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The Impact of a Ninth- and Tenth-Grade Academy Program on Student Attendance, Discipline, and Achievement

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THE IMPACT OF A NINTH- AND TENTH-GRADE ACADEMY PROGRAM ON STUDENT ATTENDANCE, DISCIPLINE, AND ACHIEVEMENT

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ABSTRACT

The purpose of this study was to examine the impact of an Academy Program on freshman and sophomore attendance, suspensions out of school, PLAN and PSAT scores, and the number of students retained in ninth and tenth grades. With the Academy Program at Gaffney High School, the amount of time spent in mathematics and English language arts classes was doubled, staff development was provided, instructional methods were changed, data was analyzed to modify instruction, and successes were celebrated. School data from two years before and two years after implementation were examined to determine whether any significant differences existed. Results from the study indicated significant differences in student attendance for freshmen and sophomores, the number of out-of-school suspensions for freshmen, PLAN mathematics scores for tenth-grade students, and the number of sophomores retained in grade. This study provides information that educational leaders will find helpful in identifying strategies that create and sustain positive change.

DEDICATION

This study is dedicated to my parents, Elliott and Shirl Wooten, with love for all you have done. You have always held high expectations and stressed the importance of education. Thank you for teaching me at an early age that, "average isn't good enough." You set the example of sacrifice, hard work, determination, and personal strength. I am grateful for your love and unwavering trust in me. Thanks Mom and Dad!

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INTRODUCTION

Schools are under increasing pressure by legislators, business and corporate leaders, and the American public in general, to promote the successful school completion of all demographic subgroups of students. If they can find employment, dropouts are faced with low-paying jobs. They have far greater rates of incarceration and drug abuse than do their peers (Woods, 1995). Dropouts have a tremendous impact on America's economy, costing billions of dollars in lost wages, taxes, and productivity over their lifetimes. Problems arise in determining which changes best achieve the objective of getting all students to graduate from high school. A tremendous amount of information exists on educational change, especially since the latter part of the twentieth century. Educational leaders must identify which strategies will be most effective for positive change or create their own strategies for initiating and sustaining positive change.

Fullan (1998) notes that teachers must see themselves as change agents who must connect with various external forces such as parents, communities, government policies, businesses, and technology. Schlechty (1990) adds that leaders who structure the relationships among people, knowledge, time, and space in the most imaginative ways will be the leaders who invent schools for the twenty-first century. He concludes that a powerful tool for leaders is the capacity to group students and staff in different ways.

This study evaluated the impact of a ninth- and tenth-grade Academy Program at Gaffney High School, located in Cherokee County in the upstate of South Carolina.

Specifically, attendance rates, the number of disciplinary suspensions, standardized test scores (PSAT and PLAN), and the number of students retained were assessed for two years previous to the change and two years with the change.

Statement and Significance of the Problem

Like many school districts in the United States, Cherokee County School District Number One has consistently confronted a host of societal, academic, and performance struggles with its ninth graders. Higher numbers of failures, more repeaters, more disciplinary suspensions, poor attendance, and poor test scores are predominant problems in grade nine. Marshall (2003) describes a nationwide problem:

> In many states, the number one grade for retention is grade nine. Ninth graders in America's schools are at particular risk for failure. The ninth grade, for many students, marks the first time that each course they take counts for something more than just seat time in a classroom. The successful student must pass courses to accumulate credits necessary to graduate from high school or to take the course over again if he or she fails to pass. Herein lies the problem: the unsuccessful ninth-grade student remains in the ninth grade for another year, taking the same courses again while becoming a year older and looking more seriously at the alternative of dropping out of school (pp. 1-2).

Research by Hamilton (2004) reveals the broad range of emotional variation among 14-year-olds and 15-year-olds as they search for personal identity and increased independence. Self-doubt, conflict, experimentation, confusion, and moodiness characterize this age group. Intellectually, a range of variation exists, as well. Jean Piaget's theory of cognitive development states that man's thinking evolves in a series of successive stages. A person moves from sensory and motor contact with the world to symbolic manipulations, to concrete mental operations, and finally to abstract formal operations. Piaget stipulated that the final stage is reached between ages 11 and 15 (Fantino & Reynolds, 1975). Ninth graders, therefore, are capable of abstract thinking and reasoning. A

number of studies have shown, however, that a fairly high percentage of ninth graders test in the concrete operational stage, meaning that they have difficulty abstracting the general from the specific (Modgil, 1982). In addition, Schramm (2002) discusses newer views on cognitive development:

> . . . many researchers have discovered that intelligence is a function of experience, and that the mind operates as a whole, with both hemispheres necessary for pattern-seeking. The brain is a connection-seeking device, and intelligence results from the active networking and grouping of ideas through long-term learning (p. 16).

Ninth graders without experience will not be as mature as ninth graders with extensive experiences. Since ninth graders are eager learners when properly motivated and challenged to learn, these problems that surround the ninth grade and resurface commonly must stem from motivational deprivation. For example, absenteeism and truancy are often a direct result of the extent to which students identify with and participate in school (Finn, 1989). LeRiche (1995) adds, "Schools should be places which attract pupils and with which they can identify by experiencing a sense of belonging instead of alienation" (p. 31). Bender (2003) supports this argument:

> The single biggest cause of discipline problems in the nation's schools may be anonymity. In situations where students are not known by name, one does not have discipline in any meaningful sense. Adolescents need the attention of other adolescents, and if teachers can harness the power of this social attention need, many disciplinary problems will quickly be solved. A wise educator will try to find ways to involve a student--to make the student feel special--by inviting him or her to contribute in an appropriate way (pp. 20, 21, 32, 60).

Ascher (1987) concurs, "the individuals most likely to drop out before completing the ninth grade are those who have had attendance, discipline, and/or academic problems in the past, possibly from the beginning of their school careers" (p. 2). Smink (2001) states:

> Some view dropping out as an occurrence. Educators realize it is a process. Frequently the process begins in primary school. As students go through school, an accumulation of negative experiences increases the likelihood that they will drop out. Since students cannot physically leave school in the primary grades, the dropout problem first surfaces in middle or high school. However, there is a growing perception that the needs of at-risk students can and should be addressed as soon as they are identified (p. 46).

Schools must collect and use data to make decisions about how to best serve students who might not otherwise be successful. Creighton (2001) explains:

> Using the many different kinds of data collected at our school site to help with decision making legitimizes the goals and strategies we create for change and improvement. It helps us identify groups of students who are improving and groups of students who are not – and helps to identify the reasons. Thus the principal can serve as instructional leader. Data-driven decision making and instructional leadership must go hand in hand.

Purpose of the Study

The purpose of this study was to examine the impact of the Academy Program on freshman and sophomore attendance, suspensions out-of-school, PSAT and PLAN scores, and the number of students retained in ninth and tenth grades. For the two years prior to the Academy Program, approximately 40 percent of the incoming ninth-grade students scored Below Basic on eighth-grade PACT reading scores and approximately 46 percent scored Below Basic on eighth-grade PACT mathematics. At least 20 percent of the freshmen and 15 percent of the sophomores were being retained each year at Gaffney High School. On average, for the two years prior to implementation of the Academy Program, only 57 percent of the sophomores were passing all portions of the EXIT Exam required for graduation. With the Academy Program, the amount of time spent in mathematics and English language arts classes was doubled, staff development was provided, instructional methods were changed, data were analyzed, and successes were

celebrated. School data from two years before and two years after the implementation of the academy program were examined to determine whether any relationship exists between the academy program and students' attendance, suspensions, PSAT, PLAN scores, and number of students retained in grade. Questions pertinent to this study were:

1. Did the Academy Program have an impact on ninth and tenth graders' attendance and discipline?
2. Did the Academy Program decrease the percentage of freshmen and sophomores being retained each year?
3. Did students' standardized test scores improve as a result of the Academy Program implementation?
4. Were fewer students retained in grade after implementation of the Academy Program?

Limitations

Limited research has been conducted to show the effects of this type of academy concept on tenth graders. Traditionally, academies are created only for ninth graders to ease their transition from middle school to high school. Leaders in Cherokee County School District Number One felt that it was important to carry the Academy Program through to the tenth grade because that is the year that students first take the High School Assessment Program (HSAP) exam (James interview). The HSAP meets the requirement of the South Carolina Education Accountability Act (EAA) of 1998 that each public school student will pass an exit examination to receive a South Carolina high school diploma. It is also used to measure students' academic achievement on high school standards in accordance with the federal No Child Left Behind (NCLB) Act of 2002.

An additional limitation of this study is that the Academy Program is evolving and further determinations will be forthcoming. Within three years a more complete assessment of the academy should be determined as trends become evident.

Description of the Development of the Academy Program

Gaffney High School enrolls between 1900 and 2100 students in grades nine through twelve each year. Ninth and tenth graders make up almost two-thirds of the student population. Demographically, there are approximately 34 percent African Americans, 63 percent Caucasians, and 3 percent other nationalities that make up the student body. Approximately 39 percent of the students eat free breakfast and lunch and another 8 percent pay a reduced price for meals.

A Look at Block Scheduling

During the 2002-2003 school-year, administrators and teachers began to study block scheduling. Teachers from each subject area visited other schools that were on some form of block scheduling. Visits were made to Irmo High School, Ridge View High School, and Dorman High School in South Carolina and to Burns High School in North Carolina. In addition, South Carolina teachers from Northwestern High School, Broome High School, and Blue Ridge High School visited Gaffney High School to discuss the block schedule and to teach 90-minute model lessons. At the end of the year, during departmental meetings, teachers voted whether to stay on a traditional seven-period day or change to some type of block schedule. The overwhelming majority of the faculty was in favor of changing to a 4 X 4 block schedule.

Rationale for the Academy Program

Gaffney High Principal, Dr. Quincie L. Moore, was not convinced that the 4 X 4 block schedule would be best for the students. Based on results of students' test scores, Dr. Moore did not believe that it would be a good idea for students to have a mathematics course in the fall of one year and not have another mathematics course until the spring of the following year (Moore interview). She discussed other options with the faculty. With the support of the Cherokee County School District Number One Board of Education, Dr. William B. James, Superintendent, presented the idea of an Academy Program to the principals of the two high schools and the Cherokee County Technology Center (James interview). He explained that students in grades nine and ten would remain in their English language arts classes for 107 minutes each day for the entire year. In addition, most students in grades nine and ten would remain in their mathematics class 107 minutes each day. The only students who would not be in a double period of mathematics would be those who had tested proficient or advanced on the seventh-grade Palmetto Achievement Challenge Test (PACT).

The key reason administration officials decided to extend time in these two classes is that many students who seem to have the ability to do well in school do not. More than 500 freshmen enter the school every year; four years later, fewer than 400 graduate. Teachers need time to understand why certain students seem to fall behind. Teachers need time to talk to their students and find out who their students are and what issues their students face. For many adolescents, personalizing the learning environment leads to greater motivation and improved achievement (Adelman & Taylor, 2001). Close personal relationships between students and their teachers become more likely when the

instructional climate is less stressful and more flexible. More time reduces the teachers' anxiety of not being able to cover all the material, and it also gives them time to further explain what students do not understand. As students spend more class time with a teacher, they feel safer and more comfortable. Their needs, talents, and interests are more readily addressed. They are more willing to talk and interact with the teacher; thus a better atmosphere for learning develops (James interview).

Professional Development

In the academy, ninth- and tenth-grade English language arts and mathematics teachers teach three double periods (approximately 75 students each day), while science and social studies teachers teach six 50-minute classes (approximately 150 students each day). Eight new English language arts teachers and six new mathematics teachers were hired to accommodate the block schedule and keep teacher-pupil ratios low. Professional development opportunities were funded for all teachers selected to teach in the academy. Training included Standards in Practice (The Education Trust, 2003), reading strategies, the Four Block Literacy Model (Cunningham & Hall, 1990), curriculum mapping (Jacobs, 1997), and strategies for keeping students actively engaged in learning.

Standards In Practice (SIP) engages teachers in conversation within teams to examine their assessment for rigorous alignment to the standards. In the process, teachers bring their assignments and the work done by students to the team meeting. The teacher describes the assignment. The team analyzes the demands of the task, identifies the standards that apply to the assignment, generates a rough scoring guide, scores the work using the guide, and discusses any revisions to the assignment. The teacher gains insight about any changes needed to strengthen assessment and improve instruction. By

engaging in conversation with colleagues, the SIP process empowers teachers to find out whether their assignments are rigorously aligned to the standards and whether their instruction needs to change to reach the standards to help students be more successful.

The Four Block Literacy Model involves four different approaches to teaching students to read and write: Self-Selected Reading (Sustained Silent Reading), Guided Reading, Working with Words, and Writing. Self-Selected Reading allows students to choose reading materials from classroom libraries appropriate for student interest and reading levels. As students read silently for 30 minutes each day, the teacher conferences with different students individually about the book being read. Guided reading instruction involves working in small groups to model successful reading strategies. Word Study involves meaningful vocabulary instruction from texts through repetition and manipulation. Writing instruction involves the writing process, with particular emphasis on looking at author's craft for revision and editing purpose. Daily instruction in all four blocks provides numerous and varied opportunities for all students to learn to read and write. Because all students do not learn the same way, the Four Blocks Literacy Model provides instruction to support different kinds of learning preferences. English language arts teachers received training in the Four Blocks Literacy Model and committed to support its implementation. Administrators do literacy walk-throughs and classroom observations to monitor instruction in the four blocks.

Curriculum Mapping is a way of keeping track of content taught in order to make changes in response to students' needs. Teachers collaborate and map the curriculum taught in each subject. Knowing what is taught and when it is taught for every subject

enables teachers to address both timeless and timely content at appropriate times. The Academy Program evolved as the superintendent received input from the principals.

Teacher Selection

The Cherokee County District Number One School Board authorized the Academy Program. Teachers were asked to volunteer to teach in the academy. From those volunteers, the ones selected were personable, passionate about what they taught, strong in content knowledge, patient, and willing to help students. Since it would be a more difficult assignment for the teachers, monetary incentives were designated for those teaching in the academy if students met established testing benchmarks. For example, teachers received a stipend if students met the state average on the HSAP exam.

Funding

Another important aspect for the school board was that taxes would not have to be increased to hire the new teachers required to implement the academy concept. During the previous two years, any request for money had been well scrutinized, and if it did not impact instruction, it was not spent. Since the budget could fund the salaries for additional teachers, the school board promoted the idea (James interview).

Community Support

Initiative was taken with parents and community to explain and gain support of the academy concept before it was implemented. For example, local newspapers published the academy concept and the Superintendent spoke at several church functions to provide information about the academy to the community. For the most part, the community supported the idea. Some parents were ambivalent and a very small number of

parents did not want their child in two periods of English language arts. However, statistics for Gaffney High School show that even the strongest academic students write poorly and their reading comprehension is weak. For example, a five-year average of the percent of seniors at Gaffney High School meeting the SAT requirement in determining eligibility for LIFE scholarships is only 16 percent (years 2001-2005). Also, PACT scores from 2003 and 2004 show that 1 to 3 percent of eighth-grade students are advanced in reading and 12 to 15 percent are advanced in writing. Reasoning is sound for extended time in English language arts classes for all students. Research supports the need for time for independent reading and conferencing, and 50 minutes does not allow for it.

Description of Academy Program

The principals presented the idea of the academy to the faculty and staff of the three schools as an alternative to block scheduling. The principals explained that those selected to teach in the academy would receive a stipend. At Gaffney High School, the principal made several moves in teacher assignments prior to the start of the academy. A freshman orientation meeting was held the week before school started. At this meeting, administrators explained various aspects of the upcoming school year. On-going professional development was conducted throughout the 2003-2004 school year to teachers in the academy. Classroom sets of high interest, young adult novels and graphing calculators were purchased. Each department worked to align their curriculum. All English language arts teachers received training in the basics of the Four-Blocks method, a balanced literacy approach to learning. Using the Four-Blocks method, students in the academy read a book or article of their choice silently for 30 minutes each day. They work with vocabulary for approximately 10 minutes and students listen to their teacher read

aloud to them for 10 to 15 minutes. They work on a reading assignment or a writing assignment for 45 minutes, and students respond to a writing prompt for about 10 minutes. The 107-minute mathematics classes are conducted differently. New content is presented in the first half of a double period class. During the second half, games and manipulatives are used to extend the lesson and to make connections to the real world. More importantly, additional time is given to students individually.

Data to Impact Instruction

Throughout the year, successes are celebrated as goals are met. Data analysis is conducted on students' PSAT, PLAN, AP, SAT, ACT, MAP, end-of-course exams, and HSAP/Exit Exam scores. By-teacher comparisons are made on student scores, teacher attendance, and number of discipline referrals. Demographic analyses of student data are presented to teachers each year so that they can identify areas of strength and weakness and implement a plan for improvement. Teachers are also encouraged to analyze their own assessment pieces.

The rationale for the ninth- and tenth-grade Academy Program is to improve the transition from middle school to the ninth and tenth grades and to increase emphasis on English language arts and mathematics skills in an effort to improve student achievement. The 107-minute English language arts classes and mathematics classes give teachers more time to interact with students academically and to impact students' social-emotional well-being. A supportive relationship between the student and the teacher can promote effort and engagement in even the most difficult-to-reach students in school.

Null Hypotheses

$H0_1$ The ninth- and tenth-grade students at Gaffney High School will show no significant difference in their attendance percentage prior to and after the Academy Program implementation.

$H0_2$ The ninth- and tenth-grade students at Gaffney High School will show no significant difference in their number of discipline suspensions prior to and after the Academy Program implementation.

$H0_3$ The ninth- and tenth-grade students at Gaffney High School will show no significant difference in their average PSAT and PLAN verbal and mathematics scores prior to and after the Academy Program implementation.

$H0_4$ The ninth- and tenth-grade students at Gaffney High School will show no significant difference in number of students retained prior to and after implementation of the Academy Program.

Definition of Terms

SAT Reasoning Test – A standardized test frequently used by colleges and universities to assist in the selection of incoming freshmen. The test consists of math, critical reading, and writing components.

PSAT – Preliminary SAT/National Merit Scholarship Qualifying Test – A standardized test that provides practice for the SAT Reasoning Test and gives students a chance at scholarships. The test measures critical reading, mathematics problem-solving skills, and writing skills.

ACT – An alternative college entrance exam to the SAT which assesses students' general educational development and ability to complete college-level work. A multiple-choice test on four skill areas: English, mathematics, reading, and science. An optional writing test is available with it.

PLAN – A pre-ACT test composed of English, mathematics, reading, and science.

AP Exams – Advanced Placement Exams – Allow students to earn college credit while in high school.

LIFE Scholarship – $5000 per year – Eligibility for entering freshmen: Meet 2 of 3 requirements:

1. Have a 3.00 final high school grade point average based on the Uniform Grading Policy.

2. Have a minimum SAT test score of 1100 or and ACT test score of 24.

3. Have graduated in the top 30 percent of the student's high school graduating class.

ESOL – English for Speakers of Other Languages

ACE cards – Used to celebrate a success or to motivate students at Gaffney High School. ACE cards can be used for a free homework pass, a snack from the cafeteria, etc.

4 X 4 block schedule – Four classes, approximately 90 minutes in length, every day for the first semester. Four completely different classes, 90 minutes in length, every day for the second semester. Each class successfully completed earns one Carnegie unit.

A/B block schedule (alternating day schedule) – Four classes, approximately 90 minutes in length, meeting every other day ("A days") for the entire school year. Four completely different classes, 90 minutes in length, meeting on alternate days ("B days") for an entire year. Each class successfully completed earns one Carnegie unit.

Skinnies – Approximately 45-minute long classes meeting every day all year long

Hybrid schedule – Mixing shorter classes (approximately 50 minutes) with longer periods (e.g., 90 minutes).

CHAPTER 2

LITERATURE REVIEW

A growing body of literature describes research on educational reform. This chapter includes a review of the literature for successful educational changes. It begins with the purpose for change in schools. From there, a conceptual framework for understanding educational reform will be explored, including both the guidelines for the change process as well as lessons arising from the challenge of change. This will lead to effective transitional strategies from middle school to high school, with a focus on the problems that adolescents typically encounter. The chapter will conclude with a description of the transition to a ninth- and tenth-grade academy at Gaffney High School.

Purpose defines the kinds of goals an organization will pursue. The most wanted workforce skills today include technological fluency, communication skills, teamwork, leadership, problem-solving, and creativity (Thornburg, 2002). Thornburg states that, "unless we understand how the nature of work is changing, we can scarcely expect to prepare anyone for life outside of school" (p. 5). Educational leaders must be guided by moral purpose or the intention of making a positive difference in the lives of society. Schlechty (1990) concurs, adding that "The cumulative effect of student success at doing schoolwork (knowledge work) is that students learn things that are valued by the community, by parents, by teachers, and by the students themselves" (p. 60). According to Reich (1992), the basic work skills required for today's world include the ability to discover patterns and meanings, the ability to think of most problems in the context of a

complete system with interrelated elements, the ability to try something, note the results, and make modifications until a desired result is obtained, and teamwork. These goals of modern education mark a huge departure from the goals of the early American education system.

According to Schlechty (1990), because society has changed, the purpose(s) of schools has (have) changed. When the American public school system began, the one-room schoolhouse suited the agrarian society. It served the purpose of promoting the kind of literacy thought to be essential to fulfilling one's civic duties. During and after the Civil War, America became an industrial society. The purpose of schools became to produce a well-educated elite with the majority trained for semiskilled or low-skilled jobs. Workers then fit into the urban factory system. As America has now moved towards an information-based society, schools must teach students to actively seek information to solve problems, to be creative, and to draw upon a rich vocabulary.

Many, like Johnson (2003), believe that schools have changed little since their beginning.

> We live with the same basic system that was handed down by the Committee of Ten in 1892-93 when the American secondary school system was invented. We have a system that is generally dictated by bus schedules, tracked classes, and various union regulations. The Committee of Ten designated four major curriculum areas in 1892-93: literature, history, math, and science, and then they proceeded to recommend that local districts decide the particular area (biology, algebra, etc.) to be taught, and in what order those topics would be sequenced. The Committee listed topics under the major subjects in alphabetical order. That many, many secondary schools still adhere to algebra-geometry-trigonometry and biology-chemistry-physics in that same alphabetical order is one of the great unquestioned assumptions about school structure (pp. 2, 4).

Others, like Fullan (2001), believe that the educational system contends with the forces of change on a daily basis. Productive educational change roams somewhere

between over-control and chaos (Pascale, 1990). Fullan (2001) states, "It is important to be on the edge of chaos because that is where creativity resides, but anarchy lurks there too" (p. 6). Education has a moral purpose to make a difference in the lives of students, regardless of background, and to help produce citizens who can live and work productively in increasingly complex societies: "Without change, moral purpose stagnates. Without moral purpose, aimlessness and fragmentation prevail. In combination, they are a resource for improvement (Fullan, 1993)" (p. 18).

When considering change in the modern educational system, it is important to know the difference between the end and the means. The end of our educational goals is citizens who are self-sufficient and self-reliant. The means are the resources and methods we use to educate (Kaufman, 1995). The focus must be on what is to be accomplished before deciding how to progress. To improve American education, there is a need for more rigorous and demanding high school graduation requirements, national content standards and detailed curriculum frameworks, a focus on key academic subjects, and methods and materials that will enable all students to master challenging coursework (Angus & Mirel, 1999). Learning activities need to be structured so that students can experience success, receive positive reinforcement, and exercise some control over their learning process (Randhawa, Beamer, & Lundberg, 1993; O'Brien, Dillon, & Wellinski, 1997).

The study of educational change seriously began in the 1960s. This, in part, was due to the launching of the Sputnik rocket in1957, as Russia beat the United States in the race to space. American schools began to focus on innovation and reform, especially in the areas of mathematics and science. An increased awareness of the relationship

between science and society led to the development of federally funded projects to reform those areas of the curriculum. In addition, critics began to point out that racial and cultural minorities were being left behind, initiating a movement for social equality.

Educational reform in the 1970s focused on failed implementation. Goodlad (1975), for example, wrote that the time had come to explore the functioning of the entire, overloaded educational system in order to determine what was working and what was not. In 1983, the National Commission on Excellence in Education released its report, "A Nation At Risk," arguing that America's "once unchallenged preeminence in commerce, industry, science, and technological innovation" was being taken over by global competitors because of the mediocrity in our educational system (DuFour & Eaker, 1992).

The focus for American education in the 1980s was on excellence. An increasing involvement by the federal government over local school systems led to an emphasis on accountability. Students were tested more often, more days were added to the school calendar, more homework was given, and more was expected of teachers. Despite all the school reform initiatives, students in the United States were still not achieving to the level of those in other countries. In 1989, President George Bush called for a summit meeting with the governors of each state in order to set national educational goals and standards. Goals 2000 (1994) was developed, but criticized as a top-down attempt at a federal takeover of schools.

The 1990s became a time of restructuring and large-scale reform efforts. A second Education Summit, in 1996, transferred the task of developing national standards of education to state governments. This emphasis on site-based educational reform, or a

bottom-up approach, did not make any real difference in the ability of schools to meet the challenges they faced.

What standards were to the 1990s, leadership is to the 2000s. For the last 50 years, criticism of public education has continued to grow. School districts have tried changing instructional methods, curriculum, assessment, time frames, resources, and teacher preparation in an effort to increase student achievement and to decrease retention and dropout rates.

Although these changes have not produced the desired outcome, school leaders are still working to improve. Innovations are no longer being considered in isolation, but rather more comprehensive reform efforts are being made. Fullan (2001, p. 3) argues that, "There is a recent remarkable convergence of theories, knowledge bases, ideas, and strategies that help us confront complex problems that do not have easy answers." Fullan (2003, p. 23) cites:

> The eventual solution for educational reform is that the vast majority of people in the system must end up 'owning the problem' and be the agents of its solution (Heifetz & Linsky, 2002). We need to create the conditions and processes that will enhance the likelihood that we move toward greater ownership and commitment.

Systemic change, often called a paradigm shift, according to Reigeluth and Garfinkle (1994), is comprehensive. It recognizes that change in one aspect requires changes in other aspects in order for it to be successful. The major paradigm shifts in society have caused changes in all levels of the educational system.

Action research, first developed by Kurt Lewin in the 1940s, can be very powerful in achieving change. The stages for action research include the identification of a concern, planning the change, implementation of the plan, evaluation of the solution, and further modification of the practice in light of the evaluation. Michael Fullan (1991)

identifies three stages in the management of educational change: initiation, implementation, and continuation. Morrison (1998) provides several main themes of change. Change is structural and systemic. Any real change will affect the whole system. Change is a process that occurs over time. It is not sequential and does not follow a straight line. Change is multidimensional in that it encompasses resources, leadership, management, process, knowledge, evaluation, emotions, attitudes, beliefs, values, and principles. Change is viewed differently by the various participants and all those involved will have their own perspective. The effective management of change requires creativity and the ability to identify and solve problems. Change strategies must be flexible and adaptive.

Educational change is complex because many unplanned factors may occur for any problem. Each of these factors produces reactions which lead to a domino effect of other reactions. It is imperative that school leaders understand the change process if they want sustained, positive growth.

Understanding the Change Process

Educators who want to better their organization need to understand the basic principles of change theory as well as the components for positive change. According to Schlechty (1990), five functions must be fulfilled to produce positive change: the conceptualization function, the marketing function, the developmental function, the implementation function, and the service and support function.

The nature of change must first be conceptualized. Thought must be given to the present circumstances, the future as it is likely to be, and the future as it is wished to be. The top leader in the organization must be involved in the conceptualization process, but

the top leader does not have to be the team leader. Leaders must decide who needs to be involved and when. Leaders have the obligation of convincing people in the organization that things are going to change. Issues that are being addressed must be explored.

Next, people who were not directly involved in the conceptualization phase, but who will be asked to support the change, must be made aware of the change. People in the marketing and developmental functions must demonstrate a capacity to listen and hear, persuade and argue, understand and motivate. Feedback from those not involved in the conceptualization phase, but who will be called on for support, must be solicited and, where possible and appropriate, incorporated into the change process. People in the marketing and developmental functions must be able to present the change in the best possible light. Those who are expected to support the change will want to know how the proposed change will affect their lives. They will need to be convinced that this is not just another passing fad. They will want to know why and how they should implement the change. Those in the developmental function must be able to give support, training, and opportunities to try out the new change. They must also understand different types of incentives that motivate people, such as salary, fringe benefits, stipends, bonuses, conditions of work, and the way people expect to be treated by others.

During the implementation function, activity must begin. People must begin to act in directions indicated by the change. Because change involves risk, people must be convinced that they are working in an improvement-oriented culture. A system of ongoing support and training must be provided for those who are being asked to support the change. Schlechty's five capacities work together in a sense of checks and balances.

Fullan (2003, p. 23) gives eight guidelines for complex change:

1. Give up the idea that the pace of change will slow down.
2. Coherence-making is a never-ending proposition and is everyone's responsibility.
3. Changing context is the focus.
4. Premature clarity is a dangerous thing.
5. The public's thirst for transparency is irreversible (and on balance this is a good thing).
6. You can't get large-scale reform through bottom-up strategies, but beware of the trap.
7. Mobilize the social attractors – moral purpose, quality relationships, quality knowledge.
8. Charismatic leadership is negatively associated with sustainability.

Fullan (1993, p. 19) also gives eight basic lessons that arise out of the challenge of change:

1. You can't mandate what matters and you can't make people change.
2. Change is a journey, not a blueprint.
3. Problems are friends.
4. Vision and strategic planning come later.
5. Individualism and collectivism must have equal power.
6. Neither centralization nor decentralization works.
7. Connection with the wider environment is critical.
8. Every person is a change agent.

If change is to be effective in schools, leaders must understand not only the complexities of change but also the complexities of adolescence. Adolescents develop physically, intellectually, and morally in stages. They often experience great conflict and change as they grow, learn, develop, and discover who they are. At times, they want to

still be cared for as a child and, at other times, they want to be treated as an independent adult. Peer acceptance becomes more important to adolescents, as they begin to distance themselves from their parents and search for their identity. A wide range of emotions often accompanies adolescence, including self-doubt, conflict, and confusion. Teens often begin to experiment with dangers they have not tried before, such as sex, alcohol, and other drugs. Physical changes in height, weight, and body shape accompany adolescence as well as cognitive changes, such as the ability to think, reason, and solve problems (Sprinthall, 1995).

Piaget's four stages of cognitive development explain how children mature in their thought processes. Children may reach his final stage, called the period of formal operations, by ages 11 or 12 (Sprinthall, 1995). Because of varied social, economic, and ethnic influences, all adolescents do not progress at the same rate of change through the developmental periods (Stevenson, 1992). Research done in the 1970s established that perhaps no more than a third of students have attained formal operations by age 12 (Renner, Stafford, Lawson, McKinnon, Friot, & Kellogg, 1976). In the mid-1980s, another view proposed to explain how cognitive changes occur in adolescents. This view considered the human mind to be a complex system for taking in, storing, and using information, much on the model of complex computer systems (Sprinthall, 1995). Case (1992) incorporated many of the aspects of information-processing with Piaget's work.

In further research, Vygotsky views cognitive development as being rooted in social relationships which may vary from culture to culture. Unlike Piaget, who argued that cognitive development reflects language development and plays little, if any, role in constructing new knowledge, Vygotsky claimed that a child's private speech regulates

problem-solving activities and is eventually internalized to become verbal thought (Shaffer, 1996).

Giedd's high powered magnetic resonance imaging studies proved that the brain of the adolescent is far from mature. Giedd's long-term studies have documented fewer but faster connections in the brain. The last part of the brain to be pruned and shaped to its adult dimensions is the prefrontal cortex, home of the so-called executive functions – planning, setting priorities, organizing thoughts, suppressing impulses, weighing the consequences of one's actions (Thompson, 2004). The part of the brain that makes teenagers more responsible is not finished maturing yet. Often, this maturity does not occur until a person's mid-twenties. The prefrontal cortex, or CEO of the brain, also called the area of sober second thought, is the last part of the brain to mature – which may be why teens face difficulty as they look forward to more freedom and choices in life.

Varying maturation rates in adolescents explain differences in judgment and decision-making, in risk-taking, and in sensation-seeking (Steinberg, 2005). Students enter high school and suddenly have to make life-altering decisions about their education track, college, and career. Adapting to so many changes in relationships, status, social contexts, responsibilities, and academic pressures can generate great stress, feelings of rejection or anonymity, and anger at perceived or actual failure. Students need help making a successful transition to adolescence. Research offers many strategies to ease the transition from middle school to high school.

Develop Relationships

Reents (2002) states that, "Entering the ninth grade can be one of the most emotionally difficult, most academically challenging times in children's lives" (p. 1). LeRiche (1995) adds:

> There is no point in getting pupils physically within the school walls if the atmosphere, relationships, pedagogy, and resources are not available to meet the needs of the pupils. Schools should be places which attract pupils and with which they can identify by experiencing a sense of belonging instead of alienation (p. 31).

A key criticism of high schools is that they are too large and that they try to do too many things and do not do any of them very well (Hammack, 2004). The size of high schools in America has grown tremendously over the past 50 years, due in large part, to a publication by then Harvard University president, James Bryant Conant, called *The American High School Today* (1959). In his book, Conant proposed that larger high schools would benefit public education because they would be more cost efficient and they would offer students a wider range of courses. Many high schools in the 1950s had just over 100 students enrolled. He suggested that a high school should have at least 400 students. A major movement began to reduce the number of small high schools. Currently, some high schools have as many as 5000 students. Although larger schools can offer a variety of courses, the emotional well-being of students may suffer if the students do not feel a sense of belonging.

Because large schools can be impersonal, a considerable amount of research has been conducted in the area of appropriate school size for meaningful relationships between students and faculty. According to Williams (1990), 400 to 800 students is an appropriate size for high schools. Numerous scholars have concluded that the benefits of small high schools outweigh the benefits of large high schools. Students feel a greater

sense of belonging in small schools (Cotton, 1996; Walberg, 1992; Stolp, 1995; Stockard & Mayberry, 1992). Students in smaller schools show less violence, feel safer, come to school more frequently, and feel more attached to their school (Gottfredson, 1985). Student achievement in small schools is superior to that in large schools (Cotton, 1996; Bates, 1993; Eichenstein, 1994; Kershaw & Blank, 1993; Walberg, 1992). Smaller schools have lower incidences of negative social behavior (Cotton, 1996; Gregory, 1992; Kershaw & Blank, 1993). Small schools appear to be more educationally equitable in closing the achievement gap separating students by social class and racial and ethnic groups (Lee & Smith, 1994; Lee, Smith, & Croniger, 1995).

Large high schools have tried many different strategies to help students make an effective transition from eighth to ninth grade including small learning communities, academies, double doses of English and mathematics, summer programs to give students a head start, academic prep centers, freshmen orientation, experiences shadowing in the high school, advisor/advisee programs, service learning projects, interdisciplinary teams of teachers with shared planning time, and extra help sessions. According to Bender (2003, pp. 20, 21, 32, 60):

> The single, biggest cause of discipline problems in the nation's schools may be anonymity. In situations where students are not known by name, one does not have discipline in any meaningful sense. A wise educator will try to find ways to involve a student – to make the student feel special – by inviting him or her to contribute in an appropriate way. Adolescents need the attention of other adolescents, and if teachers can harness the power of this social attention need, many disciplinary problems will quickly be solved.

In addition, how well teachers work with others is vitally important. When relationships improve, the entire atmosphere gets better. Leaders must be relationship builders, especially with people different than themselves (Fullan, 2001). Educational change

affects parents, students, teachers, administrators, superintendents, school boards, local, state, and federal governments, businesses, and community members. Duffy (1996) states:

> Your relationships with people in the district during the redesign project should be based on beliefs about people and about how one facilitates changes in attitudes, concepts, and skills. The relationship is based on a belief that the redesign effort is enhanced by shared problem-solving approaches and is always impeded by inappropriate superior-subordinate dynamics. During the redesign effort, teachers and other staff do not need to be told what to do; rather, you collaborate with them in a partnership to redesign the district in meaningful and lasting ways. Teachers' concerns can never be addressed effectively by any superficial approach that assumes administrators have all the answers and that the task of the teacher is to listen attentively and follow orders (p. 208).

Fullan and Hargreaves (1998, p. 6) give 10 reasons why schools need to connect more effectively beyond the school:

1. Students may be hungry, tired, and troubled.

2. With the diverse cultural mix of students, as well as the inclusion of exceptional students in the regular education classroom, it is often difficult for the teacher to teach the class as a whole and to engage all students.

3. Since some students may know more about technology than their teachers, teachers must learn to design pedagogy for using technology.

4. Students sometimes feel anonymous and alienated. The bigger schools get, the more impersonal they become. Teachers feel the pressure of accommodating multiple intelligences and varied learning styles.

5. Parents are often disengaged in students' education.

6. Education is essential for democracy. Schools must build democratic communities which value participation, equality, inclusiveness, and social justice, in addition to loyalty and service among all their members.

7. Market competition, parental choice, etc. are redefining how schools relate to their wider environment. Schools have to become more preoccupied with image and public relations.

8. Schools have to consider what kinds of living and working opportunities their students will face when they graduate. Schools must create

partnerships with businesses that are morally defensible and educationally worthwhile.

9. The pressures of today's complex, rapidly changing environment are contradictory. New technology has led to instant access to information which enables us to make decisions more rapidly. Teachers, schools, and school systems often do not know how to respond to the changes they experience. It is time for teachers and schools to take greater initiative to represent students' interests in the politics of education.

10. Many teachers have to learn to teach in ways they were not taught themselves. School structures are ill-designed for teachers to meet the needs of all students, to have worthwhile discussions with parents, and even to work with each other.

Foster Knowledge-Building

Leaders commit themselves to constantly generating and increasing knowledge inside and outside the organization. Educators, parents, community members, policy-makers, and business leaders must understand the new expectations and responsibilities being placed on teachers today. The need for quality professional development to support educational reform must be communicated and supported. Procedures for teacher evaluation, instructional planning, and professional development should all be organized around their demonstrated impact on student learning.

An additional effort to foster knowledge-building centers on high school schedules. A 1994 report by the National Education Commission on Time and Learning referred to students as "prisoners of time." The report suggested that schools should rely less on the traditional 50-minute period and provide a more flexible school day.

In many states, 24 Carnegie units are required to graduate. Students have little room for failure in a six-period or seven-period day. Possible scheduling options include early-bird, six-period, seven-period, A/B block, 4 X 4 block, skinnies, and combinations

of these. The traditional six-period or seven-period frantic, fragmented schedule is unlike any experienced in elementary or middle school (Irmsher, 1996).

Proponents of block scheduling contend that it increases student achievement while also having a positive effect on teachers' and students' perceptions of school climate, student discipline, and remediation (Queen & Isenhour, 1998; Barone, 2004; Flocco, 2006). Two major types of block schedules are the alternate-day schedule (A/B schedule) and the 4 X 4 semester schedule. Courses in a block schedule average 80 to 100 minutes per day. Rettig and Canady (1999) report that block scheduling reduces the number of discipline referrals to the office. Consistent evidence shows that students' grades improve. Research on high school block scheduling reports positive effects on school climate, such as fewer discipline referrals, slightly improved attendance, fewer tardies, and a feeling of less stress. Effects on academics include improvement in students' grades and an increase in the number of students on the honor roll. Studies show declining failure rates and a greater likelihood for at-risk students to stay in school (Rettig & Canady, 1999). Rettig and Canady (2003) add that block scheduling is advantageous because it provides more time to complete a lesson and address various learning styles, opportunities to complete more course credits, a more relaxed pace, and more opportunities for engaged learning. Based on their research, school management problems are reduced because students spend less time in highly congested areas, such as hallways. Also, the amount of class tardiness is reduced.

What teachers do with the extra time is a critical factor. They must learn how to plan for and teach in an extended block of time. Staff development provided to teachers in how to adapt instruction and course pacing is critical. Teachers are more positive

toward block scheduling when they have been involved in the decision-making process to change to a block schedule. Instructional strategies can be varied. Teachers can make better use of technology and engage students in more active learning strategies. Students have time to work, re-work, and make-up work until success is experienced. Stress is reduced for both teachers and students because they meet fewer classes during the school day. Teachers have fewer preparations. Students can focus on fewer courses that carry homework, tests, and project requirements. Some students need more time to learn than others. Additional learning time in key courses such as English I and II and Algebra I is often advantageous to the students. Time lost to general administrative duties, such as checking attendance and getting class started is reduced. More time is available for student support and extended learning, allowing the gifted student to pursue his/her potential while giving students with special needs time for remediation or extra practice.

Critics of block scheduling report difficulty with implementation. Teachers need training in how to effectively pace the course and how to conduct an extended block class. Lecturing for long amounts of time becomes a problem due to students' limited attention spans. Additionally, gaps in instruction between first semester one year and second semester the following year leave students with much time to forget information learned that will be needed in the new class. Furthermore, the amount of instructional time in the average 4 X 4 block class (90 minutes for 90 days, or 8100 minutes) is less than the amount of instructional time in the average traditional schedule class (50 minutes for 180 days, or 9000 minutes). Rettig and Canady (2003, p. 29) contend, "We believe the best schedules are hybrids that are based on students' needs." A hybrid of the 4 X 4 may be the best schedule in order to meet the needs of students and special courses.

Performing arts courses, AP courses, yearbook and special education courses may need to be scheduled for students' year-long participation.

Sustained staff development is a critical factor affecting the change from a six- or seven-period day to a block schedule. Teachers need subject-specific assistance in managing pacing and transitions, developing activities for application, and in building teaching strategies into lesson plans that promote active student involvement (Rettig & Canady, 2003). Staff development is vital to any school's endeavor to foster knowledge building. In working toward change, teachers need both instruction and time to learn, test, assess, and adjust new content, strategies, and methods of delivery to an increasingly diverse student population. In addition, teachers need training to learn to integrate new technology into existing curricula.

Because of advances in computer hardware and software in recent years, the use of school data to drive decision-making and to foster knowledge building has increased and become more cost-efficient. Research on school improvement and school effectiveness has shown data use to be central to the school improvement process (Chrispeels, 1992; Earl & Katz, 2002). School leaders who collect and analyze data for school improvement are often able to identify strengths and weaknesses in student achievement, teacher quality, and to explore group differences, growth over time, and program evaluation (Streifer, 2002). Kennedy (2003) includes data analysis as a central component of his model for raising standardized test scores. Information becomes knowledge when it is shaped, organized, and embedded in a context that gives it meaning and connectedness (Earl & Katz, 2005). Teachers can use data to modify their instructional practices when it is made available to them. They can determine whether students are achieving at a

higher level than they did in the past, compare their own outcomes with those of other teachers, and evaluate whether existing curriculum and instruction adequately prepare students to succeed (Blankstein, 2004). According to Schmoker (2002):

> The most obvious impediment to a results orientation is the failure at the beginning of the year, or as early in the year as possible, to put the data in front of the teachers, have them look at it, and then generate a manageable number of measurable goals based on the previous year's scores. That should be job one for administrators.

Data collected and analyzed to assist schools include demographic and socioeconomic information, absentee rates, dropout rates, suspension rates, report card grades, state and national standardized test scores, perceptual data, and school process data. Perceptual data tell schools about student, parent, and teacher satisfaction with the work of the school, and school process data provide schools with information about programs and approaches to teaching and learning (Bernhardt, 2002). Data do not provide right answers or quick fixes, but data offer decision-makers an opportunity to view phenomenon through a number of different lenses, to put forward hypotheses, to challenge beliefs, and to pose more questions (Earl & Katz, 2005). Data also provide opportunities to discover strengths and to celebrate success.

Schools interested in fostering knowledge building should celebrate the success of teachers and students who help advance the school's goals. People desire to be on a winning team. Rewards and public recognition improve the morale of those singled out and provide measures to which others can aspire to emulate. Many studies show positive reinforcement and praise to be helpful in the educational setting. Ways of celebrating include letters of commendation and thanks, plaques, newsletter highlights, news releases, public announcements, teacher-of-the-month, student-of-the-month, choose teachers to share their expertise by making presentations, award school letters for academic

achievement, underclassmen award ceremonies, positive notes home to parents, ACE cards, HSAP party outside, reward improvement as well as achievement, snacks, and free homework passes. Procedures for teacher evaluation, instructional planning, and professional development should all be organized around their demonstrated impact on student learning. Well-designed assessments can inform educators about the degree to which students are meeting state or district content standards. Assessment results are valuable because they can reveal much about trends and patterns, allowing educators to set improvement goals from one year to the next. Recognition and celebration of progress is a high-profile activity that is most successful when broadly shared among all. Students, parents, community, and staff should be involved in meaningful ways.

Providing extra help to students fosters knowledge building. Balfanz, McPartland, and Shaw (2002) issued a strong imperative to examine the current state of knowledge about the extent and type of extra help high school students need to thrive in a high standards environment. The most conservative measure, which asks what percent of students are two or more years behind the average level of reading and mathematics achievement currently found among ninth-graders, indicates that between a quarter to a third of ninth-graders need extra help (Balfanz, McPartland, & Shaw, 2002). This is especially the case for mathematics and reading courses that serve as foundational skills for other content areas. There are several key components of extra help in reading. Teacher read-alouds and think-alouds must be modeled, which means that the teacher pauses to indicate aloud the thought processes involved in the reading. Students learn reading strategies and become meta-cognitive in their own reading as a result of think alouds. Comprehension tools such as webs and Venn diagrams help students comprehend cause-

effect, time sequence, main idea, and plot or character development. English classrooms need a small library of books that are matched to teens' current interests, experiences and needs. Stewart, Paradis, Ross, and Lewis (1996) found that struggling readers often stop trying, do not read for enjoyment, and as a result fail to gain any further experience or practice with reading. Books must be at various reading levels, so as not to further frustrate students who struggle with reading. Self-selected reading allows time for students to read privately and then conference with their teacher about what they have read. Journal writings can be used for students to reflect on what they have read and to explore self-expression:

> Readers take the written word and construct meaning based on their own thoughts, knowledge, and experiences. When readers interact with the texts they read, reading becomes important. Reading shapes and even changes thinking. Getting readers to think when they read, to develop an awareness of their thinking, and to use strategies that help them comprehend are the primary goals of comprehension instruction (Harvey & Goudvis, 2000, p. 5).

Key components for mathematics instruction include designing meaningful problems which engage students. Students can work with a partner to solve a problem-of-the-day and then share various solutions with the class. Sufficient guided practice is also important. Students need the opportunity to practice and apply in small groups or independently. Students must be taught symbols and terminology. Activities must be structured so that students can experience some success (Roderick & Engel, 2001). Evidence supports the fact that students will respond to strong incentives by taking learning seriously only if they feel like they have a reasonable chance of succeeding.

Strive for Coherence

Change arouses emotions. Uncertainty causes anxiety which can lead to conflict. If channeled correctly, the anxiety can lead to the production of new good ideas. According to Duffy (1996):

> Many times we underestimate the emotional impact that change has on people. Yet it is at the emotional level that people accept or resist change. During the transition from the present to the future, there are seven predictable emotional responses to changes: paralysis, denial, despondency, acceptance, experimenting, searching, and incorporating. Although people do not move cleanly from one phase to the next, generally they experience each phase. Consequently these feelings need to be anticipated by developing contingency plans for responding to these feelings when they are manifested. The people planning and managing the redesign project will have emotional responses, too. They may experience certainty, doubt, hope, confidence, and satisfaction (p. 209).

Fullan (2001) states:

> Effective leaders tolerate enough ambiguity to keep the creative juices flowing, but along the way, they seek coherence. They convey a sense of optimism and an attitude of never giving up in the pursuit of highly valued goals. Their enthusiasm and confidence are infectious (p. 6).

Fullan and Hargreaves, 1998, further state:

> Standards, technology, and curriculum must be accompanied by new relationships between teachers and students. Emotional intelligence adds value to cognitive achievement. Emotional intelligence involves being aware of and able to express emotions, to empathize effectively with the emotional states of others, and to manage and moderate our emotions so they do not consume or overwhelm us. Emotion motivates us to want to learn more and achieve better. For many students, establishing relationships of respect and care is a necessary foundation for intellectual as well as social development (p. 29).

In addition, teachers need interaction with and support from others to avoid becoming exhausted. Schools can connect to the world outside in formal relationships, through the communities, through partnerships and alliances, and through networks. School personnel must look for opportunities to join forces with others and be connected

to the world. Thornburg (2002, p. 34) states that collaboration is important because "by interacting with others, we can often discover new approaches to problems that would have stumped the lone wolf forever." Schlechty (2005) argues that:

> leaders committed to public education need to use every means at their disposal to mobilize the local community on behalf of *better schools*, and they must help the community understand that *better schools* means schools that are radically different from the schools most community members ever attended (p. 214).

CHAPTER 3

METHODOLOGY

Education has a moral purpose to mold students into productive citizens who can live and work in a global society. Work skills for today's world include the ability to think through a problem, develop a solution, examine the results, and continue to make changes until the desired outcome is achieved. These efforts require effective communication and technological skills as well as teamwork. As society continues to change, schools must contend daily with these forces of change. Efforts for successful school reform are no longer being considered in isolation because changes in one aspect require changes in other aspects. Leaders must understand both the process of change and the complexities of adolescence. Because of various social, economic, and ethnic influences, all adolescents do not develop at the same rate of change. Studies show that the adolescent brain is not a fully mature brain. Therefore, schools must develop strategies to ease the transition of students from middle school to high school. Gaffney High School's Academy Program offers several strategies to address the challenge of freshman and sophomore transition. These strategies include extended time in English language arts and mathematics classes, staff development for teachers of extended-time classes, data-driven decision-making, increased use of technology, reading strategies, extra help, and celebrations of success.

Purpose of the Study

The purpose of this study was to examine the impact of the Academy Program on freshman and sophomore attendance, suspensions out-of-school, PLAN and PSAT verbal and mathematics scores, and the number of students retained in ninth and tenth grades.

Subjects

The population under study was taken from the freshman and sophomore classes at Gaffney High School in the school years 2001-2002, 2002-2003, 2003-2004, and 2004-2005. The first two years were before implementation of the Academy Program and the last two years were with implementation of the Academy Program. The freshman class of 2001-2002 consisted of 654 students, with approximately 35 percent African Americans, 63 percent Whites, and 2 percent other nationalities. About 51 percent were males and 49 percent were females. Approximately 48 percent received free/reduced lunch and 52 percent paid full price for lunch. The sophomore class of 2001-2002 consisted of 492 students, of which 35 percent were African Americans, 63 percent were Caucasians, and 2 percent were other nationalities. Approximately 51 percent were males and 49 percent were females. About 42 percent received free/reduced lunch and 58 percent paid full price for lunch. The freshman class of 2002-2003 was made up of 691 students, with 34 percent being African Americans, 63 percent being Caucasians, and 3 percent being other nationalities. About 49 percent were females and 51 percent were males. Approximately 50 percent received free/reduced lunch. In the 2002-2003 sophomore class of 463 students, 32 percent were African Americans, 65 percent were Caucasians, and 3 percent were other nationalities. Approximately 50 percent were females and 50 percent were males. About 41 percent received free/reduced lunch and 59 percent

paid full price for lunch. The freshman class of 2003-2004 was made up of 699 students, with about 38 percent African Americans, 60 percent Caucasians, and 2 percent other nationalities. About 50 percent were females and 50 percent were males. Approximately 56 percent of the class received free/reduced lunch, while 44 percent paid full price. The 2003-2004 sophomore class contained 511 students, with approximately 32 percent African Americans, 64 percent Caucasians, and 4 percent other nationalities. About 52 percent were females and 48 percent were males. Approximately 46 percent received free/reduced lunch and 54 percent paid full price for lunch. The freshman class of 2004-2005 was made up of 698 students, with 35 percent African Americans, 61 percent Caucasians, and 4 percent other nationalities. Approximately 46 percent were females and 54 percent were males. About 59 percent received free/reduced lunch and 41 percent paid full price for lunch. The 2004-2005 sophomore class contained 538 students, with about 35 percent African Americans, 62 percent Caucasians, and 3 percent other nationalities. Approximately 53 percent were females and 47 percent were males. Approximately 46 percent received free/reduced lunch and 54 percent paid full price for meals.

Prior to implementation of the Academy Program, students demonstrating cognitive disabilities were often exempted from taking the high school Exit Exam. Beginning in 2003-2004, the state of South Carolina changed its high school exit exam to the HSAP. Students who meet all five of the participation criteria for alternate assessment take the SC-Alt. The decision about a student's participation in testing is made by the student's IEP team and is documented in the IEP. To document that alternative assessment is appropriate, the IEP team must determine that a student meets all of the following criteria:

1. the student demonstrates a significant cognitive disability and adaptive skills, which result in performance that is substantially below grade-level achievement expectations even with the use of accommodations and modifications;

2. the student accesses the state approved curriculum standards at less complex levels and with extensively modified instruction;

3. the student has current adaptive skills requiring extensive direct instruction and practice in multiple settings to accomplish the application and transfer of skills necessary for application in school, work, home, and community environments;

4. the student is unable to apply or use academic skills across natural settings when instructed solely or primarily through classroom instruction; and

5. the student's inability to achieve the state grade level achievement expectations is not the result of excessive or extended absences or social, cultural, or economic differences.

Similarly, ESOL students were often exempted from taking the exit exam prior to the new HSAP exam. Currently, all ESOL students who are enrolled for the first time in a U.S. school are not required to take the HSAP ELA test if they are determined to be at the lowest levels of English proficiency. They are required to take the HSAP mathematics test.

Measures

Archival data were used; including students' average daily attendance records, students' discipline records, and students' PSAT and PLAN scores. The Elementary and Secondary Education Act of 1994 requires standardized testing in public schools. U.S. Public Law 107-110, known as the No Child Left Behind Act of 2001, ties public school funding to standardized testing. Standardized tests provide assessments that are valid (they measure what they are supposed to measure) and reliable (they consistently measure whatever they are measuring). The PSAT and the PLAN are multiple-choice,

standardized tests administered to help predict success in college. They are norm-referenced tests which measure success by rank ordering students.

Independent and Dependent Variables

The independent variable was implementation of the Academy Program. The dependent variables included students' attendance as determined by students' average daily attendance records, the number of out-of-school suspensions as determined by students' discipline records, academic achievement as determined by PSAT and PLAN scores, and the number of students retained in their grade.

Procedures

Data were analyzed for each hypothesis using an ANOVA. This test determined whether or not there was a statistically significant difference between students' attendance percentages, number of out-of-school suspensions, standardized test scores, and number of students retained. A result which achieves a $p < .05$ alpha level was interpreted as statistically significant. If the ANOVA was significant, pairwise comparisons among means were conducted using Fisher's Least Significant Difference (LSD) method. Two-proportion z-tests were used on the fourth hypothesis to compare the number of freshmen and sophomores retained in grade two years before to two years after implementation of the Academy Program.

CHAPTER 4

STATISTICAL RESULTS

This study sought to determine any statistically significant differences in students' attendance, behavior, and achievement due to implementation of a ninth- and tenth-grade academy program in which the amount of time spent in mathematics and English language arts classes was doubled, staff development was provided, instructional methods were changed, data were analyzed and used to impact instruction, and successes were celebrated. Any statistically significant differences in student attendance percentages, number of discipline suspensions, average PSAT and PLAN verbal, mathematics, and composite scores, and number of students retained in grade prior to and after implementation of the ninth- and tenth-grade academy program are noted. A description of the community and school, the subjects, and the findings of statistical analyses by hypothesis are included in this chapter.

Description of Community and School

Gaffney, located in Cherokee County of upstate South Carolina, is a growing community. Easy access to many of the southeast's major markets is available by way of the Charlotte Douglas Airport, the Greenville-Spartanburg International Airport, and Interstate-85. From the 1940s to the year 2000, because of new businesses and industries that have located in this area, the population of Gaffney has doubled. Approximately 53,000 people currently live in Cherokee County. As reported by the 2000 U.S. Census, 32 percent are African American, 65 percent are Caucasian, and the remaining 3 percent

are comprised of various races with the greatest growth rate among the Hispanic population.

Gaffney High School had its formal beginning in 1924 and continued to be located on that campus until the 2000-2001 school-year when a new 307,397 square-foot facility was built at the current location. Gaffney High School operates on a combination schedule of traditional seven-period day (50-minute periods) with certain classes blocked into 107 minutes all year long.

Description of Subjects

The Gaffney High School freshman and sophomore classes in the years 2001-2002 and 2002-2003 are compared to those in 2003-2004 and 2004-2005. The first two years are before implementation of the academy program and the last two years are with implementation of the academy program. Table 1 gives a demographic breakdown of the freshman and sophomore class for each of the four years.

Statistical Analysis of Hypotheses

Results of the statistical analysis of a ninth- and tenth-grade academy program on student attendance, behavior, and achievement are presented in this section. Analyses of variance are conducted for each hypothesis. The alpha level, or probability of incorrectly rejecting a true null hypothesis (making a Type I error) is set at five percent. If the analysis of variance is significant, Fisher's method of Least Significant Difference (LSD) is applied to further compare means. The number of students retained in grade two years before Academy Program implementation is compared to the number of students retained in grade level two years after implementation using a two-proportion z-test.

Table 1. Demographic Student Information

	Freshman Class			
	2001-2002 654 students	2002-2003 691 students	2003-2004 699 students	2004-2005 698 students
	----------%----------			
African American	35	34	38	35
Caucasian	63	63	60	61
Other	2	3	2	4
Male	51	51	50	54
Female	49	49	50	46
Free/Red Lunch	48	50	56	59
Full Pay Lunch	52	50	44	41
	Sophomore Class			
	2001-2002 492 students	2002-2003 463 students	2003-2004 511 students	2004-2005 538 students
	----------%----------			
African American	35	32	32	35
Caucasian	63	65	64	62
Other	2	3	4	3
Male	51	50	48	47
Female	49	50	52	53
Free/Red Lunch	42	41	46	46
Full Pay Lunch	58	59	54	54

Hypothesis 1

HO_1: The ninth- and tenth-grade students at Gaffney High School will show no significant difference in their attendance percentages prior to and after the academy program implementation.

Each ninth- and tenth-grade student's attendance percentage for 2001-2002, 2002-2003, 2003-2004, and 2004-2005 was recorded in a SASI query. Table 2 shows descriptive statistics of ninth-grade students' average attendance percentage for each school year. A single factor analysis of variance was performed to note any statistically significant differences.

Table 2. Ninth-grade Attendance Statistics, 2001-2004

Groups	Count	Sum	Average	Variance
2001-2002	648	59630.7	92.02	94.97
2002-2003	690	64462.7	93.42	88.11
2003-2004	697	65530.5	94.02	58.47
2004-2005	652	61428	94.21	56.27

As indicated in Table 3, a statistically significant difference exists. Thus, the null hypothesis was rejected. In Table 4, a test of Fisher's LSD shows that attendance percentages in the 2002-2003, 2003-2004, and 2004-2005 school years are higher than those in 2001-2002.

Table 3. ANOVA Test of Ninth-grade Attendance, 2001-2004

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1925.82	3	641.94	8.63	1.06E-05	2.61
Within Groups	199474.1	2683	74.35			
Total	201400	2686				

Table 4. Fisher's LSD Ninth-grade Attendance

Individual 95 percent CIs for Mean Based on Pooled StDev

Level	N	Mean	StDev	------+---------+---------+---------+---
2001-2002	648	92.02	9.75	(-----*------)
2002-2003	690	93.42	9.39	(-----*------)
2003-2004	697	94.02	7.65	(-----*------)
2004-2005	652	94.22	7.50	(-----*------)
				------+---------+---------+---------+---
				92.0 93.0 94.0 95.0

Pooled StDev = 8.622

Fisher 95 percent Individual Confidence Intervals
All Pairwise Comparisons

Simultaneous confidence level = 79.70%

2001-2002 subtracted from:

	Lower	Center	Upper	-+---------+---------+---------+--------
2002-2003	0.48	1.40	2.33	(-----*------)
2003-2004	1.07	2.00	2.92	(-----*-----)
2004-2005	1.25	2.19	3.13	(------*-----)
				-+---------+---------+---------+--------
				-1.5 0.0 1.5 3.0

2002-2003 subtracted from:

	Lower	Center	Upper	-+---------+---------+---------+--------
2003-2004	-0.31	0.59	1.50	(-----*-----)
2004-2005	-0.13	0.79	1.71	(-----*-----)
				-+---------+---------+---------+--------
				-1.5 0.0 1.5 3.0

2003-2004 subtracted from:

	Lower	Center	Upper	-+---------+---------+---------+--------
2004-2005	-0.72	0.20	1.12	(-----*-----)
				-+---------+---------+---------+--------
				-1.5 0.0 1.5 3.0

Similarly, Table 5 shows descriptive statistics on tenth-graders' average attendance percentages for each year. A single factor analysis of variance was performed on tenth-grade attendance percentages in 2001-2002, 2002-2003, 2003-2004, and 2004-2005.

As displayed in Table 6, a statistically significant difference exists among the means. Thus, the null hypothesis was rejected. Attendance percentages for tenth grade students in 2002-2003, 2003-2004, and 2004-2005 are higher than those in 2001-2002. Fisher's LSD (Table 7) indicates that attendance for tenth graders in 2003-2004 and 2004-2005 is significantly higher than tenth-graders' attendance in 2001-2002.

Table 5. Tenth-grade Attendance Statistics, 2001-2004

Groups	Count	Sum	Average	Variance
2001-2002	493	46492.9	94.31	41.56
2002-2003	463	44084.5	95.21	40.11
2003-2004	511	48885.8	95.67	24.26
2004-2005	512	49084.2	95.87	26.80

Table 6. ANOVA Test of Tenth-grade Attendance, 2001-2004

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	722.78	3	240.93	7.32	7.07E-05	2.61
Within Groups	65044.88	1975	32.93			
Total	65767.66	1978				

Table 7. Fisher's LSD Tenth-grade Attendance

One-way ANOVA: 2001-2002, 2002-2003, 2003-2004, 2004-2005

Source	DF	SS	MS	F	P
Factor	3	722.8	240.9	7.32	0.000
Error	1975	65044.9	32.9		
Total	1978	65767.7			

S = 5.739 R-Sq = 1.10 percent R-Sq(adj) = 0.95%

Individual 95 percent CIs for Mean Based on Pooled StDev

Level	N	Mean	StDev	+---------+---------+---------+---------
2001-2002	493	94.31	6.45	(------*------)
2002-2003	463	95.22	6.33	(------*-------)
2003-2004	511	95.67	4.93	(------*------)
2004-2005	512	95.87	5.18	(-------*------)
				+---------+---------+---------+---------
				93.80 94.50 95.20 95.90

Pooled StDev = 5.74

Fisher 95 percent Individual Confidence Intervals
All Pairwise Comparisons

Simultaneous confidence level = 79.72%

2001-2002 subtracted from:

	Lower	Center	Upper	----+---------+---------+---------+-----
2002-2003	0.18	0.91	1.64	(-----*------)
2003-2004	0.65	1.36	2.07	(------*------)
2004-2005	0.85	1.56	2.27	(------*------)
				----+---------+---------+---------+-----
				-1.0 0.0 1.0 2.0

2002-2003 subtracted from:

	Lower	Center	Upper	----+---------+---------+---------+-----
2003-2004	-0.27	0.45	1.17	(-------*------)
2004-2005	-0.07	0.65	1.37	(-------*------)
				----+---------+---------+---------+-----
				-1.0 0.0 1.0 2.0

2003-2004 subtracted from:

	Lower	Center	Upper	----+---------+---------+---------+-----
2004-2005	-0.503	0.201	0.904	(------*------)
				----+---------+---------+---------+-----
				-1.0 0.0 1.0 2.0

Hypothesis 2

HO_2: The ninth- and tenth-grade students at Gaffney High School will show no significant difference in their number of out-of-school discipline suspensions prior to and after the academy implementation.

Discipline reports were used to compile a list of all students receiving out-of-school suspension. Table 8 shows descriptive statistics for out-of-school suspensions for ninth graders. An analysis of variance was performed on the average number of out-of-school suspensions for ninth-graders in each of the four years. As indicated in Table 9, a statistically significant difference does exist among the means.

Table 8. Ninth-grade Out-of-school Suspensions Statistics

Groups	Count	Sum	Average	Variance
2001-2002	262	788	3.01	5.71
2002-2003	210	582	2.77	5.16
2003-2004	247	790	3.20	5.91
2004-2005	246	576	2.34	3.65

Table 9. ANOVA on Ninth-grade Out-of-school Suspensions

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	101.19	3	33.73	6.59	0.000207	2.61
Within Groups	4917.61	961	5.12			
Total	5018.80	964				

Fisher's LSD (Table 10) indicates that the number of out-of-school suspensions in 2004-2005 is significantly lower than the number of out-of-school suspensions in 2001-2002 and in 2003-2004.

Table 10. Fisher's LSD Ninth-grade Out-of-school Suspensions

One-way ANOVA: C1, C2, C3, C4

Source	DF	SS	MS	F	P
Factor	3	101.19	33.73	6.59	0.000
Error	961	4917.61	5.12		
Total	964	5018.80			

S = 2.262 R-Sq = 2.02 percent R-Sq(adj) = 1.71%

Individual 95 percent CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev	---------+---------+---------+---------
2001-2002	262	3.01	2.39	(------*------)
2002-2003	210	2.77	2.27	(------*-------)
2003-2004	247	3.20	2.43	(------*------)
2004-2005	246	2.34	1.91	(-------*------)

---------+---------+---------+---------+
2.40 2.80 3.20 3.60

Pooled StDev = 2.26

Table 11 shows descriptive statistics for tenth graders' out-of-school suspensions. An analysis of variance was performed and Table 12 shows that there was no statistically significant difference among means over the four-year period of time.

Table 11. Tenth-grade Out-of-school Suspensions Statistics

SUMMARY Groups	Count	Sum	**Average**	Variance
2001-2002	136	273	**2.01**	2.19
2002-2003	114	221	**1.94**	2.16
2003-2004	102	204	**2**	2.63
2004-2005	89	159	**1.79**	1.72

Table 12. ANOVA on Tenth-grade Out-of-school Suspensions

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.08	3	1.03	0.47	0.70	2.63
Within Groups	956.51	437	2.19			
Total	959.58	440				

Hypothesis 3

HO_3: The ninth- and tenth-grade students at Gaffney High School will show no statistically significant difference in their average PSAT and PLAN verbal and mathematics scores prior to and after the academy program implementation.

Figure 1 shows the percent of students from each middle school who scored Below Basic on their eighth-grade verbal and mathematics PACT scores. Of the more than 500 eighth-grade students tested by the Palmetto Achievement Challenge Test (PACT) in the spring of 2001, 41 percent had verbal scores that were Below Basic and 48 percent scored Below Basic in mathematics. In the spring 2002 eighth-grade PACT results, 38 percent of the verbal scores were Below Basic and 44 percent of the mathematics scores

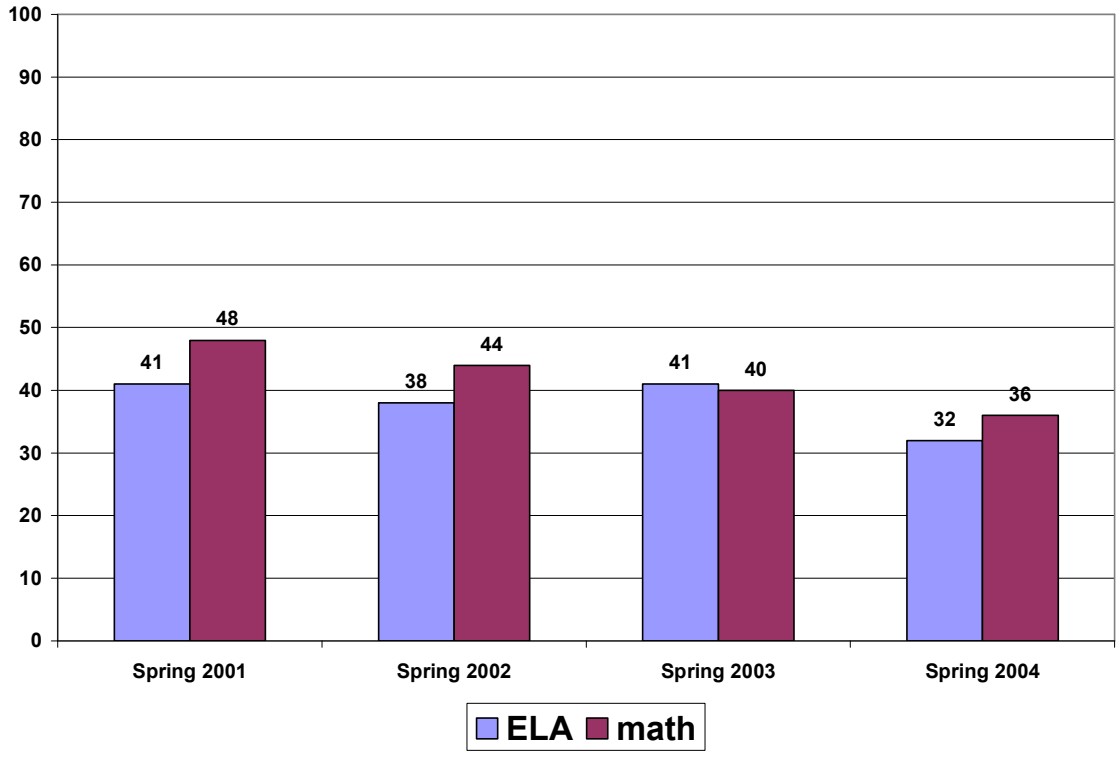


Figure 1. Percent of Students Scoring Below Basic on Eighth-grade PACT

were Below Basic. In the spring of 2003, more than 550 eighth-graders were tested by the PACT. Of these, 41 percent of the verbal scores were Below Basic and 40 percent scored Below Basic in mathematics. In the spring of 2004, 32 percent of the eighth-grade students scored Below Basic on the verbal portion of the test and 36 percent scored Below Basic in mathematics.

Table 13 shows descriptive statistics on ninth graders' PLAN reading scores. An analysis of variance on the average ninth-grade PLAN reading score (Table 14) shows no statistically significant difference between reading scores in 2001-2002, 2002-2003, 2003-2004, and 2004-2005. Table 15 shows descriptive statistics on ninth-grade students

Table 13. Descriptive Statistics on Ninth-grade PLAN Reading Scores

Groups	Count	Sum	Average	Variance
2001-2002	515	6709	13.03	13.05
2002-2003	555	7442	13.41	14.06
2003-2004	586	7705	13.15	13.86
2004-2005	567	7422	13.09	14.41

Table 14. ANOVA on Average Ninth-grade PLAN Reading Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	46.11	3	15.37	1.11	0.34	2.61
Within Groups	30758.27	2219	13.86			
Total	30804.38	2222				

Table 15. Descriptive Statistics on Ninth-grade PLAN Mathematics Scores

Groups	Count	Sum	Average	Variance
2001-2002	514	7096	13.81	13.39
2002-2003	556	8015	14.42	16.42
2003-2004	586	8333	14.22	13.73
2004-2005	569	8089	14.22	17.09

PLAN mathematics scores. An analysis of variance on the average PLAN mathematics score for ninth-grade students (Table 16) shows a P-value of 0.076 which is not a statistically significant difference. Table 17 shows descriptive statistics on the PLAN reading scores for tenth-grade students.

Table 16. ANOVA on Average Ninth-grade PLAN Mathematics Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	104.49	3	34.83	2.29	0.07606	2.61
Within Groups	33720.59	2221	15.18			
Total	33825.07	2224				

Table 17. Descriptive Statistics on Tenth-grade PLAN Reading Scores

Groups	Count	Sum	Average	Variance
2001-2002	399	5604	14.05	19.74
2002-2003	358	5267	14.71	17.52
2003-2004	425	6034	14.20	20.47
2004-2005	462	6714	14.53	18.81

An analysis of variance on the average tenth-grade PLAN reading score (Table 18) shows no statistically significant difference between reading scores in 2001-2002, 2002-2003, 2003-2004, and 2004-2005.

Table 19 shows descriptive statistics on tenth-graders' PLAN mathematics scores. An analysis of variance on the average PLAN mathematics score for tenth-grade students

Table 18. ANOVA on Average Tenth-grade PLAN Reading Scores

ANO VA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	108.86	3	36.29	1.89	0.13	2.61
Within Groups	31460.96	1640	19.18			
Total	31569.83	1643				

Table 19. Descriptive Statistics on Tenth-grade PLAN Mathematics Scores

Groups	Count	Sum	Average	Variance
2001-2002	399	5849	14.66	20.02
2002-2003	357	5687	15.93	15.51
2003-2004	425	6750	15.88	21.27
2004-2005	463	7216	15.59	15.72

(Table 20) shows a statistically significant difference among the means. A test of Fisher's LSD (Table 21) shows that the average PLAN math score for tenth-grade students in 2002-2003, 2003-2004, and 2004-2005 is significantly higher than the average PLAN math score for tenth-grade students in 2001-2002.

Table 20. ANOVA on Average Tenth-grade PLAN Mathematics Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	413.37	3	137.79	7.59	4.84343E-05	2.61
Within Groups	29771.39	1640	18.15			
Total	30184.76	1643				

Table 21. Fisher's LSD Tenth-grade PLAN Mathematics Scores

One-way ANOVA: 2001-2002, 2002-2003, 2003-2004, 2004-2005

```
Source    DF      SS     MS     F      P
Factor     3   411.3  137.1  7.57  0.000
Error   1644  29790.6   18.1
Total   1647  30201.9

S = 4.257   R-Sq = 1.36 percent   R-Sq(adj) = 1.18%

                                Individual 95 percent CIs For Mean Based on
                                Pooled StDev
Level          N    Mean  StDev ---+---------+---------+---------+------
2001-2002    400   14.66  4.47     (------*------)
2002-2003    358   15.92  3.94                       (------*-------)
2003-2004    426   15.88  4.61                      (------*-----)
2004-2005    464   15.58  3.96                   (------*-----)
                               ---+---------+---------+---------+------
                                14.40     15.00     15.60     16.20

Pooled tDev = 4.26

Fisher 95 percent Individual Confidence Intervals
All Pairwise Comparisons

Simultaneous confidence level = 79.72%

2001-2002 subtracted from:

             Lower  Center  Upper  --+---------+---------+---------+-------
2002-2003  0.66   1.26  1.87                    (-------*------)
2003-2004  0.64   1.22  1.80                    (------*-------)
2004-2005  0.35   0.92  1.49                 (-------*------)
                              --+---------+---------+---------+-------
                             -0.80       0.00       0.80       1.60

2002-2003 subtracted from:

             Lower  Center  Upper  --+---------+---------+---------+-------
2003-2004  -0.64  -0.04   0.56          (------*-------)
2004-2005  -0.93  -0.34   0.25        (-------*------)
                              --+---------+---------+---------+-------
                             -0.80       0.00       0.80       1.60

2003-2004 subtracted from:

             Lower  Center  Upper  --+---------+---------+---------+-------
2004-2005  -0.86  -0.30   0.26     (------*------)
                              --+---------+---------+---------+-------
                             -0.80       0.00       0.80       1.60
```

Table 22 shows descriptive statistics on ninth-graders' PSAT verbal score. An analysis of variance on the average ninth-grade PSAT verbal score (Table 23) shows no statistically significant difference between verbal scores in 2001-2002, 2002-2003, 2003-2004, and 2004-2005.

Table 22. Descriptive Statistics on Ninth-grade PSAT Verbal Scores

Groups	Count	Sum	Average	Variance
2001-2002	518	17108	33.03	71.54
2002-2003	576	18712	32.49	74.61
2003-2004	603	19655	32.60	62.93
2004-2005	584	18634	31.91	72.36

Table 23. ANOVA on Average Ninth-grade PSAT Verbal Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	354.22	3	118.07	1.68	**0.17**	2.61
Within Groups	159947.8	2277	70.24			
Total	160302	2280				

Table 24 shows descriptive statistics on ninth-grade PSAT mathematics scores. An analysis of variance on the ninth-grade average PSAT mathematics score (Table 25) shows no statistically significant difference among 2001-2002, 2002-2003, 2003-2004, and 2004-2005.

Table 24. Descriptive Statistics on Ninth-grade PSAT Mathematics Scores

Groups	Count	Sum	Average	Variance
2001-2002	518	18062	34.87	67.33
2002-2003	576	20433	35.47	95.05
2003-2004	602	21042	34.95	77.29
2004-2005	584	20752	35.53	85.62

Table 25. ANOVA on Average Ninth-grade PSAT Mathematics Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	201.43	3	67.14	0.82	**0.48**	2.61
Within Groups	185828.7	2276	81.65			
Total	186030.1	2279				

Table 26 shows descriptive statistics on tenth-grade PSAT verbal scores. An analysis of variance on tenth-grade PSAT verbal scores (Table 27) shows no statistically significant difference among 2001-2002, 2002-2003, 2003-2004, and 2004-2005.

Table 26. Descriptive Statistics on Tenth-grade PSAT Verbal Scores

Groups	Count	Sum	Average	Variance
2001-2002	406	14864	36.61	82.61
2002-2003	362	12804	35.37	92.61
2003-2004	448	16037	35.80	67.88
2004-2005	473	16752	35.42	88.67

Table 27. ANOVA on Average Tenth-grade PSAT Verbal Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	403.33	3	134.44	1.63	**0.18**	2.61
Within Groups	139084.4	1685	82.54			
Total	139487.7	1688				

Table 28 shows descriptive statistics on tenth-grade PSAT mathematics scores. An analysis of variance on tenth-grade PSAT math scores (Table 29) shows no statistically significant difference among the four years of study.

Table 28. Descriptive Statistics on Tenth-grade PSAT Mathematics Scores

Groups	Count	Sum	Average	Variance
2001-2002	410	15161	36.98	100.68
2002-2003	366	13763	37.60	105.50
2003-2004	452	17194	38.04	82.17
2004-2005	477	18460	38.70	102.39

Table 29. ANOVA on Average Tenth-grade PSAT Mathematics Scores

ANOVA Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	693.87	3	231.29	2.38	**0.068187**	2.61
Within Groups	165483.8	1701	97.29			
Total	166177.6	1704				

Hypothesis 4

HO_4: The ninth- and tenth-grade students at Gaffney High School will show no significant difference in number of students retained prior to and after implementation of the Academy Program.

A SASI query was used to find the number of students retained in grade for each of the four years. Table 30 shows the results of the two-proportion z-test for the number of students retained in the ninth grade during the two years just prior to implementation of the Academy Program to two years after implementation of the Academy Program. No statistically significant difference exists between the number of ninth-graders retained in grade before the Academy Program as compared to the number of freshmen retained in grade after the Academy Program was implemented.

Table 30. Two-proportion Z-test on Number of Ninth-grade Students Retained in Grade

Test and CI for Two Proportions

Sample	X	N	Sample p
1	244	1390	0.175540
2	271	1341	0.202088

Difference = p (1) - p (2)
Estimate for difference: -0.0265484
95 percent CI for difference: (-0.0559063, 0.00280945)
Test for difference = 0 (vs not = 0): Z = -1.77 **P-Value = 0.076**

Table 31 shows the results of the two-proportion z-test for the number of students retained in the tenth grade two years prior to and two years after implementation of the Academy Program. Results show a statistically significant decrease in the number of sophomores retained in grade after the Academy Program was implemented.

Table 31. Two-proportion Z-test on Number of Tenth-grade Students Retained in Grade

Test and CI for Two Proportions

Sample	X	N	Sample p
1	92	974	0.094456
2	63	1067	0.059044

Difference = p (1) - p (2)
Estimate for difference: 0.0354118
95 percent CI for difference: (0.0122306, 0.0585930)
Test for difference = 0 (vs not = 0): Z = 2.99 **P-Value = 0.003**

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Over the past 50 years, high expectations for continuous improvement in education have taken a prominent place in the political world and in the news. Theories about high school reform in the United States are widespread. Demands for change placed on educators today are fast-paced and immense. Demographic changes in society and technological advances add to the complexity. Educators realize the need for change and are constantly seeking a roadmap for school change that will lead all students to graduate and prepare them for postsecondary opportunities. A ninth- and tenth-grade Academy Program was the method chosen by Gaffney High School to meet this challenge. Trial and error, with constant assessment of what is working and what is not working, provides direction for instructional practices. This study examined the effectiveness of the Academy Program on ninth- and tenth-grade students' attendance, discipline, and achievement as well as the number of students retained in grade..

The study emerged from the basic constructs of educational change theory, including how both change and the change process affect the outcomes and those involved. This led to an examination of the literature on adolescent development, effective transition strategies from middle school to high school, flexible scheduling, and innovative practices designed for student achievement. The implementation of an academy program at Gaffney High School was a result of the dissatisfaction with the number of students graduating from high school four years after entering as freshmen. In addition,

standardized test scores at the sophomore grade-level were not meeting expectations. Thought was given to present conditions, future consequences, and desired outcomes. The leaders of Cherokee County School District Number One recognized a need for change. Vital to implementation of the change was buy-in from school board members, faculty, and community. Leaders built relationships to effectively connect with others within and beyond the school. Superintendent of Cherokee County School District Number One, Dr. William B. James, presented the idea of the Academy Program to Dr. Quincie L. Moore, principal of Gaffney High School. With her input, he presented the idea to the school board members and gained their support. Dr. James informed local news media and spoke in several churches before the program was implemented. Dr. Moore presented the idea to the faculty of Gaffney High School and sought those who wanted to be involved. Strategies offered by Gaffney High School's Academy Program included extended time in English language arts and mathematics classes, staff development for teachers of extended-time classes, data-driven decision-making, increased use of technology, reading and writing strategies across content, extra help, and celebration of successes. If change was to be effective, the leaders had to understand not only the complexities of change but also the complexities of adolescence. Adolescents develop physically, intellectually, and morally in stages, and students need help making a successful transition into adolescence. Leaders committed themselves to constantly generating and increasing knowledge inside and outside the organization. The literature on adolescent development, scheduling, use of data to drive instructional practices, and celebration of successes were identified as ways to address concerns. Staff development, classroom libraries, and classroom sets of graphing calculators were purchased for those involved.

As the program was implemented, teachers became comfortable with the new schedule and with the new instructional methods. Small successes began to occur and they were celebrated.

Early results show the Academy Program to be successful in several areas (see figures in the appendix). The first area of concern was in the average attendance percentage prior to and after implementation of the Academy Program. The average attendance percentage for ninth-grade students increased each year from 92.1 percent in 2001-2002 to 93.6 percent in 2002-2003 to 94.1 percent in 2003-2004 to 94.3 percent in 2004-2005. The average attendance percentage for tenth-grade students increased each year from 94.4 percent in 2001-2002 to 95.4 percent in 2002-2003 to 95.7 percent in 2003-2004 to 95.9 percent in 2004-2005. The null hypothesis stated that the ninth- and tenth-grade students at Gaffney High School would show no significant difference in their attendance percentage prior to and after implementation of the Academy Program. The null hypothesis was rejected. Attendance percentages for ninth-grade students were statistically higher in 2002-2003, 2003-2004, and 2004-2005 than those in 2001-2002. Attendance percentages for tenth grade students in 2003-2004 and 2004-2005 were significantly higher than those in 2001-2002. Possible reasons for the increase in students' attendance percentages after implementation of the Academy Program include more time and interaction with teachers to build relationships, a less stressful instructional climate, and a more personalized learning environment, creating a sense of belonging.

The average number of out-of-school suspensions was another area of concern. Two changes occurred in the discipline code policy during this study. In 2001-2002, 2003-2004, and 2004-2005, students were suspended if they did not wear their IDs. In

the 2002-2003 school-year, students were not suspended for this infraction. A change also occurred in the tardy policy. In 2004-2005, the tardy policy became stricter, resulting in more out-of-school suspensions. For this study, out-of-school suspensions for tardies and for not wearing IDs were disregarded for the four years. The null hypothesis stated that ninth- and tenth-grade students at Gaffney High School would show no significant difference in the number of out-of-school discipline suspensions prior to and after implementation of the Academy Program. The null hypothesis was rejected for ninth-graders and accepted for tenth-graders. The number of out-of-school suspensions for ninth-grade students in 2004-2005, the second year of Academy Program implementation, was significantly lower than the number of suspensions in 2001-2002 and 2003-2004. Possible reasons for fewer out-of-school suspensions include less time in congested hallways due to fewer class changes and more attention from teachers.

Tenth-grade students received fewer out-of-school suspensions than ninth-grade students. The number of out-of-school suspensions for tenth-graders decreased over each of the four years in the study, but there was no statistically significant decrease among means. As students mature and are promoted to the next grade, they typically receive fewer out-of-school suspensions.

The third area of concern was student achievement prior to and after implementation of the ninth- and tenth-grade Academy Program. Three middle schools feed Gaffney High School. An analysis of the eighth-grade PACT scores from these three schools two years prior to implementation of the Gaffney High Academy Program revealed that approximately 40 percent of the eighth-grade students scored Below Basic verbally and 46 percent scored Below Basic mathematically. At the completion of the tenth-grade

year, these students took an Exit Exam. In the spring of 2004, after one year in the Academy Program as tenth-graders, 20 percent scored Below Basic on the English language arts portion of the Exit Exam and 26 percent scored Below Basic on math. In the spring of 2006, after two years in the Academy Program, 18 percent of the tenth graders scored Below Basic on the English language arts portion of the Exit Exam and 19 percent scored Below Basic on math. The null hypothesis stated that the ninth- and tenth-grade students at Gaffney High School would show no significant difference in the average PLAN and PSAT verbal and math scores prior to and after implementation of the Academy Program. The null hypothesis was rejected. PLAN mathematics scores for tenth-graders in 2002-2003, 2003-2004, and 2004-2005 were significantly higher than those in 2001-2002. Although there was no statistically significant difference among tenth-grade PSAT math scores over the four years, a steady increase did occur as scores rose from an average of 36.9 to 37.6 to 38.0 to 38.7. Results were expected to show that the Academy Program is more effective for tenth-grade students than for ninth-grade students because both PSAT and PLAN are given to all ninth- and tenth-graders at Gaffney High School during the month of October. Freshmen would have only participated in the Academy Program for approximately two months when they take these tests, whereas sophomores would have benefited from the Academy their entire freshman year and two months of their sophomore year. Possible reasons for increased math scores include longer instructional time, individualized remediation, and a less stressful learning environment. Advancements in math may be easier to achieve than advancements in verbal scores due to the sequential nature of mathematics versus the divergent thinking required to analyze and comprehend reading passages.

Because the test required for high school graduation changed from the Exit Exam to the HSAP during the study, an analysis of variance was not conducted on Exit Exam and HSAP scores. However, prior to implementation of the Academy Program, the percentage of students meeting standard for all parts of the test (reading, math, and writing) on the Exit Exam at Gaffney High School was 53.8 percent in 2001-2002 and 60.8 percent in 2002-2003. After implementation of the Academy Program, the percent of students meeting standard for both English language arts and mathematics on HSAP at Gaffney High School increased to 74 percent in 2003-2004 and 67.7 percent in 2004-2005. Even with inclusion of ninth-grade repeaters in 2004-2005, the percentage of students meeting standard was higher than it had been without ninth-grade repeaters before implementation of the Academy Program.

The fourth area of concern was the number of students retained in grade. The null hypothesis stated that the ninth- and tenth-grade students at Gaffney High School will show no significant difference in number of students retained prior to and after implementation of the Academy Program. The null hypothesis was rejected. The two-proportion z-test showed a statistically significant decrease in the number of sophomores retained in grade after Academy Program implementation. Students in the Academy Program for two years were less likely to be retained in grade because they acquired skills that enabled them to be successful across the curriculum.

Further study on the Academy Program needs to be completed before any strong conclusions can be drawn. The state of South Carolina has an accountability system which shows the progress that schools are making against the 2010 goal of having achievement ranked in the top half of states nationally. The school report card provides

this information to the school and community. In 2000-2001, the first year of school report cards, the absolute rating for Gaffney High School was below average. In 2001-2002, the absolute rating rose to average and in 2002-2003 it rose to good. Since implementation of the Academy Program, the absolute rating has gone from average in 2003-2004 to good in 2004-2005. Also, one high school is chosen each year in the state of South Carolina as the Carolina First Palmetto's Finest high school. Gaffney High was the recipient of this award in the 2005-2006 school-year.

Educational reform calls for comprehensive and systemic change. Based on the results of this study, several key factors played an important role in changing the culture of Gaffney High School. Expectations were raised as teachers learned to vary instructional strategies through numerous staff development opportunities. A positive impact was made when teachers had time to teach, re-teach, give individualized help, and build relationships with students. It made a difference to set goals, challenge students to beat the accomplishments from each of the previous years, and then to celebrate and reward successes as they were attained. The Academy Program has been successful at promoting an expectation of improvement and excellence with each passing year.

Further research could be conducted in the area of student achievement using HSAP scores and Measures of Academic Progress (MAP) scores from recent years. The graduation rates of participants in the Academy Program could also be analyzed. Focus group interviews could be conducted to study the opinions and attitudes of students, teachers, and parents of those involved in the Academy Program. This Academy Program would benefit other schools seeking to remedy academic and performance issues with ninth- and tenth-grade students.

The Academy Program implemented at Gaffney High School has advanced success in the areas of student attendance, discipline and achievement which should lead to future gains in post-secondary studies or work-related experiences. Schools must pursue sustained positive growth in order to create productive and responsible citizens in an ever-changing society.

APPENDIX

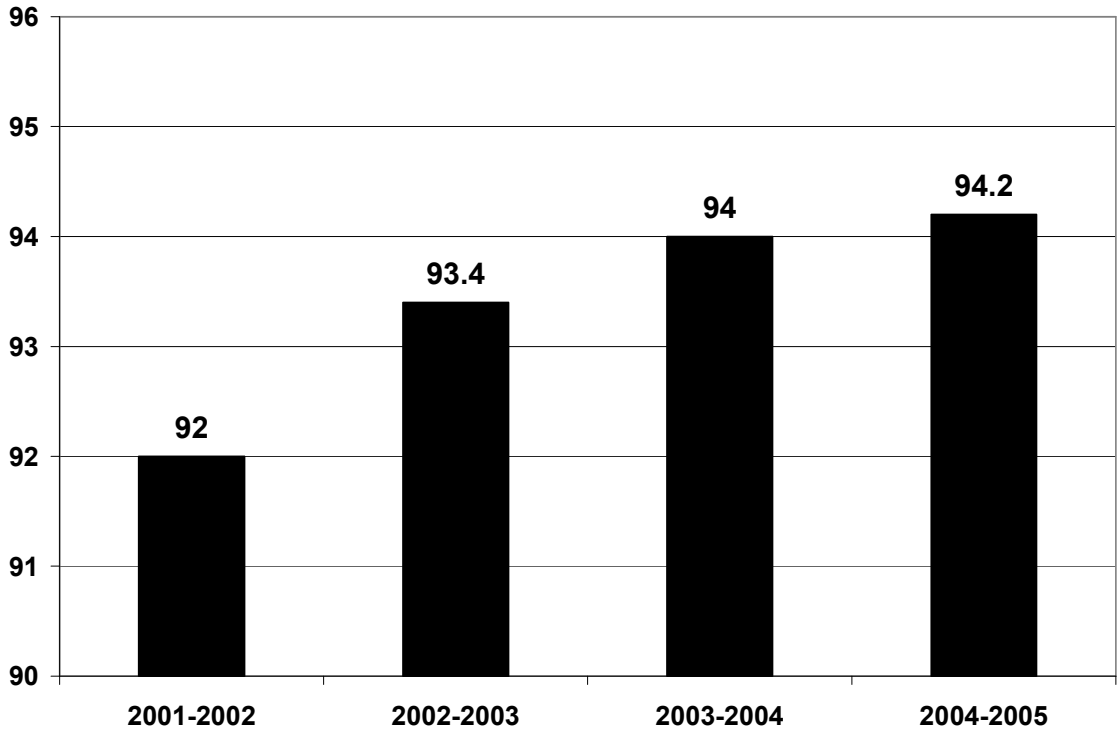


Figure A-1. Ninth-grade Attendance Percentages

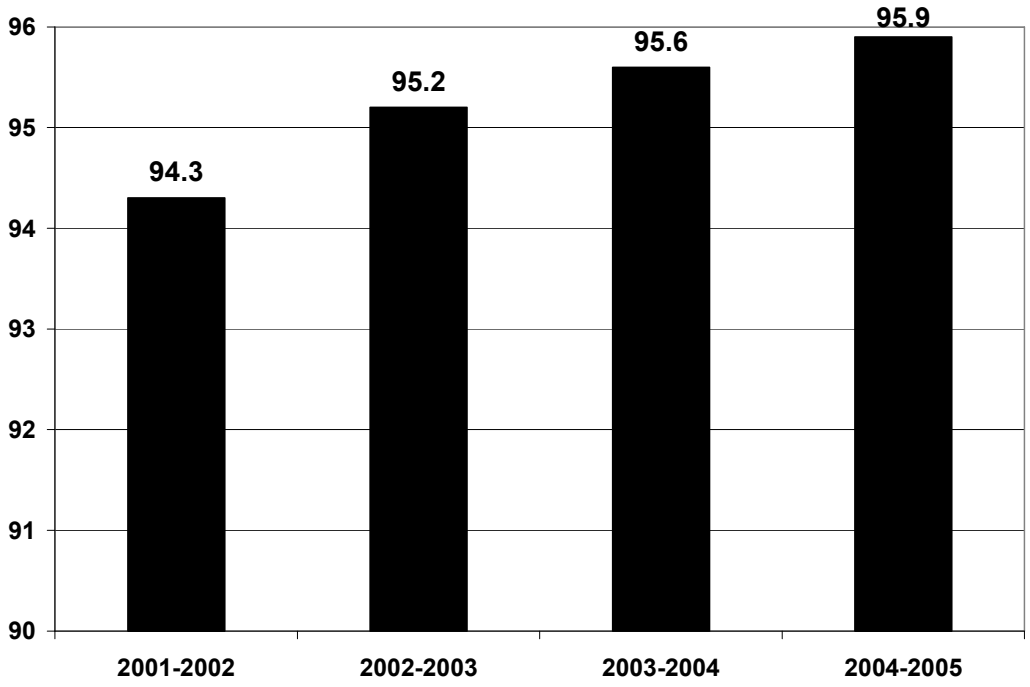


Figure A-2. Tenth-grade Attendance Percentages

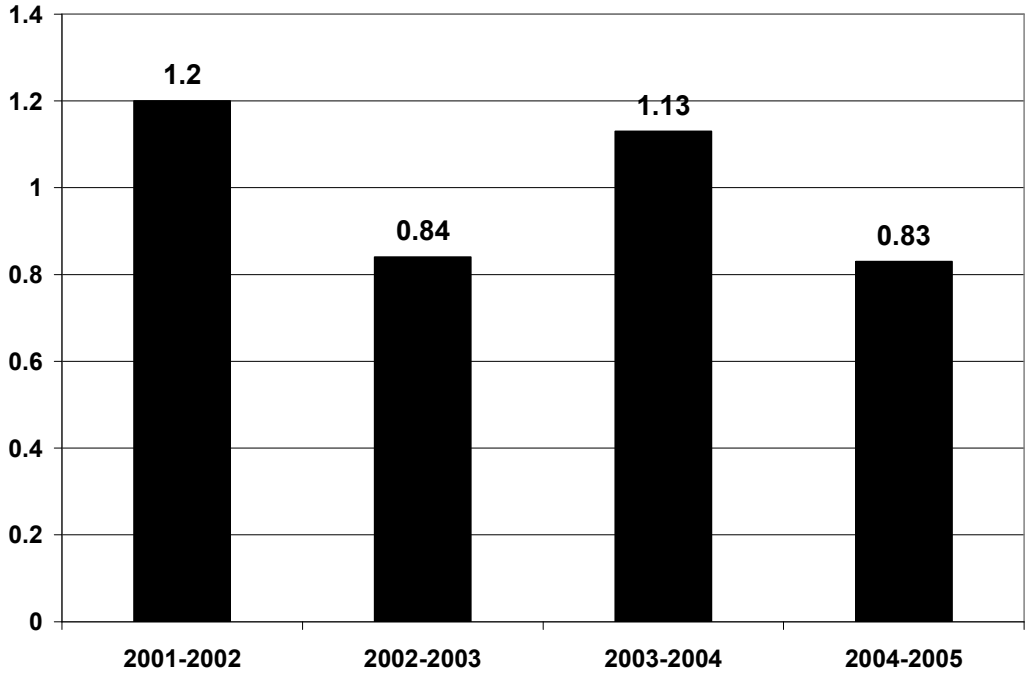


Figure A-3. Average Number of Out-of-school Suspensions Per Ninth-grade Student

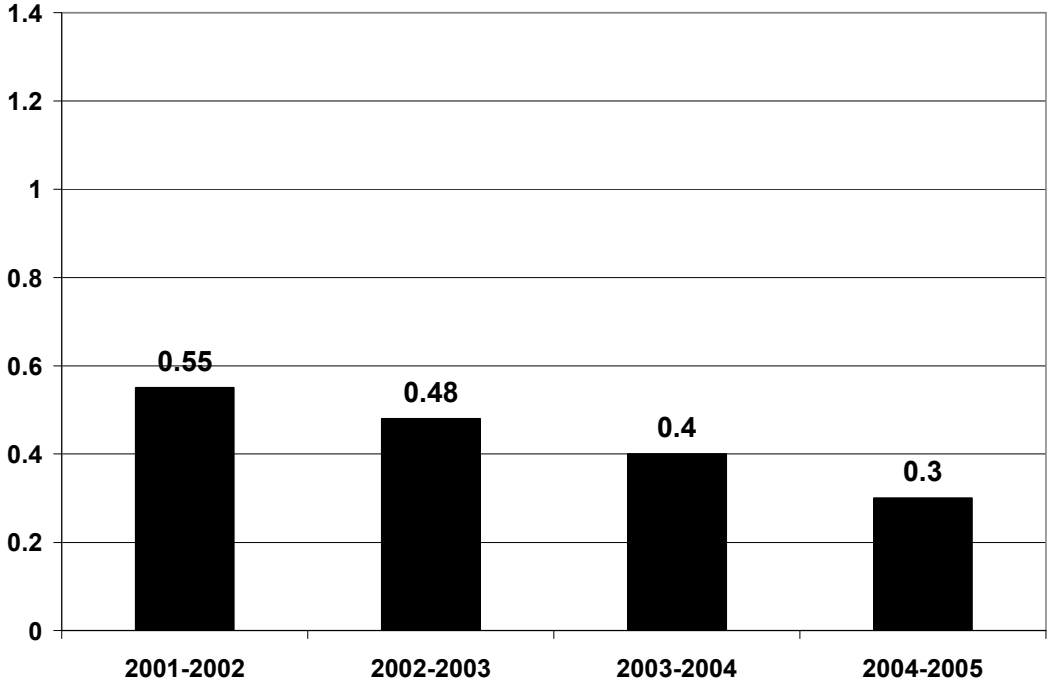


Figure A-4. Average Number of Out-of-school Suspensions Per Tenth-grade Student

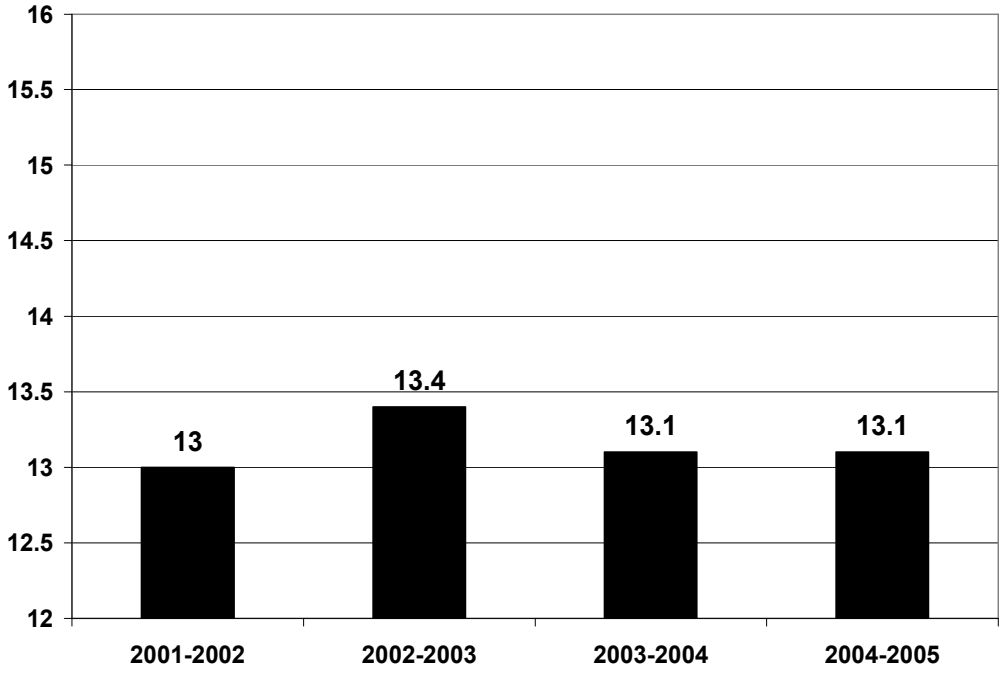


Figure A-5. Average Ninth-grade PLAN Reading Score

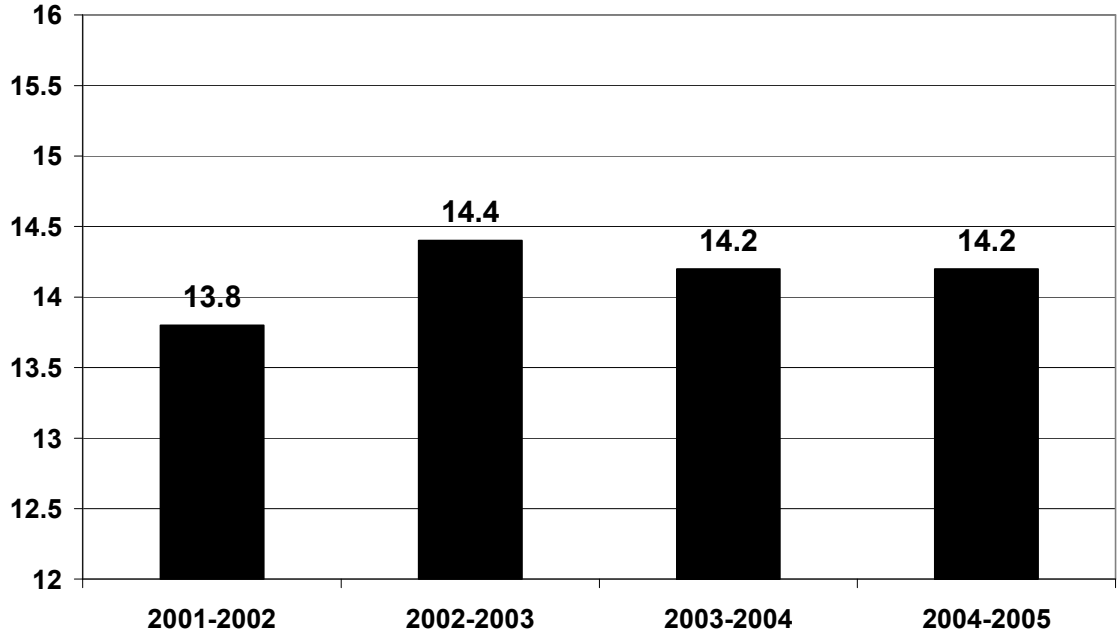


Figure A-6. Average Ninth-grade PLAN Math Score

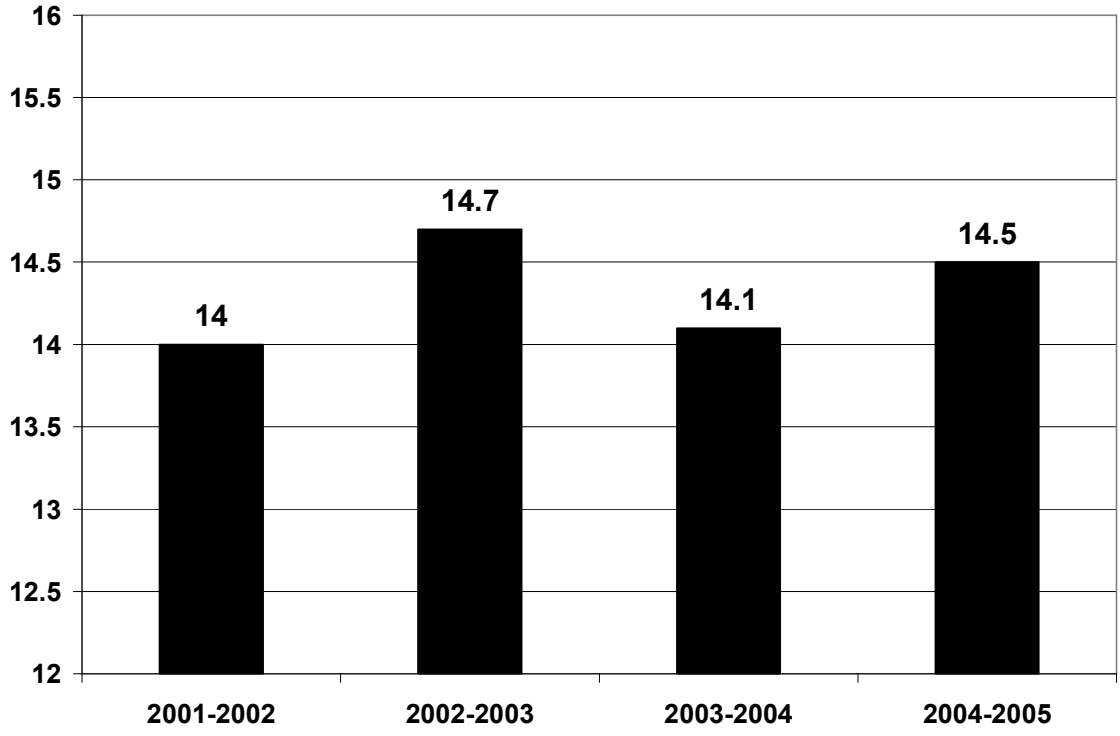


Figure A-7. Average Tenth-grade PLAN Reading Score

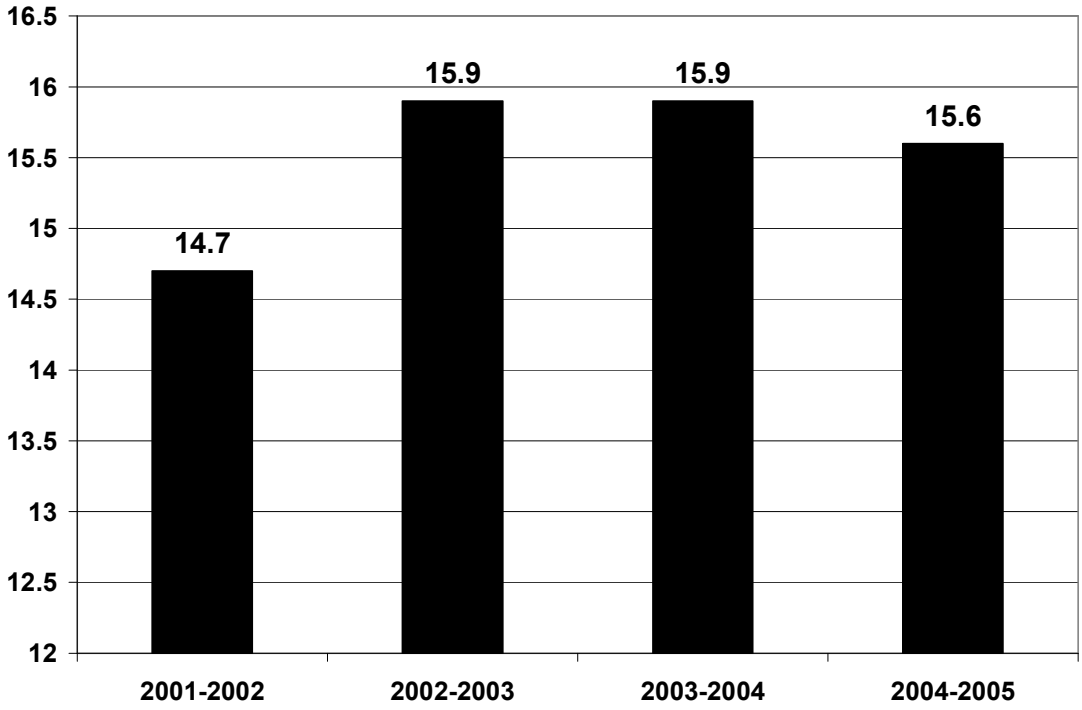


Figure A-8. Average Tenth-grade PLAN Math Score

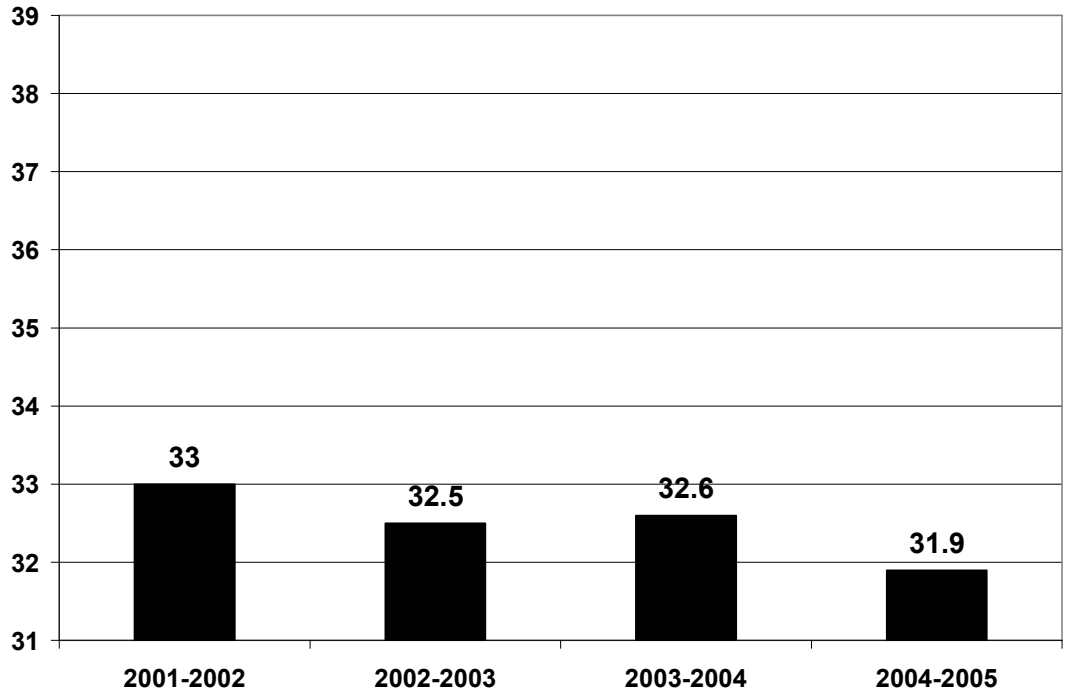
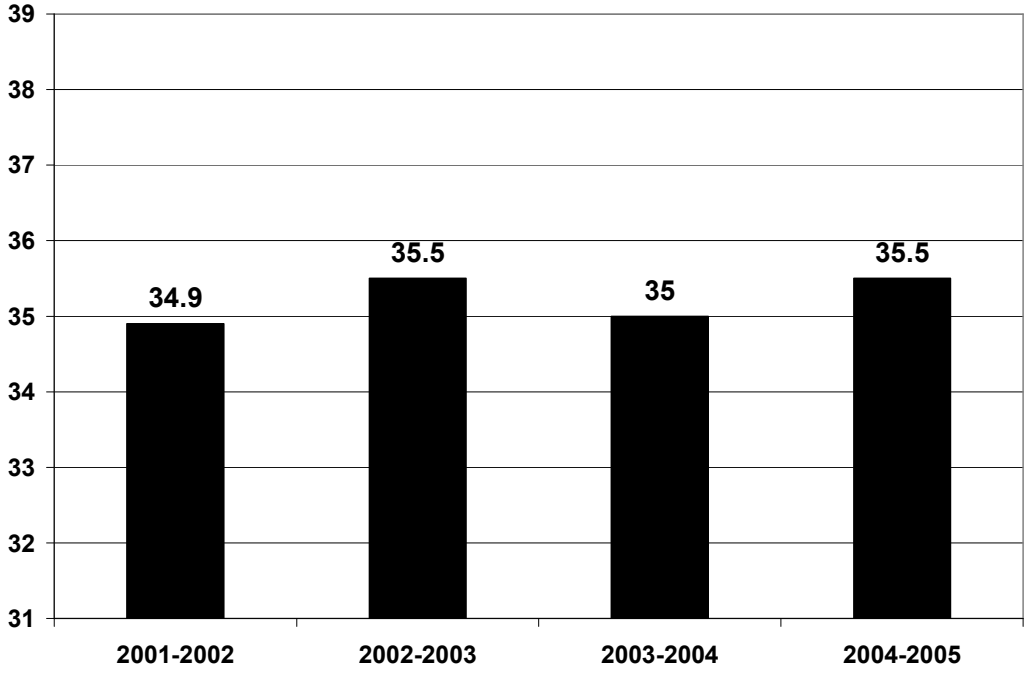


Figure A-9. Average Ninth-grade PSAT Verbal Score



A-10. Average Ninth-grade PSAT Math Score

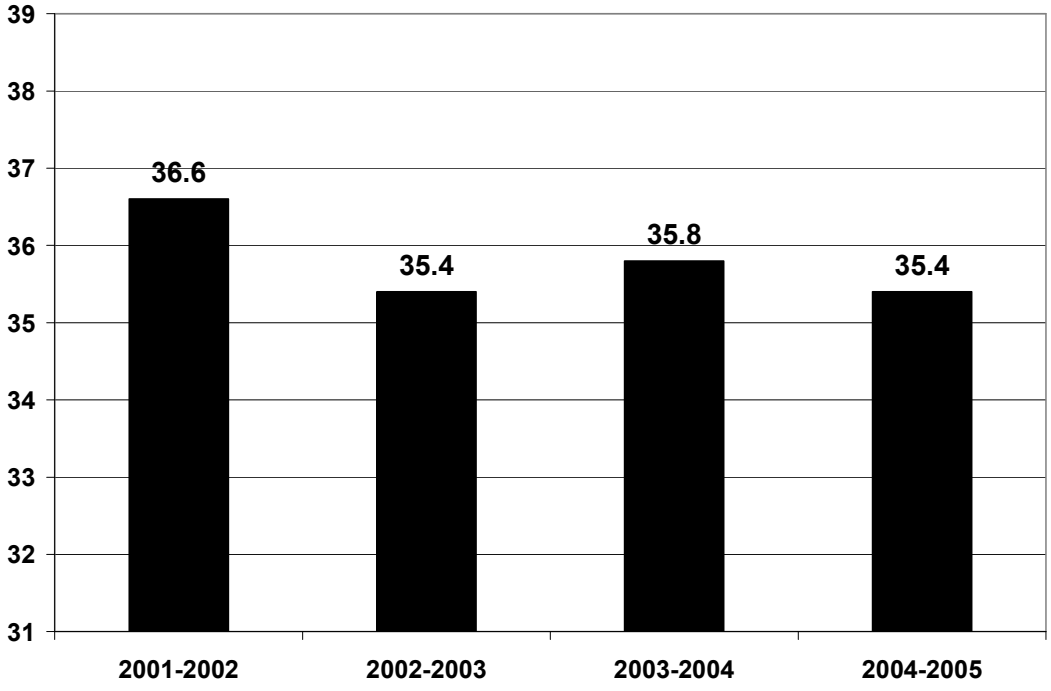


Figure A-11. Average Tenth-grade PSAT Verbal Score

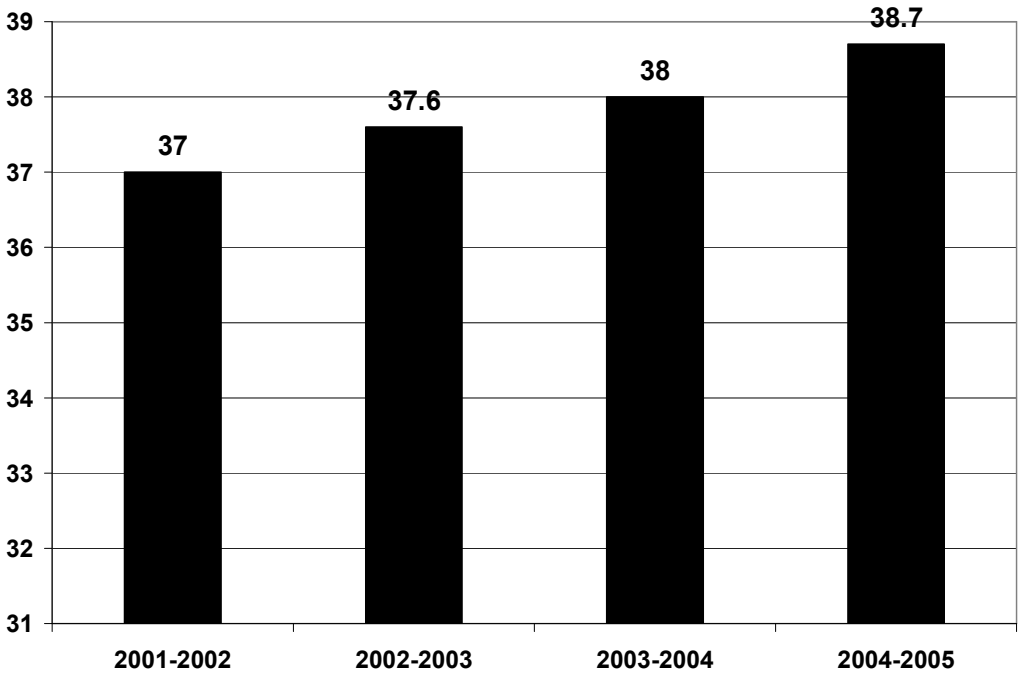


Figure A-12. Average Tenth-grade PSAT Math Score

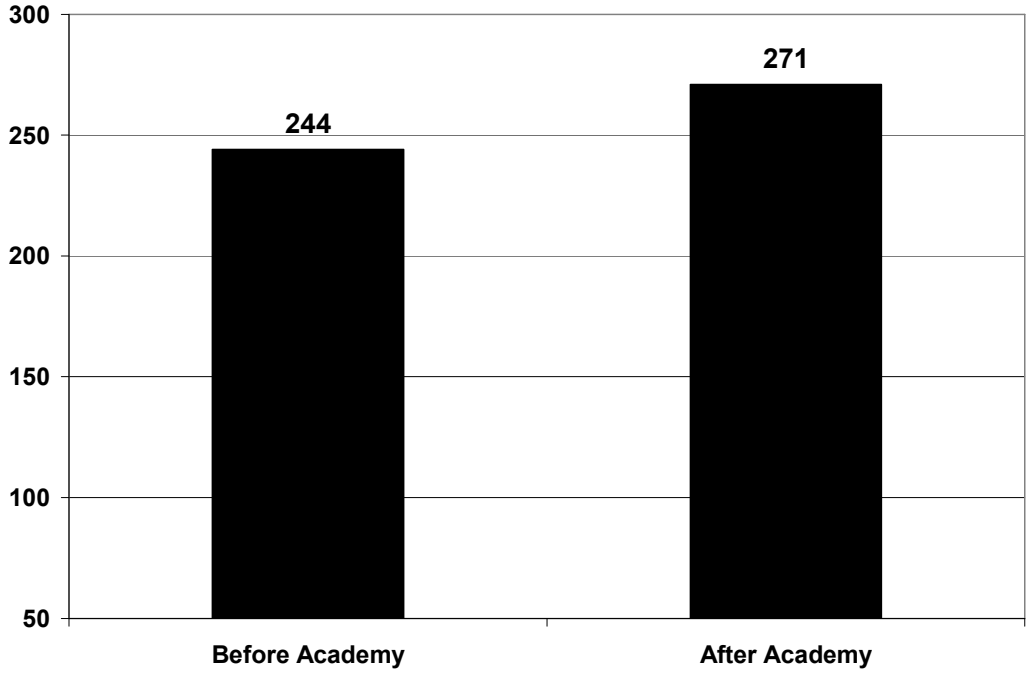


Figure A-13. Number of Ninth-grade Students Retained in Grade

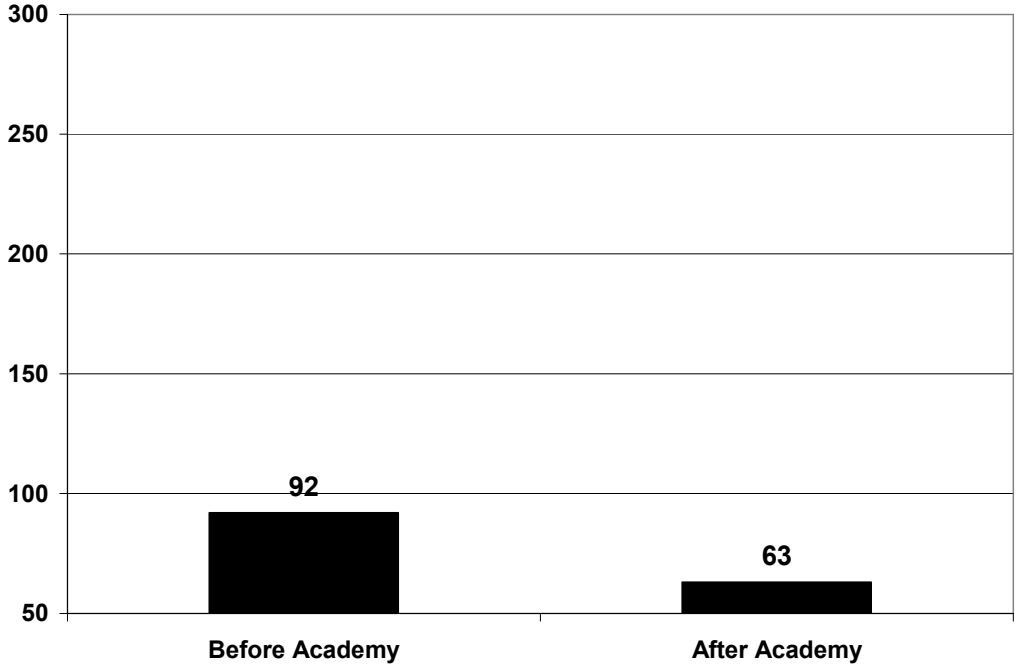


Figure A-14. Number of Tenth-grade Students Retained in Grade

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