Results from the t-test conclude that differences do exist between Career Academy students and Non-Career Academy students on SAT Verbal and Mathematics scores.

The means for the Career Academy group regarding SAT scores for Verbal and Mathematics scores are 369.41 and 404.71, respectively. The means for the Non-Career Academy group regarding SAT scores for Verbal and Mathematics scores are 313.23 and 341.94, respectively. The t-test analysis indicated that this result was significant (Sig. two-tailed p = .000). The Career Academy group scored 56.18 points higher in SAT Verbal and 62.77 points higher in SAT Mathematics than the Non-Career Academy group.
The estimated effect (estimated difference between population means) for SAT Verbal is .13 suggesting that 13 percent of the variance in SAT Verbal scores is explained by (or caused by) whether students participate in a Career Academy. The squared point biserial coefficient of .13 suggests that the Career Academy has a large effect on SAT Verbal scores.

The estimated effect (estimated difference between population means) for SAT Mathematics is .19 suggesting that 19 percent of the variance in SAT Mathematics scores is explained by (or caused by) whether students participate in a Career Academy. The squared point biserial coefficient of .19 suggests that the Career Academy has a large effect on SAT Mathematics scores.

The t-test results in conjunction with Cohen's estimated effect ratio give a pure statistical report of the differences that exist between Career Academy students and Non-Career Academy students as measured by standardized tests.

The above results indicate that a difference exists between Career Academy and Non-Career Academy students on the SAT in Verbal and Mathematics.

The results of hypothesis 3 are not consistent with the observations of the MDRC study outlined in the research chapter. Kemple and Snipes (2009) state that "The Career Academies did not improve standardized measures of reading and math achievement either on average or for any subgroup of students" (Kemple & Snipes, 2000, p. ES-15). According to Hughes, Bailey and Mechu (2001), "Research indicates that school-to-work students' achievement on standardized tests is inconclusive" (p. 17). The results of this study of Career Academy students are not consistent with the research in terms of standardized test data.
Several factors may account for these test score findings. First, qualitative field research information collected for this evaluation indicated that academic curricula and instruction in most of the Career Academies did not differ substantially from those of typical high schools; Academy teachers were required to cover the same basic material as teachers of the same subjects in the rest of the high school. Second, there were some important differences between the sample of students who completed the math and reading achievement tests and those who did not. Finally, the types of standardized measures of achievement used in this evaluation, and in many school districts, may not adequately capture learning gains that Academy students achieve relative to their Non-Academy counterparts (Kemple & Snipes, 2000, p. ES-16-ES-17).

The second subsidiary question asked if there was a disparity as measured by Grade Point Averages between the Career Academy students and Non-Career Academy students. This research question was premised around Hypothesis 4. Hypothesis 4 compared the mean differences of the dependent variable, Grade Point Averages, to the independent variable group (Career Academy and Non-Career Academy). The sources of the means in achievement used were final Grade Point Averages from the 2003 and 2004 graduating class. Results from the t-test conclude that differences do exist between Career Academy students and Non-Career Academy students on GPAs. The mean for the Career Academy group regarding GPAs is 85.50416. The mean for the Non-Career Academy group regarding GPAs is 82.42177. The t-test analysis indicated that this result was significant (Sig. two-tailed p = .000).

The estimated effect (estimated difference between population means) for GPAs is .21 suggesting that 21 percent of the variance in grade point averages is
explained by (or caused by) whether students participate in a Career Academy. The squared point biserial coefficient of .21 suggests that the Career Academy has a large effect on Grade Point Averages.

The t-test results in conjunction with Cohen’s estimated effect ratio give a pure statistical report of the differences that exist between Career Academy students and Non-Career Academy students as measured by Grade Point Averages.

The above results indicate that a difference existed between Career Academy and Non-Career Academy students existed as reflected in Grade Point Averages.

The results of hypothesis 4 are not consistent with the observations documented in the research section. Research has found mixed results concerning the effect of academy enrollment on a student’s GPA. Hanser and Stasz (1999) found positive academic outcomes for academy students, at least in the short term, while others did not. However, it is possible that effects on GPA could be caused by greater motivational levels or through a more personalized experience with closer relationships to adults.

According to Orr, Bailey, Hughes, Karp and Kienzl (2004), the career academy experience did not have any measured influence on student GPAs, either positive or negative. At least this suggests that a program can include college preparatory courses, career-related courses and a paid internship without weakening a student’s academic achievement.

In the 2001, School-to-Work: Making a Difference in Education: A Research Report to America, Hughes, Bailey and Mechur state that “Students in school-to-work
initiatives earn GPAs that are at least as high as comparable other students, if not higher” (p. 17).

According to Maxwell and Rubin (2000b), “The career academy has a positive and significant impact on students’ GPA (p. 114). This conclusion was based on a comparison to non-academy students in the same district.

The third subsidiary question asked if there was a disparity as measured by Student Attendance between the Career Academy students and Non-Career Academy students. This research question was premised around Hypothesis 5. Hypothesis 5 compared the mean differences of the dependent variable, days absent from school, to the independent variable group (Career Academy and Non-Career Academy). The sources of the means were days absent from school cumulative for the 02-03 and 03-04 school year. Results from the t-test conclude that differences do exist between Career Academy students and Non-Career Academy students for attendance. The mean for the Career Academy group regarding student attendance is 10.46 days absent from school per year. The mean for the Non-Career Academy group regarding attendance is 16.32 days absent from school per year. The t-test analysis indicated that this result was significant (Sig. two-tailed p = .002). The Career Academy group had 5.86 fewer days absent from school for an academic school year as compared to the Non-Career Academy group.

The estimated effect (estimated difference between population means) for attendance is .12 suggesting that 12 percent of the variance in days absent from school is explained by (or caused by) whether students participate in a Career Academy. The
squared point biserial coefficient of .12 suggests that the Career Academy has a medium to large effect on Grade Point Averages.

The t-test results in conjunction with Cohen’s estimated effect ratio give a pure statistical report of the differences that exist between Career Academy students and Non-Career Academy students as measured by Student Attendance.

The above results indicate that a difference existed between Career Academy and Non-Career Academy students existed as reflected in Attendance data.

The results of hypothesis 5 are varied with the observations documented in the research section. According to Orr, Bailey, Hughes, Karp and Kienzl (2004), “Academy students were in school six more days (out of a school year of 180 days) than non-academy students” (p. 33). This suggests that participation in the academy did positively influence attendance more than it did for the comparison group.

In the 2001, School-to-Work: Making a Difference in Education: A Research Report to America, Hughes, Bailey and Mecher (2001) state that “Students in school-to-work stay in school and complete their diploma. Almost every study shows that students in School-to-Work have better attendance than comparable students” (p. 19).

According to Orr (1996), Wisconsin apprentices maintained good attendance throughout their time in the program. Comparison students’ attendance rates fell over the same time period.

According to Hansen and Staatz (1999), Students in a California academy achieved similar attendance rates as more rigorously screened magnet students in the same schools.
The fourth subsidiary question asked if participation in a High School Career Academy had an impact on the success of student achievement levels as indicated by the HSPA. This research question was premised around Hypotheses 6 and 7.

The findings within the administered matched pairs t-test did conclude that differences did exist between the Career Academy for the GEPA and HSPA in both Language Arts and Mathematics. Also, the mean scores on the GEPA and HSPA Language Arts are 209.11 and 218.48, respectively. In addition, the mean scores on the GEPA and HSPA Mathematics are 185.93 and 204.45, respectively. The t-test analysis indicated that this result was significant for both Language Arts and Mathematics for the Career Academy group (Sig. two-tailed p = .001 and p = .000), respectively.

Overall, there is evidence to suggest that the mean of the HSPA differs from the mean of the GEPA in both Language Arts and Mathematics for the Career Academy group. It appears that involvement in a career academy may contribute to this difference. These results imply that the Career Academy model had a statistical impact on student achievement as measured by the HSPA results. For this reason, it would be sensible to encourage our high school students to participate in career academies within the comprehensive high school.

The findings within the administered matched pairs t-test did conclude that differences did exist between the Non-Career Academy for the GEPA and HSPA in both Language Arts and Mathematics. Also, the mean scores on the GEPA and HSPA Language Arts are 193.00 and 199.05, respectively. In addition, the mean scores on the GEPA and HSPA Mathematics are 176.42 and 188.33, respectively. The t-test analysis
indicated that this result was significant for both Language Arts and Mathematics for the Non-Career Academy group (Sig. two-tailed $p = .022$ and $p = .000$), respectively.

Hypotheses 6 and 7 compare the GEPA and HSPA improvement scores for the Career Academy group and Non-Career Academy group. The means of the Career Academy group and the Non-Career Academy group in this study were analyzed according to the participation in a Career Academy or participation in a Traditional High School Program. Improvement scores were computed by subtracting the GEPA mean results from the HSPA mean results for both Language Arts and Mathematics. The results of Tables 19 and 21 of the previous chapter indicate that the Career Academy Language Arts improvement from GEPA to HSPA was 9.38 points and the Non-Career Academy Language Arts improvement from GEPA to HSPA was 6.05 points. The Career Academy Mathematics improvement from GEPA to HSPA was 18.52 points and the Non-Career Academy Mathematics improvement from GEPA to HSPA was 11.91 points.

As indicated in the previous chapter, all the improvement scores were proven statistically significant. As reviewed in Chapter IV, the improvement mean of 9.38 points and 18.52 points for the Career Academy group in Language Arts and Mathematics, respectively, was significantly higher than the improvement means of 6.05 points and 11.91 points for the Non-Career Academy group in Language Arts and Mathematics. Overall, there is evidence to suggest that the mean of the HSPA differs from the mean of the GEPA in both Language Arts and Mathematics for the Non-Career Academy group also. Even though all the students involved in this study made achievement gains, the Career Academy students made far greater gains in score.
improvement on the state assessment as compared to their Non-Career Academy counterparts. These results imply that the Career Academy reform approach over time has had statistical impact on student achievement as measured by the HSPA.

The fifth subsidiary question asked if the mean standardized test scores for Career Academy and Non-Career Academy groups differ from the minimum proficient scores. The question is supported by Hypotheses 8-15. The findings indicate that the Career Academy students out-performed Non-Academy students in both HSPA Language Arts and Mathematics. The Career Academy means were 218.44 and 204.45 for Language Arts and Mathematics, respectively. The Non-Career Academy student means were 199.05 and 188.33 for Language Arts and Mathematics, respectively. A difference of 19.43 points in Language Arts and a difference of 16.12 points in Mathematics were evidenced.

Implications on Policy and Practice

Maxwell and Rubin (2006b) stated:

Reform movements seem to be an ever-present feature of education. Yet, the questioning of accepted ways of teaching and structuring schools is necessary if the system is to engage in continuous quality improvement. The challenges currently posed to high schools are daunting. Students need to be better prepared to succeed in higher education, in the workplace, and in society, and traditional curricula appear to be ineffective for many if not most of them. School-to-work reforms have emerged in response to this perceived shortcoming. (p. 149)
This study shows that the Career Academy model can be quite effective at facilitating success in the area of student achievement and student attendance. However, we also issue two cautions to policymakers and district and school administrators in reference to implications on policy and practice. First, the Career Academy must build academic knowledge and skills in high school; but simple exposure to careers, for example, is not sufficient, nor should it become an end in itself. Without building scholastic and skill achievements above levels of traditional high school programs, the additional cost of Academy Programs may not be warranted. Second, the Career Academy approach may not be appropriate in all high schools and for all students. However, our findings raise important questions about the circumstances under which these ambitious programs can flourish and about which students are most motivated and enhanced by this approach to teaching and learning.

For students, the Career Academy will enhance their experiences in high school by making learning more meaningful in an effort to positively affect student achievement and student attendance. The institution of the Career Academies will require a shift in pedagogical practices for teachers. Increased professional development opportunities in the area of curriculum and instruction will be needed.

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

1. The findings provide convincing evidence that smaller and more intimate school-within-school structures may be significant in encouraging student success. The smaller school-within-school structure of career academies make for more personalized learning communities. Students enrolled in these
academies enrolled in a four-year span and became part of an intimate and rigorous learning community where they learned the power of working together. Students in the Business and Finance Academy, Travel and Tourism Academy and Tech Prep Program reported higher levels of achievement and attendance as compared to their Non-Career Academy counterparts.

2. The findings suggest that Career Academies demonstrate the feasibility of accomplishing goals of school-to-career educational opportunities without compromising academic goals. The Career Academies produced positive and sustained impacts on student achievement and attendance as compared to their Non-Academy counterparts. School-to-work reforms attempt to encourage students to achieve academic excellence by providing a work-related context for learning and by setting high educational standards. In theory, by providing opportunities for students' exposure to environments of employment where high-wage and interesting jobs are possible, individuals who were once alienated from school might see a relationship between their studies and their future career. Some institutional arrangements may induce students of varying academic abilities into a culture of academic achievement: Although the Business and Finance and Travel and Tourism Academies model catered to a majority of high-achieving students, the Tech Prep attempted to recruit and construct success for “at-risk” youth. The Tech Prep program structure and philosophy differed in that they accepted and tailored their curriculum and pedagogy to reflect the diverse needs of the students. However, this study
controlled for the academic abilities of students and only compared students who had failed one or more parts of the GEPA and had a GPA of 80 or better.

3. All school-to-work models require a shift in paradigm. These models require the time and commitment from educators to develop new teaching techniques and adapt the concepts to their specific situations. Implementation of these models might require redesign of school features, facility accommodations, additional funding and additional human resources.

4. Career Academies need to be designed to be both attractive to all students and to involve career pathways that range from quality entry-level to professional positions. Too often, career academies are designed for the college bound student only.

Conclusions

This study was predicated on the primary research question of what effects does participation in a high school Career Academy have on student achievement outcomes and student attendance data in a specific public high school in comparison to participation in a traditional general high school program (Non-Academy) within the same public high school.

The statistical analysis employed in this study (one-sample, two-independent and paired t-tests): supported by Cohen’s estimated effect, indicate that the effects of the Career Academy model on student achievement and attendance are positive as compared to their Non-Career Academy counterparts. This study indicates that there is evidence to suggest that a measurable gain in achievement and attendance exist for students who participate in a high school Career Academy. With all the research
questions answered in the positive, it is this researcher’s contention that the Career Academy model has had an effect on students within the prescribed urban high school. The utilization of t-tests and Cohez’s estimated effect give evidence to this statement. In addition, the rejection of most of the hypotheses, indicate that something unique is going on within this specific high school. In summary, according to this research design, the Career Academy students have shown significant improvement in achievement and attendance as compared to Non-Career Academy students.

Implications for Future Research

The full story of the Career Academies’ effectiveness may still be unfolding. Perhaps because this study was concentrated at a lower socioeconomic status school, academy students were not generally successful by national or state standards but were successful when compared against non-academy students in their own schools.

Evaluating program outcomes must therefore be placed in context.

Maxwell & Ruisin (2000b) stated:

Academies that are seemingly ineffective when compared against national or local standards may be quite effective when compared to current educational outcomes of students in similar circumstances. Rather, the inference is that career academies cannot erase all of the academic problems associated with our educational and social systems, nor can they offset all of the knowledge and skill deficiencies that students bring to high school. (p. 157)

It is not clear whether the Career Academy implementation alone was responsible for the achievement and attendance gains, or if in-house or district initiatives played a major role in the increases evidenced in all student achievement and
student attendance variables. Some of the district initiatives that all students have an
opportunity to partake in are as follows: Extended Day Program, Reading and Writing
initiatives across all disciplines, Staff Development opportunities, Academic Support
Classes, School Climate and Block Scheduling.

Recommendations for Future Research

The implementation of these above-mentioned programs and their combined
impact on school improvement raise questions and provide directions for further
exploration. This study has shown the capacity of the Career Academy model to
enhance the high school education and has proven to have an impact on student
achievement and attendance as compared to Non-Career Academy students within the
same school. Some of the areas recommended for future research are noted below. The
study could be conducted:

A. in another urban high school operating with Career Academies, using larger
   sample sizes.
B. within other school districts with varied district factor groupings.
C. in other geographic locations including suburban and rural communities.
D. to determine teachers' and students' perceptions and experiences of the Career
   Academy model.
E. to explore the impact of internships, integrated curricula, block scheduling, staff
   development and other program elements of the Career Academy model.
F. to explore the developments in research on learning and pedagogy emphasizing
   the effectiveness of "learning in context" by offering career-related courses.
G. to determine the impact that High School Career Academies have on school climate.

H. to determine the effectiveness of the varied Career Academies under investigation.

I. to determine the impact that the Career Academy had on students' post-secondary experiences and successes through qualitative and quantitative means.

J. to determine the effects on achievement and attendance of Career Academy students, specifically, targeting the high risk, medium risk, and low-risk subgroups.

K. to determine the effects on achievement and attendance of Career Academy students, specifically targeting English Language Learners and Special Education students.

Educational policy makers, administrators, educators and parents need to devise institutional support systems to create new pedagogical methods within schools and the community that embrace difference and create positive forums toward school and student success. The Career Academy model outlined in this research offers the benefits of the small school concept, as well as exposure to careers and the workplace. According to Maxwell and Rubin (2000b), “In many respects, regardless of the immediate outcomes of school-to-work programs, it will only be when students from lower socioeconomic environments can consistently succeed in postsecondary endeavors that truly equitable educational reform will have been achieved” (p. 170).


http://ocserve.berkeley.edu/AllinOne/MDS-771.html

http://www.ncsl.org/progrants/employ/slc.htm


Rotherham, A. (1999). When it comes to school size, smaller is better. Education Week, 18(24), 50, 52 & 76.


Appendix A

Means and Standard Deviations on GEPA Language Arts and Mathematics Scores, HSPA Language Arts and Mathematics Scores, Grade Point Averages, SAT Verbal and Math Scores for the Career Academy Group.
Appendix A presents the means and standard deviations for the identified school of study on the GEPA Language Arts and Math scores, HSPA Language Arts and Math scores, SAT Verbal and Math and GPAs for the Career Academy Group.

Frequencies (Career Academy)

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<th>GEPA Language Arts</th>
<th>GEPA Math</th>
<th>HSPA Language Arts</th>
<th>HSPA Math</th>
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<th>SAT Math</th>
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<td>212</td>
<td>203</td>
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<td>142.831</td>
<td>174.363</td>
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<td>21.185543</td>
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Appendix B

Means and Standard Deviations on GEPA Language Arts and Mathematics Scores, HSPA Language Arts and Mathematics Scores, SAT Verbal and Math Scores and Grade Point Averages for the Non-Career Academy Group.
Appendix B presents the means and standard deviations for the identified school of study on the GEPA Language Arts and Math scores, HSPA Language Arts and Math scores, SAT Verbal and Math scores and GPAs for the Non-Career Academy Group.

Frequencies (Non-Career Academy):

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Appendix C

Comparison of HSPA 02 and GEPA 99 Results
Comparison of HSPA 02 and GEPA 99 Results

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Notes:
(a) Decreases in Partially Proficient in both language arts literacy and math
(b) Increase from Proficient to Advanced Proficient in language arts literacy
(c) Increase from Partially Proficient to Proficient in mathematics
(d) Increase in combined Proficient and Advanced Proficient in language arts literacy and mathematics

<table>
<thead>
<tr>
<th>TEST SECTION</th>
<th>NUMBER TESTED</th>
<th>PARTIALLY PROFICIENT</th>
<th>PROFICIENT</th>
<th>ADVANCED PROFICIENT</th>
<th>PROFICIENT &amp; ADVANCED PROFICIENT</th>
<th>PERCENTAGE TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
<td>NO.</td>
<td>%</td>
<td>NO.</td>
<td>%</td>
</tr>
<tr>
<td>GEDA LANGUAGE ARS LITERACY - 1999</td>
<td>76110</td>
<td>11108</td>
<td>14.6</td>
<td>59021</td>
<td>77.3</td>
<td>6181</td>
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<tr>
<td>HSPA LANGUAGE ARS LITERACY - 2002</td>
<td>70647</td>
<td>7085</td>
<td>10.0 (a)</td>
<td>51435</td>
<td>72.6</td>
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<tr>
<td>GEDA MATHEMATICS - 1999</td>
<td>78390</td>
<td>24084</td>
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<td>44.7</td>
<td>10057</td>
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<tr>
<td>HSPA MATHEMATICS - 2002</td>
<td>70970</td>
<td>16372</td>
<td>23.2 (a)</td>
<td>38332</td>
<td>54.8 (b)</td>
<td>15667</td>
</tr>
</tbody>
</table>

Notes:
(a) Significant decreases in Partially Proficient in both language arts literacy and mathematics
(b) Significant increase in Proficient in mathematics
(c) Significant growth in Advanced Proficiency in language arts literacy
(d) Increase in combined Proficient and Advanced Proficient in language arts literacy and mathematics

<table>
<thead>
<tr>
<th>TEST SECTION</th>
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<th>PARTIALLY PROFICIENT</th>
<th>PROFICIENT</th>
<th>ADVANCED PROFICIENT</th>
<th>PROFICIENT &amp; ADVANCED PROFICIENT</th>
<th>PERCENTAGE TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA LANGUAGE ARTS LITERACY - 1999</td>
<td>9679</td>
<td>8345</td>
<td>66.3 %</td>
<td>3124</td>
<td>33.5 %</td>
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<tr>
<td>HSPA LANGUAGE ARTS LITERACY - 2002</td>
<td>11358 (a)</td>
<td>7087</td>
<td>62.4 %</td>
<td>4123</td>
<td>36.3 %</td>
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<tr>
<td>GEPA MATHEMATICS - 1999</td>
<td>10022</td>
<td>6077</td>
<td>60.6 %</td>
<td>1769</td>
<td>17.7 %</td>
<td>176</td>
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<tr>
<td>HSPA MATHEMATICS - 2002</td>
<td>11161</td>
<td>6281</td>
<td>56.2 %</td>
<td>2611</td>
<td>23.4 %</td>
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</table>

Notes:
(a) Increase in the numbers of students tested
(b) Decrease in Partly Proficient in both language arts literacy and mathematics
(c) Increase in Proficient in both language arts literacy and mathematics
(d) Increase in combined Proficient and Advanced Proficient in language arts literacy and mathematics

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<table>
<thead>
<tr>
<th>TEST SECTION</th>
<th>NUMBER TESTED</th>
<th>PARTIALLY PROFICIENT</th>
<th>PROFICIENT</th>
<th>ADVANCED PROFICIENT</th>
<th>PROFICIENT &amp; ADVANCED PROFICIENT</th>
<th>PERCENTAGE TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEPA LANGUAGE ARTS LITERACY - 1999</td>
<td>1529</td>
<td>1277</td>
<td>83.5 %</td>
<td>251</td>
<td>16.4 %</td>
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<tr>
<td>HSPA LANGUAGE ARTS LITERACY - 2002</td>
<td>2412</td>
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<td>78.6 %</td>
<td>507</td>
<td>21.4 %</td>
<td>10</td>
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<td>GEPA MATHEMATICS - 1999</td>
<td>1548</td>
<td>1183</td>
<td>75.1 %</td>
<td>328</td>
<td>21.2 %</td>
<td>57</td>
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<td>HSPA MATHEMATICS - 2002</td>
<td>2407 (1849 (a)</td>
<td>768</td>
<td>31.5 %</td>
<td>484</td>
<td>20.3 %</td>
<td>72</td>
</tr>
</tbody>
</table>

Notes:
(a) Significant increase in the numbers of students tested
(b) Decrease in Partly Proficient in language arts literacy
(c) Increase in Proficient in languages arts literacy
(d) Increase in combined Proficient and Advanced Proficient in language arts literacy
Appendix D
Letter from Dr. Colella – Mentor
Authorizing the Study
May 27, 2004

Dr. Charles T. Epps, Jr.
State District Superintendent
Jersey City Public School
346 Claremont Avenue
Jersey City, NJ 07305

Dear Dr. Epps, Jr.:

I, Dr. Anthony J. Colella, Professor at Seton Hall University, am the mentor for Nicole Hazel’s dissertation. This letter serves as a recommendation to attest to the significance of the study. The purpose of the study is to examine high school career academies and determine the effect that participation in a career academy has on student achievement and attendance.

Sincerely,

Anthony J. Colella, Ph.D.
Appendix E
Letter to the Superintendent
Request for Permission to Conduct Study
May 24, 2004

Dr. Charles T. Epps, Jr.
State District Superintendent
346 Claremont Avenue
Jersey City, NJ 07305

Dear Dr. Epps:

I am a doctoral candidate at Seton Hall University, South Orange, New Jersey, and I am requesting permission to conduct my dissertation research in the Jersey City Public School System.

My dissertation will focus on a quantitative study on high school career academies and specifically, the effect that participation in a career academy has on student achievement and student attendance as compared to non-academy participation in a specific urban high school. I believe that the Jersey City Public High Schools is an appropriate setting for my study since James J. Ferris High School will be implementing a Ninth Grade Academy and Career Pathways in September, 2004.

The data utilized for this study was retrieved from public records, E-Scholar and the School Report Card over a four year period. The sample for this study includes groups of students involved in a career academy and groups of students involved in a mainstream traditional program (non-academy). The Grade Eight Proficiency Assessment (GEPA) is utilized as the baseline data for both career academy students and traditional program students. This assessment will control about the same aptitude and intelligence in both groups. In examining students who were not proficient on the GEPA, the comparative analysis of two distinct groups (academy and non-academy) will determine if a significant difference, if any, exists in student achievement (HSPA, GEPA, SAT) and student attendance with respect to career academy participation during high school. Your school district and your graduates will never be identified in the writing of my dissertation.

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

Sincerely,

Ms. Nicole Hazel
Appendix F

Letter from the Superintendent
Permission to Conduct Study
May 26, 2004

Ms. Nicole Hazel
945 Elizabeth Street, Apt. 2
Ridgewood, NJ 07457

Dear Ms. Hazel:

I enthusiastically endorse your proposal to research high school career academies in the Jersey City Public Schools. I am pleased that you have selected a topic that is of interest to the administration of our high school system. Although this is not a requirement or condition, I hope that you will share the results of your study with us, so that we might consider them in the planning and implementation of smaller learning communities at our high schools. Good luck with your dissertation.

Sincerely,

[Signature]

Dr. Charles T. Epps Jr.
State District Superintendent