THE INFLUENCE OF TEACH FOR AMERICA ON ALGEBRA I STUDENT ACHIEVEMENT

by

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ABSTRACT

CURTIS ANDREW CARROLL. The influence of Teach For America on Algebra l on student achievement. (Under the direction of DR. JAMES J. BIRD).

This non-experimental study examined the influence of an initiative that High Risk School District (pseudonym) implemented to offset the effect of low student academic performance in low performing-schools. The study attempted to answer the following research question: Does having a Teach For America (TFA) teacher have an influence on a student's Algebra I EOC score, independent of gender and race? Teach For America teachers were assigned to the district's most disenfranchised schools. Previous studies have revealed mixed results on TFA teachers' impact on student achievement. The researcher compared student performance on the Algebra I North Carolina End of Course test in High Risk Schools between TFA and non-TFA classrooms. To analyze the data, the responses were measured using the composite Algebra I EOC scores, and the explanatory variables of student gender (male or female), race (African-American, Hispanic and White) and teacher type (TFA or non-TFA) employing a hierarchical modeling procedure. After considering the nesting nature of students within different schools, the researcher used hierarchical linear modeling and found that students taught by TFA out-performed students taught by non-TFA students $t(1956)= 3.23$, $p=.002$. Students taught by TFA teachers for all subgroups White, Black and Hispanic out performed students taught by non-TFA teachers (all $ps<.01$). The results of this study demonstrate that TFA teachers assigned to Algebra I classes have a significant influence on increasing student achievement. The researcher discusses the limitations of these findings. Other studies have shown that TFA teachers, in comparison to regularly certified teachers, have a negative influence on achievement.

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LIST OF DEFINITIONS

High Risk Schools: High Risk Schools has about 138,000 students, and an annual operating budget of over $1 billion dollars. It is a minority-majority district with African-American students constituting 42 percent of enrollment, white students 32 percent, Hispanic 17 percent, Asian 5 percent and American Indian/multiracial 3 percent (“Fast Facts,” 2012).

Hierarchical Linear Modeling (HLM): Behavioral and social data commonly have a nested structure, including repeated observations nested within persons. These persons may also be nested within organizational units such as schools. The organizational units themselves may be nested within communities, within states, and even within countries. HLM, each of the levels in this structure is formally represented by its own submodel. These submodels express relationships among variables within a given level, and specify how variables at one level influence relations occurring at another. (Raudenbush & Bryk, 2002).

Teach For America Program (TFA): Teach For America is a nonprofit organization whose vision is that "one day, all children in our nation will have the opportunity to attain an excellent education" (Kopp, 2001). Its goal is to provide a corps of excellent teachers for inner-city and rural areas where chronic teacher shortages occur. These new teachers are recent college graduates from prestigious universities who commit two years of service to disadvantaged communities. The hope is that these personal experiences will motivate young leaders to either continue in education careers or to become strong advocates for education reform in the business and public sectors. (Tourangeau, n.d.)

Center for Research and Evaluation (CRE): The Center for Research and Evaluation for High Risk Schools conducts and reviews research to inform district decision-making about the efficacy of programs and initiatives designed to increase and support student achievement. The center is also responsible for the administration of surveys designed to collect feedback from students, parents, and teachers ("Center for Research and Evaluation," n.d.).

Finding Opportunities; Creating Unparalleled Success (FOCUS) schools*:* A High Risk Schools program designed to place resources where they will have a significant impact – in the schools where children need individual attention and extra support (FOCUS Schools, 2009).

North Carolina End of Course Assessment (NC EOC*):* Official state-wide assessment program used to sample a student’s knowledge of subject-related concepts as specified in the North Carolina Standard Course of Study and to provide a global estimate of the student’s mastery of the material in a particular content area. Students enrolled in the following courses are required to take the North Carolina EOC tests: Algebra I, Algebra II, Biology, Chemistry, English I, Geometry, Physical Science, Physics, Civics and Economics, and U.S. History ("North Carolina Department of Instruction," n.d.).

North Carolina Standard Course of Study *(*NCSCOS)*:* is the State Board of Education adopted curriculum that should be made available to every child in North Carolina's public schools. The curriculum will be revised on a regular basis to remain consistent with the changing needs of our nation, state, and local communities ("North Carolina Department of Public Instruction," n.d.).

Student Achievement: The dependent variable defined on achievement tests. In this study, the tests are used to sample a student's knowledge of subject-related concepts as specified in the North Carolina Standard Course of Study and to provide a global estimate of the student's mastery of the material in a particular content area. Students enrolled in Algebra I are required to take the NC End of Course Assessment. For this study, there will be an analysis of the composite scores from the Algebra I EOC. The performance composite summarizes the percentage of students in a school who have test scores at or above Achievement Level III, which shows consistent mastery of subject/course content matter in the subjects tested.

ABC Accountability Model: The ABCs Accountability Model is North Carolina's State Board of Education adopted school improvement plan to "reorganize public schools around three goals: strong Accountability, an emphasis on the Basics and high educational standards, and providing schools and school districts with as much local Control over their work as possible." Under the ABCs, schools are evaluated on standardized tests. Schools are rewarded for making or surpassing expected student achievement goals (G.S. 115C-105.21c).

CHAPTER 1: INTRODUCTION

The Program for International Student Assessment (PISA) results show that American students are less prepared in math and science than students in other developed countries and may be ill-prepared to succeed in a global economy (Hechinger, 2010). In response to this and other studies comparing U.S. student to their peers aboard, public education in America has been the target of a tsunami of reform efforts, with math and science achievement emphasized as an area of particular concern.

Reform efforts in recent years have focused on how to improve public schools, particularly in the area of teaching. Educators, policymakers, and parents are scrutinizing the quality of teaching occurring in public classrooms, as well as practices for evaluating and the best strategies for preparing and training teachers. Pressure by federal, state, and local governments on school districts to identify effective and non-effective teachers has also increased as a result. One district High Risk Schools (pseudonym) in the Southeast United States, has addressed this issue with multiple strategies, including reliance on Teach For America (TFA) recruits in many of its struggling schools. TFA is a highly regarded, non-traditional teacher preparation program that sends graduates of elite colleges, most of whom do not have an educational background, to teach in high-poverty schools. The use of TFA corps members is included in a broader High Risk Schools strategy discussed in detail in Chapter 2.

1.1 Statement of the Problem

The High Risk Schools district use of Teach For America teachers led to the development of the following problem statement: What is the measured effect on student achievement of Teach For America teachers compared to teachers trained in traditional preparation programs? This dissertation will compare the performance of Teach For America teachers and their traditionally trained counterparts in the teaching of Algebra I.

Algebra I was chosen for comparison because successful completion of Algebra I is required for graduation from high school in North Carolina. It is also a gateway course to other, higher level math courses and science classes that require knowledge of advanced mathematics. Students who perform poorly in Algebra I or who neglect to take the course severely limit their career options in a variety of jobs related to science, technology, engineering, and mathematics (Hough, 2010).

To date, research on the effectiveness of Teach For America recruits in raising student achievement has been inconclusive. A study on the effectiveness of Teach For America teachers sponsored by Mathematica Policy Research found conflicting results. The purpose of the research was to compare student achievement outcomes of students taught by TFA teachers and non-TFA teachers in the same school and within the same grade levels. Decker, Mayer, and Glazerman, (2004) found that students taught by TFA teachers outperformed students taught by comparison teachers based on mathematic assessment scores. The research found no difference between reading scores. Kane, Rockoff and Staiger (2006), in a study conducted in New York City, found evidence that supports the findings of Decker's group that Teach For America Corps members have

slightly higher value-added scores (.02 standard deviations) for math scores than traditionally certified teachers, but no significant differences in reading scores.

Many studies have confirmed the importance of teacher effectiveness in student learning, and federal policy has incorporated these findings. Guidance from the U.S. Department of Education in the Race to the Top competition cites three studies supporting the importance of teacher effectiveness: a study evaluating teacher certification (Kane, Rockoff & Staiger, 2006), a study of teachers and academic achievement (Rivkin, Hanushek & Kain, 2005), and a study of teacher impact on achievement (Rockoff, 2004).

High Risk Schools participated in an in-depth study of effective teachers conducted by the Center for Education Policy Research at Harvard University during the 2009-2010 school year ("Teacher Employment Patterns and Student Results in Charlotte Mecklenburg Schools," 2010). The results showed little, if any, correlation between student performance and teachers' advanced degrees. The study also revealed that nearly all of the improvements that occur as teachers gain experience come in the first three years of teaching. In addition, the study showed that after five years, how a teacher enters the profession makes little difference in performance. In other words, traditional or non-traditional routes to certification have no differential impact on student achievement ("Teacher Employment Patterns and Student Results in Charlotte Mecklenburg Schools," 2010).

These findings suggest that how well Teach For America teachers perform in the classroom, as measured by their influence on student test scores in Algebra I, could provide High Risk Schools and other districts with insight into which non-traditional routes to certification produce the most effective teachers.

In addition, the comparison between TFA teachers and non-TFA teachers has significance influence on High Risk Schools and other districts because the importance of effective teaching is almost impossible to overstate. Research has shown, however, that family background probably has the greatest impact on student achievement (Coleman, et al., 1966; Goldhaber & Brewer, 1997). Study after study has found that the classroom teacher is one of the greatest school factors in student achievement (Amerin-Beardsley, 2012; Marzano, 2007; Stronge, 2002; Stronge,Ward, Tucker & Hindman, 2007). Researchers have found a great deal of variation in the performance of teachers, with some teachers performing more effectively than others (McCaffrey, Lockwood, Koretz, & Hamilton, 2003). Numerous studies have quantified the influence an effective teacher has on student achievement that is relatively independent of other components of the school environment (Amerin-Beardsley, 2012; Marzano, 2007; Stronge, 2002; Stronge, et al., 2007). Therefore, determining the effectiveness of these two groups of teachers will add to the understanding of teacher effectiveness.

1.2 Overview of the Problem

Fifteen-year olds in the U.S. ranked 25th among peers from 34 countries on a math test and scored in the middle in science and reading, while China's Shanghai topped the charts, raising concern that Americans are not prepared to succeed in a global economy (Hechinger, 2010). The results of this report are disturbing to American educators and policy-makers, and have put the focus on public and private education.

Several researchers studied the connection between American students' poor performance and teacher preparation patterns (Fetler, 1999; Darling-Hammond, Berry, & Thoreson, 2001). During the 1980s and 1990s, the nation faced a teacher shortage in

urban school districts in the content areas of math, science, and special education (Wayman, Foster, Mantle-Bromely & Wilson, 2003). Fetler (1999) investigated the relationship between measures of mathematics and student achievement in California high schools. He found that there existed a shortage of qualified math teachers in the state and this shortage is associated with low student achievement (as measured by test scores) in mathematics. After controlling for poverty, he found that teacher experience and preparation significantly predicted test scores. Short-term strategies to remedy this could include providing better professional development for teachers; long-term strategies could include more math courses for students in high school and college.

1.3 Research Question

Using the analysis of the outcomes of the North Carolina Algebra I End of Course (EOC), and the predictive scores, this study seeks to answer the following question: Does having a Teach For America (TFA) teacher have an influence on a student's Algebra I EOC score, independent of gender and race?

1.4 Nature of the Study

In analyzing the data, the following variables were purposely selected: the composite Algebra I EOC scores, and the explanatory variables of student gender (male or female), race (African-American, Hispanic and White), and teacher type (TFA or non-TFA). Gender and race are level 1 variables, and teacher type is a level 2 variable.

The participants in the study were Algebra I math teachers and their students in the High Risk Schools. In addition, the schools that are part of the study were only schools in which Teach For America teachers teach. The comparison group of teachers, non-TFA teachers, was in the same schools. The researcher included all of the TFA Algebra

I teachers and non-TFA Algebra I teachers in the selected schools. The researcher had 12 TFA teachers and 40 non-TFA teachers for the study. There were 902 students in the TFA group and 2259 students in the non-TFA group.

Quantitative results were determined by the outcomes of the North Carolina Algebra I EOC test. The data analytic procedure used was hierarchical linear modeling (HLM). It is a multilevel analysis which allows variance in outcome variables to be analyzed at multiple hierarchical levels, whereas in simple linear and multiple linear regressions all effects are modeled to occur at a single level. Classes are nested within the school and students are nested within the classes. The hierarchical linear model uses prior achievement, demographic variables, and school enrollment to model current year achievement prior to consideration of TFA teacher effects. At the student level, the model included achievement (1 variable) and ethnicity (2 variables). The researcher analyzed the results of African-American, Hispanic and White students due to the fact that there were a limited number of other ethnic students in the sample population.

The research design will be Ex Post Facto (also called Causal Comparative Research). This design is particularly useful when there are two groups which differ on an independent variable and the researcher wants to test hypotheses about differences on one or more dependent variables. It is also useful when there are two groups which already differ on a dependent variable and the researcher wants to test hypotheses about differences on one or more independent variables (Gay, Mills, & Airasian, 2006). The purpose of the mean comparison study is to compare the difference between the type of teacher (TFA and non-TFA) and student performance on the Algebra I North Carolina End of Course test in the High Risk Schools. The use of a mean comparison is

appropriate because the researcher was seeking to identify the quantitative learning outcomes of students who are taught by TFA teachers in comparison to students who are taught by non-TFA teachers.

1.5 Significance of the Study

This study will add value to the existing literature on teacher effectiveness by examining the effectiveness of teachers in Algebra I classes. It is of great importance that the most effective teachers provide instruction in our most fragile schools. There may be a need for alternative recruitment strategies to ensure that highly qualified teachers are placed in our lower performing schools.

Additionally, there has been limited research on TFA teachers' influence on Algebra I scores. This study expanded the knowledge of these teachers' effectiveness and influence on student outcomes in a large, urban educational setting.

It will also add to the research on an important part of the high school curriculum. Algebra I is the gateway course to all other higher math classes. Successful completion of this course usually predicts successful completion of future math courses. Students who do not do well in this course or who do not take it preclude their career options in a variety of jobs related to science, technology, engineering, and mathematics (Hough, 2010). A number of studies have linked success in algebra to future educational and career opportunities (Ingels, Dalton, Holder, Lauff, & Burns, 2011; "Closing the Expectations Gap," 2011). Of all the high school courses, the highest level of mathematics taken is the most important predictor for college success. The odds that a student who enters college will complete a bachelor's degree more than doubles if that student completed a mathematics course beyond Algebra II (e.g., trigonometry or pre-

calculus) while in high school (Alderman, 2006). As of June 2011, there has been limited research that specifically focuses on Teach For America teachers' influence on Algebra I student achievement. Determining this influence could help school districts refine hiring practices to find the most effective math teachers available in order to improve student achievement in the gateway course of Algebra I.

1.6 Limitations of the Study

1. Convenience sampling procedures will decrease the ability to generalize the finding of the study, because the study will be restricted to the 10 Title I/Focus schools in the High Risk School District.
2. Since the students all come from the same public school district, the results will be limited to one group of students.
3. A second possible limitation is that the students assigned to the teachers may be repeating the Algebra I course which will not be controlled for.
4. Another limitation is that the study will not be able to measure the administrative support at the various school sites. Some administrators are very supportive of the TFA program, while others are not.
5. Because of weighted student staffing and the additional resources that the Title I schools receive, teachers who teach in a Title I school may have an advantage over teachers who teach in a FOCUS school. Title I additional funds provide the schools with additional resources such as the latest technology.

1.7 Organization of the Study

Chapter 1 introduces the study. It provides a brief explanation of the need for an effective teacher in every American classroom and describes the initiatives taken by High

Risk Schools to address teacher effectiveness in low-performing schools. Chapter 1 also suggests the larger significance of the study in helping to answer the broad question of whether Teach For America teachers have an influence on student achievement. It provides background for the problem with a more detailed overview of the reform and research landscape in American public education as it relates to the research question.

Chapter 2 provides additional context and a literature review. It will include a comprehensive review of the American reform effort to improve the quality of teaching nation-wide. It will also outline the efforts made by the High Risk Schools and the state of North Carolina to address the issue of poor student performance in its most disenfranchised schools. Chapter 3 details the research design, methodology (including the participants), and the variables that will be used in the study. Chapter 4 will detail the findings of the study. Chapter 5 will discuss the implications of the study.

CHAPTER 2: REVIEW OF THE LITERATURE

The literature review is organized into seven sections. Listed below is a summary of each section:

- American reform efforts, including efforts to measure teacher quality and establish definitions of effective teaching, as well as North Carolina's definition of effective teaching;
- Background on High Risk Schools and how the district has endeavored to measure teacher quality, establish definitions of effective teaching, and develop initiatives to strengthen its lowest-performing schools;
- A review of the literature on teacher effectiveness, its importance, and research conducted by and about High Risk Schools' work on teacher effectiveness;
- A review of the literature on the challenges associated with a lack of an effective teacher in American classrooms and takes a closer look at teacher quality in low-performing schools;
- Current strategies used to identify effective teachers nationally, at the state level and locally. In addition, the review of the literature revealed strategies the state has implemented to increase the teaching pool and particularly addresses teacher quality in low performing schools;

- Strategies that the High Risk Schools District has used to address the improvement of teaching and achievement in its under-performing schools; and,
- A final section that provides a brief summary of the chapter.

2.1 American Reform Efforts

The nation-wide teacher shortages in certain subject areas coupled with poor student performance gave rise to the development of programs for alternative teacher preparation, such as Teach For America, which puts graduates of top colleges into high-poverty schools to teach for two years and Troops to Teachers, which helps eligible members of the armed forces to become teachers in the public schools. The purpose of these alternative programs was to bring individuals desiring a career change from specialized industry into the field of education (Corbin, 1992). The intent was also to improve the quality of teaching overall.

Reform efforts also included more rigorous standards of certification for teachers who enter the profession through the traditional route. Current law requires classroom teachers to meet the highly qualified requirement defined by No Child Left Behind (NCLB 2002) (Dingman, 2010).

These and other reforms were supported by research showing that an effective teacher's impact on students is significant and measurable. Nye, Konstantopoulos, and Hedges (2004), indicate that students who have a teacher at the 75th percentile in terms of pedagogical competence will outperform students who have a teacher at the 25th percentile. This study is important because it involved random assignment of students to classes controlled for factors such as the previous achievement of students,

socioeconomic status, ethnicity, gender, class size, and whether or not a teacher's aide was present. The study also revealed that the difference in achievement gains made by students who are instructed by a 25th percentile teacher (relatively ineffective teacher) versus students instructed by a 75th percentile (an effective teacher) is over one-third a standard deviation (0.35) in reading and almost half a standard deviation (0.48) in mathematics.

Moreover, the issue of teacher effectiveness may be magnified in high-poverty schools. In the High Risk Schools, like many other urban school districts, human resources struggle to staff schools that have a high percentage of schools in high poverty. The superintendent in his weekly media briefing January 2007, mentioned that the district currently had 84 teacher vacancies. What was so alarming is the fact that 27 of the vacancies were at 4 high-poverty high schools.

The reform efforts around effective teaching have been complicated by the lack of agreement on a consistent, national standard to measure teacher effectiveness. Public education has struggled for many years to answer the question, "What constitutes an effective teacher?"

Recent research has focused on three angles to define teacher performance that are related but distinct: measurement of inputs, processes and outputs (Goe, Bell & Little, 2008). Inputs are what a teacher brings to the profession: certification, qualification, and training, as well as experience, beliefs, and background. Processes refer to the interaction in a classroom between a teacher and students. Outputs are the results of classroom processes, such as achievement scores, graduation rates, and engagement measures.

The U.S. Department of Education also provides some guidelines for districts: It states that teacher effectiveness can also be measured as supplemental measures, which should include evidence of research-based teaching practices, teacher performance, and contribution to student learning. Such measures should be appropriate for newly licensed and veteran teachers (Department of Education, 2009).

North Carolina uses a projection-based model to measure teacher effectiveness (Cody, McFarland, Moore & Preston, 2010). Cody et al. found that the projection model predicts how much academic growth a student will make in a particular year based on that student's previous test scores. A student's projected growth is obtained by comparing the student's previous test scores with those of students with similar academic history.

High Risk Schools is in the process of developing a standard quantitative definition to be used in teacher selection and evaluation. The district has defined an effective teacher as one whose students achieve at least one grade level of student growth in an academic year. In practice, principals may supplement this definition as necessary as long as teacher effectiveness is judged, in significant measure, by student growth. When the district began its Strategic Staffing Initiative to put high-performing principals and teachers into low-performing schools, it used the following criteria: to qualify for Strategic Staffing selection by a principal, a teacher had to meet several standards, including successful past summative evaluations. Teachers also had to show evidence of student achievement at a rate of .04 minimum average growth in reading and minimum average growth in math at the elementary level, and reading and math for middle and high schools. This requires substantially more than one's year growth in one year's time ("Strategic Staffing," 2009).

2.2 Background on High Risk Schools

High Risk Schools is a countywide district, serving 920,000 people in Mecklenburg County and its seven constituent municipalities (Quinn & Keith, 2010). The county's population is roughly 55% White, 30% African American, 12% Hispanic, and 4% Asian ("Charlotte-Mecklenburg Planning Department," n.d.).

In 2011, High Risk Schools was the 19th largest district in America with 138,000 students, 18,000 employees, and an annual operating budget of $1.2 billion. It is a minority-majority district with African-American students constituting 42% of enrollment, white students 32.5%, Hispanic 17.5%, Asian 5% and American Indian/multiracial 3%. Slightly more than half (54 percent) of its students are eligible for free or reduced-price lunch, the federal standard for measuring poverty ("Fast Facts," 2012). While every school has some students in poverty, they are heavily clustered in about a third of the district's schools.

The district uses a weighted student staffing measure in its budget, which counts poor students as 1.3, rather than 1. This has the effect of increasing staffing in schools with high concentrations of students in poverty. To address issues of equity and performance, High Risk Schools provide additional resources to schools with 50-74% of students in poverty. The district also uses several designations used to identify high-poverty schools that need additional assistance. The Finding Opportunities; Creating Unparalleled Success (FOCUS) schools program in High Risk Schools distributes resources to where they will have a significant impact – in the schools in which children need individual attention and extra support. Resources given to these schools include additional supplies and materials. These schools are also granted additional staff which

allows for smaller class sizes. For children in FOCUS schools, the environment is conducive for growth and achievement (FOCUS Schools, 2009).

In addition, High Risk Schools with 75% or more of the students in poverty are designated Title I schools and receive additional funding from the federal Title I program: Title I began with the passage of the Elementary and Secondary Education Act (ESEA) of 1965, which provides federal funding for high-poverty schools to help students who struggling academically and at risk of falling behind ("Charlotte Mecklenburg Schools Title I," n.d.). Services can include hiring teachers to reduce class size, tutoring, purchasing of instructional equipment, materials and supplies, providing parental involvement activities, professional development, pre-kindergarten programs, and hiring teachers and paraprofessionals.

The district has undertaken several initiatives in recent years intended to improve teaching in targeted high-poverty, low-performing schools. In the district's strategic plan, entitled "Teaching Our Way to the Top," a strong emphasis is placed on ensuring that every student is assigned an effective teacher ("*Charlotte Mecklenburg Schools. Strategic Plan 2014," n.d.*).

As recently as 2006, the district's definition of an effective teacher was consistent with the No Child Left Behind Act of 2001, which emphasized "highly qualified teachers based on degrees and certifications." But the district began in 2006 to shift its emphasis to measures of student performance as a means of assessing teacher effectiveness. The district has intentionally begun to link teacher assessment to student outcomes, in alignment with research on value-added assessment models for teachers. As previously noted, current research is divided on not only how to define teacher effectiveness but how

to measure it. Traditional preparation and certification has been championed by some (Darling-Hammond, Berry, & Thoreson, 2001). However, a study by Gordon, Kane and Staiger (2006) suggests the need for alternative policies that attract capable, non-traditionally trained candidates into teaching to meet a growing demand. A 2011 study by Henry, et al., compared the adjusted test-score gains of students taught by teachers who entered the field of education through 12 distinct portals that were combinations of formal education and other alternative teaching programs. The study found that teachers from programs outside North Carolina were less effective in 5 comparison groups: high school math and social studies, elementary reading and math, and high school overall. Lateral-entry teachers were less effective in 3 of 11 comparisons, and Teach For America teachers were more effective in 5 of 9 comparisons, including high school mathematics. However, some researchers have found little correlation between improved student learning and advanced degrees or years of experience (Hassel, 2002).

High Risk Schools participated in an in-depth study of effective teachers conducted by the Center for Education Policy Research at Harvard University during the 2009-2010 school years ("Teacher Employment Patterns and Student Results in Charlotte Mecklenburg Schools," 2010). The results were consistent with Hassel's findings: there was little, if any, correlation between student performance and advanced degrees. The study also revealed that nearly all of the improvements that occur as teachers gain experience come in the first three years of teaching. In addition, the study showed that after five years, how a teacher enters the profession makes little difference in performance. In other words, traditional or non-traditional routes to certification have no

differential impact on student achievement ("Teacher Employment Patterns and Student Results in Charlotte-Mecklenburg Schools," 2010).

High Risk Schools had four broad strategies since 2006 to improve its lowest-performing schools: an Achievement Zone which funneled extra resources and teachers to its lowest-performing schools, a Strategic Staffing Initiative which sent teams of high-performing principals and teachers into the lowest-performing schools, Student Weighted Staffing an initiative that lowered the teacher-pupil ratio in the lowest-performing schools and an increased alliance on Teach For America to supply teachers for its lowest-performing schools. These four initiatives will be discussed later in the chapter.

2.3 Defining an Effective Teacher

A review of the literature establishes that there is a wide variance in how effective teachers are defined across the country. Prior to 2002, most state definitions of an effective teacher included: degrees attained, licensure, and years of experience (Hassel, 2002). More recently, the concept of value-added measures has been applied to the definitions of teacher effectiveness by state level departments of education. An earlier study on value-added measures found that teacher quality has a greater influence on student achievement than class size, racial composition, or makeup of the school (Sanders & Rivers, 1996). Another national, valued-added study revealed similar findings (Buddin & Zimmer, 2005). This study analyzed the actual contribution of the teacher in the classroom using value-added measures. The results of the study showed that some teachers did a better job of improving student achievement year-to-year than others. The research found that highly effective teachers exist in all schools and there is little

correlation between student achievement and variables such as teaching experience, education background, licensure, grade level, and class size.

Later studies revealed that teacher quality is a key element of student academic success, but that there are few specific teacher characteristics which decidedly influence classroom outcomes (Buddin, 2011; Kane & Staiger, 2008).

Another way to measure teacher effectiveness involves using a state rubric of effectiveness to rate teacher growth and performance in an observation setting. The Cincinnati Evaluation System is often cited as a rare example of a high-quality evaluation system based on classroom observations (Kane, Taylor, Tyler & Wooten, 2011). The study illustrated that evaluations based on well-executed classroom observations do identify effective teachers and teaching practices.

Current law requires classroom teachers to meet the highly qualified requirement defined by No Child Left Behind (Dingman, 2010). No Child Left Behind, the federal education policy implemented under former President George W. Bush, focused on teacher inputs: qualifications, certifications, and degrees. Race to the Top, the statement of policy and goals articulated by the administration of President Barack Obama, has shifted more toward outcomes, linking teacher evaluation to student performance. The Race to the Top cites three such studies as examples: "What does Certification Tell Us About Teacher Effectiveness? Evidence from New York City (Kane, Rockoff and Staiger, 2006); "Teachers, Schools, and Academic Achievement" (Rivkin, Hanushek and Kain, 2005); and "The Impact of Individual Teachers on Students' Achievement: Evidence from Panel Data" (Rockoff, 2004). All three studies link teacher effectiveness to student achievement.

Current research has identified three primary angles to identify and measure effective teachers. These angles are distinct measurements of inputs, processes, and outputs (Goe et al., 2008). They define inputs as what a teacher brings to the work, including teacher background, beliefs, expectations, experience, pedagogical and content knowledge, certification and licensure, and educational attainment. Processes include the interactions in a classroom between a teacher and students. This definition may also include a teacher's professional activities with the school and the community. Outputs are the results of classroom processes, such as impact on student achievement, graduation rates, student behavior, engagement attitudes, and social-emotional well-being.

2.4 Challenges Associated With a Lack of Effective Teachers

Nearly 3.8 million teachers work in our schools, but there are simply not enough good ones to go around, especially in the schools and districts serving high-poverty and high-minority student populations (Wilson et al., 2011). Teachers in high-poverty schools in Florida and North Carolina are on average only slightly less effective than those teachers in low-poverty schools.

However, there exists a broader talent spread in high-poverty schools, and the poorest-performing teachers in such schools are generally worse than the least effective educators in low-performing schools, according to a new analysis report from the National Center for Analysis of Longitudinal Data in Education Research, or CALDER (Sawchuk, 2010). The researchers used a value-added model to estimate the effect of the teacher by removing variables such as family background, peer performance, and school-level factors that can impact student achievement (Sass, Hannaway, Xu, Figlio, & Feng, 2010). Among their findings: In three of the four comparisons, high-poverty schools had

teachers who were less effective on average than in lower-poverty schools, but the differences were small. The author states that teacher quality in high-poverty schools is not necessarily uniformly worse than in low-poverty schools. The analysis also found that the level of teacher effectiveness was more diverse in high-poverty schools than in low-poverty schools, and that the least effective teachers in high-poverty schools were worse than the teachers in low-poverty schools. In summary, poor students have a greater chance of getting a terrible teacher than students attending more affluent schools (Sass et al., 2010).

The authors found that factors such as experience continue to make a difference for teachers in the low-poverty schools past the five-year mark, but not in the case of high-poverty schools. This means that a teacher in a high-poverty school hits a wall at some point. The authors postulate that such teachers may suffer from a lack of healthy co-worker support in low-poverty schools, or that exposure to challenging students causes "burn out" after a while. If the definition of high-performing teacher implies a teacher whose data has consistently shown student achievement (a year's worth of academic growth over a year's worth of time) then a low-performing teacher can be defined as one whose data consistently shows less than one year's growth in student achievement each year.

The lack of effective teachers in low-performing schools has been linked to academic failure (Chait, 2010; Sawchuk, 2010). Some research has suggested that teacher effectiveness is one of the most important factors in the improvement of student achievement especially in low-performing schools (Amerin-Beardsley, 2012; Marzano, 2007; Stronge, 2002; Stronge, et al., 2007).

2.5 Current Strategies Used to Identify Effective Teachers

In its 2009 research report, "The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness," The New Teacher Project stated that most districts cannot tell you which teachers are most effective, which are least effective, or which fall in between (Quinn & Keith, 2010). The study revealed that the vast majority of school districts (99%) rate teachers at the effective level. This is true in schools that are low-performing, as well as in schools which are high-performing. The study illustrates that teacher evaluation systems reflect and codify the "Widget Effect" – the tendency of school districts to treat teachers as essentially interchangeable – in several ways: all teachers are rated "good" or "better," excellence goes unrecognized, professional development is inadequate, novice teachers are neglected, and poor performance goes unaddressed (Weisberg, Sexton, Mulhern, & Keeling, 2009). Because of the issues associated with measurements of teacher effectiveness, there is a national movement to measure teacher effectiveness using value-added measurements. Measuring teacher effectiveness with a value-added model eliminates the issue described by the "Widget Effect" (Weisberg, et al., 2009).

Policymakers are moving toward using value-added measurements to evaluate, promote, compensate, and dismiss teachers based in part on their students' test results. No other school resource is so directly and intensely focused on student learning, and research has found that teachers vary widely in their effectiveness (Nye, et al., 2004; Rivkins, Hanushek, & Kain, 2005). The advantage to using value-added measures lies in their objectivity because they only consider the teacher's contribution to student learning.

The question that remains is whether value-added measures are a valid tool for identifying and enhancing teacher effectiveness. Unlike classroom observations (which may be influenced by the observers' own beliefs about good teaching, the appearance of the classroom, the students' behavior, and other factors), value-added scores are free from the subjective judgment and impressions of evaluators (Goe, Bell, & Little, 2008). In its most simple form, the value-added measure as it is used for evaluating teachers is calculated as follows: Students' previous test scores are used to create *predicted* test scores for a given year. The difference between the predicted and actual test scores are growth scores (Goe, 2008). School districts attempt to train administrators to minimize observer bias; however, with value-added measurements, there is no possibility of observer bias. Value-added measures do have limitations, specifically the issue of scale. Most school districts, when using value-added measures, do not have ways to measure those teachers who teach in subject areas that are not routinely tested. Among the limitations are that performance measures can only be generated in a handful of grades and subjects in which there is mandated annual testing (Kane, Taylor, Tyler & Wooten, 2011).

The second issue is that value-added measures offer few recommendations to improve teaching with professional development. The final issue the authors highlight is the danger of relying on tests as this will lead teachers to focus narrowly on test-taking skills at the cost of more valuable academic content.

A Harvard study revealed that teacher effectiveness is not only unrelated to the college the teacher attended, but also peaks after 10 years (Herbert, 2010). Neither holding a college major in education nor acquiring a master's degree is correlated with

teacher effectiveness, regardless of the university at which the degree was earned. The study showed, however, that teachers do become more effective with a just few years of teaching experience. The association between teacher experience and increased student achievement is especially strong during the beginning of teachers' careers. Most of the gains in student achievement related to teacher experience occur in the first four years of teaching (Boyd, Lankford, Loeb, Rockoff, &Wyckoff, 2008).

2.5.1. The National Perspective

NCLB, combined with other state and local policies, helped to create a shortage of teachers due to its more stringent requirements for licensure (Tissington & Grow, 2007). Universities began to increase the requirements and lengthen the time and work involved for teacher candidates to earn their degrees. The increased requirement affects the number of teachers readily available to teach and as a result a teacher shortage occurred nationally. Many practicing classroom teachers returned to school to complete additional coursework to meet the additional requirements for licensure. Alternative preparation programs may help to alleviate teacher shortages. Thus, placement of highly qualified, content area experts into the classroom has resulted from the legislation and implementation of alternative programs (Dingman, 2010). Zientek (2006) agrees that alternative teacher certification programs alleviate teacher shortages by diversifying the teaching population with an influx of minority educators and teachers with science degrees. However, she states that these programs do not appear to be bringing in more experienced science and math teachers. She also argues that if alternative teacher certification programs are to be implemented, it is imperative that participants receive training, field experience, learning theory, subject matter pedagogy and mentoring.

Alternative teacher preparation programs groom individuals from non-traditional backgrounds for entry into the teaching profession. Many of these individuals become certified as highly qualified and teach in American public schools. Many alternatively prepared teachers have earned degrees in fields other than education and are changing careers from business, medicine, and other science areas (Chambers, 2002). Traditionally prepared teachers are placed directly into the classroom after or while completing a university-directed certification program. The alternative preparation process differs from traditional preparation because the training of the former focuses on pedagogy rather than specific content knowledge for the teachers who have already earned content-area degrees (Chambers, 2002). Alternative certification programs came about because of the shortage of math, science, and special education teachers during the 1980s and 1990s. The purpose of alternative programs was to bring individuals desiring a career change from specialized industry into the field of education (Corbin, 1992). In accordance with the NCLB Act of 2002, classroom teachers must be content-area experts in accordance with the requirements for highly qualified teachers. The purpose of the alternative preparation programs, past and present, is to improve instruction within High Risk Schools by placing field experts directly into classrooms.

2.5.2. The North Carolina Perspective

In a report prepared for the North Carolina Department of Public Instruction by the Terry Sanford Institute of Public Policy at Duke University, researchers found that highly effective teachers were most likely to have entered the profession through a North Carolina Teacher Education Program (Behrend ,Fernandez, Horowitz & Luong, 2009). Effective teachers were those whose students' growth on the end-of-grade exams, based

on past performance, placed the teachers in the top 20% of educators. Conversely, ineffective teachers were those whose students' growth on the end-of-grade exams placed the teachers in the bottom 20%. The study revealed that highly effective teachers were less likely to have entered the profession laterally. Lateral entry allows qualified individuals to obtain a teaching position and begin teaching right away, while obtaining a professional educator's license as they teach. Teachers of lower effectiveness were marginally more likely to have earned a graduate degree than teachers of higher effectiveness, a finding that contradicts previous research.

Another North Carolina report prepared by the North Carolina Institute for Public Policy and Department of Public Policy studied whether or not teacher preparation affects student achievement. In the study, the researchers estimate the differences in adjusted average test score gains of students taught by teachers who entered teaching from 12 district "portals," which are combinations of formal education and other teaching preparation programs (Henry et al., 2011). The study found that alternative entry teachers, who comprise 15 percent of the NC teacher workforce, performed worse in high school mathematics and social studies and on average across all high school subjects, where they are concentrated.

As a result of the data from these and other studies, the state of North Carolina has adopted a new teacher evaluation system developed by McRel Corporation (*North Carolina Teacher Evaluation Process,* n.d.). The evaluation instrument is based on the Framework for 21st Century Learning and the North Carolina Professional Teaching Standards. The instrument is designed to promote effective leadership, quality teaching, and student learning while enhancing professional practice and leading to improved

instruction. The instrument is designed to encourage professional growth, to be flexible and fair to the persons being evaluated, and to serve as the foundation for the establishment of professional goals and the identification of professional development needs. The intended purpose of the North Carolina Teacher Evaluation Process is to assess the teacher's performance in relation to the North Carolina Professional Teaching Standards and to design a plan for professional growth (*North Carolina Teacher Evaluation Process,* n.d.). The principal or a designee conducts the evaluation process in which the teacher actively participates through the use of self-assessment, reflection, presentation of artifacts, and classroom demonstration(s) (*North Carolina Teacher Evaluation Process,* n.d.).

Lateral entry, an "alternate" route to teaching for qualified individuals outside of the public education system, is used in states to increase the number of highly qualified teachers. Lateral entry allows individuals to obtain a teaching position and begin teaching right away, while obtaining a professional educator's license as they teach. The NC Department of Public Instruction authorizes lateral entry professional educator's licenses on a provisional basis in licensure areas that correspond to the individual's area of academic study ("North Carolina Department of Public Instruction," n.d.).

The process to becoming a lateral entry teacher in pursuit of a professional educator's license is rigorous in the state of North Carolina. To qualify for lateral entry, an individual must have at least a bachelor's degree from a regionally accredited college or university and/either a relevant degree or 24 semester hours of course work in a core area or passing scores(s) on the PRAXIS II subject assessment test(s) for licensure areas and one of the following: 2.5 GPA or five years of relevant experience that occurred

after Bachelor's degree or successful scoring on the Praxis I test(s), plus 3.0 GPA in all courses in senior year or 3.0 GPA in major field of study or 3.0 GPA on a minimum of 15 semester hours of courses (relating to teaching subject/area of licensure) completed within the last five years ("North Carolina Department of Public Instruction," n.d.).

Once an individual qualifies they must be hired by a school system which recommends the individual to the North Carolina Department of Public Instruction. Upon being issued the provisional lateral entry professional educator's license, the individual affiliates with a college or university that has an approved teacher education program in the license area. An individual plan of study is prescribed for the lateral entry teacher professional educator's licensure. The individual follows the plan of study prescribed by the college or university. A minimum of six semester hours per year from the plan of study must be taken until the plan has been completed. All coursework and the Praxis II exam for their licensure area must be completed within three years. Praxis II® Subject Assessments measure knowledge of specific subjects that K–12 educators will teach, as well as general and subject-specific teaching skills and knowledge ("Praxis II Overview," n.d.).

When the individual completes the required coursework prescribed by the college and satisfies professional educator's licensure testing requirements, he/she is recommended for professional educator's licensure by the institution. This recommendation is sent to the NC Department of Public Instruction where it is evaluated and if the individual has met all of their requirements, they are issued a Standard Professional 1 Professional Educator's License.

NC TEACH II is a UNC General Administration program funded by a U.S. Department of Education Transition grant. The Transition to Teaching program supports projects that recruit highly qualified, mid-career professionals, retirees, and recent graduates as teachers for high-need school districts (NC TEACH II, n.d.). Each year all school districts and charter schools in the state are evaluated according to Title II, Part A legislation which addresses factors such as poverty rates and the number of teachers teaching outside their licensure. A list of school districts and charter schools eligible for the program is released each fall. NC TEACH II works with high-needs school districts and charter schools identified by the U.S. Department of Education to recruit and prepare lateral entry teachers who are committed to remaining in schools for a minimum of three years. In return for the commitment, the teachers receive a $2000 technology allowance and a $1000 education stipend. NC TEACH teachers are only assigned to North Carolina's lowest-performing schools. The program is designed to offset the problem of having below average quality teachers in high-poverty schools.

NC TEACH is an alternative teaching program that attempts to off-set this issue. NC TEACH goals are (1) Enhance lateral entry teacher recruitment and selection with a focus on preparing highly qualified teachers in high- need subject areas for high- need school districts and charter schools across North Carolina, (2) Expand the recruitment and selection of a multicultural teaching force that reflects the diverse student population in North Carolina, and (3) Provide comprehensive support and training for teachers working in a high-needs school environment. In order to accomplish this goal, certain requirements are in place: (1) A candidate must be accepted into the general NC TEACH II host universities; (2) A candidate must obtain employment or be employed as a first

year lateral entry teacher by an eligible high-needs school district or charter school; (3) A candidate must commit to remaining in an eligible high-need school for no less than 3 years and must show this commitment by signing a Letter of Intent.

Several state universities serve as host sites for the program. Eligible candidates must be current first year lateral entry teachers hired in eligible school districts or charter schools teaching a core content area of math, science, English, social studies, special education, a foreign language, or elementary school content.

2.6 The High Risk Schools Perspective

High Risk Schools has used four district-wide programs to address the improvement of teaching and achievement in its under-performing schools: the Achievement Zone, strategic staffing, student weighted staffing, and Teach For America.

The Achievement Zone was a comprehensive reform initiative that addressed the human resources needs at the schools identified, school safety, public relations and literacy. The Strategic Staffing Initiative attempted to solve the issue of ineffective teachers in low-performing school by providing incentives to high-performing administrators and teachers with proven track records in an effort to improve teaching and learning in the district's lowest- performing schools. The Student Weighted Staffing Initiative improved teacher-to-pupil ratio in high- poverty schools by applying a weight of 1.3 points to economically disadvantaged students within the school population. Teach For America teachers were assigned to high-poverty/low-performing schools in an effort to improve the quality of the teaching profession in those schools. The research conducted on each High Risk Schools initiative, as well as a full explanation of each initiative, follows.

2.6.1. The Achievement Zone

The Achievement Zone, as established in the Strategic Plan 2010 under Section V: Freedom and Flexibility with Accountability were the only group of schools in a decentralized High Risk Schools district not clustered by geography and feeder patterns. Schools in the Achievement Zone were those most in need of help: schools with large numbers of students with low test scores and low achievement. Schools may have been placed in the Achievement Zone if they were required to take corrective action under No Child Left Behind legislation, or if they were schools designated low-performing by the state, or if they were designated by North Carolina Superior Court Judge Howard Manning in the Leandro litigation ("The Achievement Zone," 2008). The district was also under judicial pressure to improve several of its high schools and as a result the district created the Achievement Zone. North Carolina Superior Court Judge Howard Manning, charged with overseeing statewide compliance with the United States Supreme Court's ruling in *Leandro v. State of North Carolina* (1997) and *Leandro II* (2004), had found several high schools severely lacking. The *Leandro* rulings required that every district in the state provide a sound basic education to all students. The court said that every classroom must be staffed by a competent, certified, well- trained teacher, every school must have a well- trained, competent principal and that each school must have the resources necessary to support an effective instructional program. The lowest-performing high schools in High Risk Schools, Manning ruled, were failing catastrophically to meet the *Leandro* requirements. "The most appropriate way for the Court to describe what is going on academically at the bottom '8' high schools is academic genocide for the at-risk, low income children," Manning concluded

(*"Academic Genocide" in Charlotte's Bottom-Performing HS, Judge Manning Concludes,* 2005). The purpose of the Achievement Zone was to provide struggling schools with the resources they need to succeed. These schools were first in line for resources, including proven teachers and strong principals. They were also first in line for additional services, including public relations and volunteer partnership assistance, and support staffing. The zone was intended to be fluid and flexible. Schools could move out of it if they meet the improvement criteria set by the superintendent. As schools improve, the Achievement Zone area superintendent would make recommendations for returning successful schools to the normal geographic clusters; final decision-making authority rested with the superintendent of schools.

A study conducted in the fall of 2007 showed that students who attended an Achievement Zone high school and had perfect attendance performed significantly worse than students who were not in the high-poverty zone ("Report on the Strategic Plan Charter: Achievement Zone," 2009). Students who had perfect attendance in non-Achievement Zone schools had an 85% pass rate on their End of Course tests while students who had perfect attendance in the Achievement Zone had a 65% pass rate on their exams. Students who had 25 or more absences in the non-Achievement Zone schools had a 29 % pass rate, in comparison to Achievement Zone students who had a zero pass rate.

Based on records from the 2006-2007 school years, the Achievement Zone had 173 teacher vacancies during the summer. This number was alarming since there were approximately 650 teacher positions in zone. The district's annual teacher retention rate was 85 percent; the Achievement Zone's retention rate was over 75 percent. With these

educational inequities highlighted, there was a need for highly effective teachers in every classroom, especially in low-performing schools.

After the first year of the initiative, the Achievement Zone schools had the highest EOC growth in the district, even though the overall achievement levels were still among the lowest in the district (Quinn & Keith, 2011). Mass Insight, an Education & Research Institute, reported that the Achievement Zone was one of several school turnaround models that transformed and significantly improved educational outcomes ("School turnaround models emerging turnaround strategies and results," 2010). It reported that 91% of the Zone middle schools met AYP in 2008-2009, up from 61% in 2007-2008. It also highlighted during the same period, 68% of the students at School D were on grade level, up from 40% in 2005-2006 and that School E saw an increase in student achievement of 25%.

2.6.2. The Strategic Staffing Initiative

Another way the school district attempted to solve the issue of ineffective teachers in low-performing schools was the creation of the Strategic Staffing Initiative (SSI). The Strategic Staffing Initiative was based on five basic tenets:

- A great leader is needed, a principal with a proven track record of success in increasing student achievement. In addition, great teachers will not go to a troubled school without a great leader as principal.
- A team needs to go to the school so one person is not alone in taking on this challenging assignment; there is strength and support in numbers.

- Principals must be given the time and authority to reform the school, and to be freed from the district list of "non-negotiables" that constrain autonomy.
- Not all job assignments are equal in difficulty and compensation should be varied ("Strategic Staffing," 2009).

Principals and teachers who were selected to participate in SSI had to have more than a year's growth in a year's time at their previous school. Financial incentives were offered and structured to recognize that the team was taking on a serious challenge. *Newsweek* recognized the former Superintendent of the High Risk Schools, for the Strategic Staffing Initiative.

The superintendent decided to try to entice principals into taking on this desired challenge. Starting in 2008, with great fanfare, he announced a new annual district-wide competition to identify the most effective principals. Winners of the "Strategic Staffing Initiative" would be chosen based on hard data like the growth in their students' achievement scores rather than years of experience in public education or how well their school was regarded (Wingert, 2010).

An evaluation report conducted by the High Risk Schools' Office of Research and Evaluation revealed that the overall results of the project provided unclear conclusions about the efficacy of the SSI initiative ("Strategic Staffing," 2009). Comparisons based on student achievement between SSI and non-SSI teachers tended to reveal higher levels of performance for students instructed by SSI teachers, but the pattern was neither consistent nor overwhelmingly significant. What is clear, from the interviews conducted with the principals, is that each school in need of assistance provided a unique set of

challenges and opportunities, and that these issues could have been viewed differently depending on the bias of the principal assigned to the school. As such, successful SSI principals must adopt a leadership style capable of evolving depending on where the school is in its reform efforts.

2.6.3. Student Weighted Staffing

High Risk Schools uses Student Weighted Staffing (Quinn & Keith, 2010). This initiative improved teacher-pupil ratio by applying a weight of 1.3 points to all economically disadvantaged students, regardless of the overall percentage of economically disadvantaged students within the school population ("School Progress Reports," n.d.). Regular classroom teachers in High Risk Schools are allotted to schools based on the student population under the Student Weighted Staffing model, which replaced the previous differentiated staffing formulas in 2006-2007. The weighted allotment formulas provide regular teacher positions based on the number, rather than the percentage, of economically disadvantaged students at each school. The allotment ratios are then applied to the weighted enrollment figures in order to determine regular teacher allocations. The weighted allotment formulas allow for differentiated staffing in all schools and provide a more equitable distribution of the available resources ("Weighted Student Funding Report," 2006).

2.6.4. Teach For America

High Risk Schools has attempted to improve the teaching profession by collaborating with Teach For America (TFA). Teach For America is a program used in urban school districts to offset the alarming issue of ineffective teachers in high-poverty schools. This highly regarded program aims to address teacher shortages by sending

graduates from elite colleges, most of whom do not have a background in education, to teach in school districts with large percentages of lower-socioeconomic students (Wilson et al., 2010). Once recruits are accepted into the program, they participate in a five-week TFA summer institute to prepare them for placement in the classroom at the start of the school year. The institute includes courses on teaching practice, classroom management, diversity, learning theory, literacy development, and leadership. During the institute, groups of participants also take full teaching responsibility for a class of summer school students for a period of four weeks. During this time, participants meet regularly with subject and grade-specific learning teams and attend various evening workshops; their progress is evaluated through regular assessment and feedback provided by institute faculty. The institute has established a rigorous process for participants. According to TFA, the typical attendee must carry out a number of preliminary assignments and then spend 70 hours a week on institute-related activities during the five weeks (Decker, et al., 2004). Furthermore, for most TFA corps members, training continues after they are placed in their classrooms, partly because many states and districts require it. TFA has been highly successful in attracting applicants. TFA is highly selective: only 1 in 7 of 25,000 applicants was accepted nationally in 2008 (Wilson, et al., 2011). Since 2006, High Risk Schools has hired 350 TFA teachers ("Strategic Staffing," 2009). Within High Risk Schools, Teach For America teachers are assigned to teach only at Title I schools or FOCUS schools. In 2010-2011, High Risk Schools had about 230 TFA teachers (C. A. Carroll, Personal communication, September 12, 2012).

Table 1 displays some current research that supports the relationship between TFA teachers and student achievement:

Table 1: Research that supports a relationship between TFA teachers and student achievement

Teach for America Reports	**Researcher(s)**	**Findings**
Teach For America Alumni Project	M. Higgins, R. Hess, J. Wiener, and W. Robison, (2011)	**Key finding:** More founders and leaders of education organizations participate in Teach For America than in any other organization or program.
Teacher Preparation Programs and Teach For America	(A. Ware, et al.) (2011)	Teach For America corps members in Texas are more likely to teach in high-needs schools than the average new teacher in Texas and corps members return for a second year at higher rates than non-Teach For America teachers.
Report Card on the Effectiveness Teacher Training	Tennessee State Board of Education and Tennessee Higher Education Commission (2010)	The average Teach For America Tennessee teacher outperforms the average new fourth to eighth-grade teacher in the state across all subject areas and grade levels, does just as well as the average veteran teacher in mathematics, and outperforms the average veteran teacher in reading/language arts, and math.
Teacher Preparation Student Test Scores in North Carolina	G. Henry, et al., (2012)	An analysis of 12 teacher preparation programs using student achievement data. TFA was identified as the most effective source of early career teachers –five years of experience in North Carolina.
Teach for America Report	**Researcher(s)**	**Findings**
Teacher Characteristics and Student Achievement: Evidence from Teach For America **»**	W. Dobbie (2011)	Dobbie found that overall the Teach For America selection model successfully identifies teachers who will have a positive impact on student achievement. This is one of the first studies to detect a relationship between student success and observable teacher characteristics that can be measured prior to service.
Recruiting Effective Math, How do math immersion teachers compare? Evidence from New York City	D. Boyd, P. Grossman, K. Hammerless, H. Lankford, S. Loeb, M. Ronfeldt, and J. Wyckoff (2010)	Teach For America middle school math teachers are more effective than other beginning middle-school math teachers.
Teach For America Evaluation Report	Charlotte-Mecklenburg Schools, Center for Research & Evaluation Office of Accountability J.Schoeneberger, K. Dingle, L. Tingle (2009)	Corps members, on average, are about as effective as other teachers in their schools.
Making a Difference? The effects of Teach For America on High School	Xu, Jane Hannaway, and Colin Taylor, The Urban Institute/CALDER (2009)	Teach For America corps members are, on average, more effective than non-Teach For America teachers in all subject areas, and especially in math and science.

Teach For America National Principal Survey	Policy Studies Associates, Inc. (2009)	95% of the principals surveyed rated corps members as effective as other beginning teachers in terms of overall performance and impact on student achievement.
Teach For America Contributions' to Student Achievement in Louisiana in Grades 4-9 2004-2005 to 2006-2007	George H. Noell and Kristin A. Gansle (2009)	Teach For America corps members in Louisiana are outperforming other new teachers and are as effective as veteran teachers is across the state in math, science, reading, and language arts.

Table 2: Displays some current research that demonstrates no significant relationship between TFA teachers and student achievement:

Table 2: Research that demonstrates no significant relationship between TFA teachers and student achievement

Teach for America Reports	Researcher(s)	Findings
The effectiveness of Teach For America and other under-certified teachers on student academic achievement (Arizona)	Laczko-Kerr, I., & Berliner, D. (2002).	Key Findings: Students of certified teachers significantly out-performed students of teachers who were under-certified on all three subtest of the SAT9; TFA teachers did not perform significantly different than under-certified teachers
Does teacher preparation matter? Evidence about teacher certification, Teach For America, and Teacher effectiveness. (Texas)	Darling-Hammond, L., Holtzman, D., Gatlin,S.J., & Heilig, J.V. (2005)	Key Findings: The study found that certified teachers consistently produced significant stronger student achievement gains that uncertified teachers, including TFA.
How changes in entry requirements alter the teacher workforce and affect student achievement.	Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2006).	Key Findings: When compared to new teachers who graduated from a teacher education program, students of TFA recruits scored significantly lower in reading/language arts and about the same in math.
Teach For American: A Review of Evidence	Julian Vasquez Heilig & Su Jin Jez (2010) Great Lakes Center for Education Research & Practices	A meta-analysis of previous research of TFA. Key findings were that the retention rate for TFA teachers is low and student achievement results are mixed at best.

Because the Teach For America Program is relatively new, there has been limited research nationally or within High Risk Schools. Recent debates about the utility of professional teacher education have raised questions about whether certified teachers are,

in general, more effective than those who have not met the testing and training requirements of certification, and whether some candidates with strong liberal arts backgrounds might be at least as effective as traditional teacher education graduates (Darling-Hammond, Holtzman, & Heilig, 2005).

In High Risk Schools, the Teach For America corps members are only assigned to teach in Title I Schools or The Finding Opportunities: Creating Unparalleled Success (FOCUS Schools, 2009). Title I schools receive additional funding mandated by the passage of the Elementary and Secondary Education Act (ESEA) of 1965, which provides federal funding for high-poverty schools to help students struggling academically and or at risk of falling behind. These funds can provide additional services which can include the hiring of additional teachers to reduce class size, tutoring, the purchasing of instructional equipment, materials, and supplies, the providing of parental involvement activities, professional development, pre-kindergarten programs, and the hiring of teachers and paraprofessionals (FOCUS Schools, 2009). Funding supports Title I school-wide programs and targeted assistance programs, depending on the number of students that receive free and reduced-price lunch in the school and how the school wants to function. School-wide programs are in schools that have at least a 75% poverty level based on the number of children designated as economically disadvantaged.

High Risk Schools' Center for Research and Evaluation (CRE) has conducted several program evaluations. These studies have shown mixed results on the effectiveness of Teach For America and thus indicate a need for further research.

The first CRE evaluation revealed mixed results on the differences of students taught by TFA teachers versus non-TFA teachers (Schoeneberger, Dever & Tingle,

2009). There were no significant differences between TFA and non-TFA teachers when examining reading End of Grade tests (EOG) and reading EOG growth scores for the 2007-2008 and 2008-09 school years. Significant, positive effects were found for TFA teachers in comparison to non-TFA teachers when analyzing 2008-09 math EOGs and math EOG growth scores. No significant differences between TFA and non-TFA teachers were noted when examining 2007-08 math EOGs or math EOG growth scores in 2007-08.

Significant positive effects were found in both 2007-08 and 2008-09 when examining End of Course (EOC) and (EOC) growth scores, where individual EOC subjects were collapsed into a single outcome to account for small sample sizes. A significant, positive effect was found for 2008-09 first-year TFA teachers on math EOG growth when compared to first-year non-TFA teachers. Remaining comparisons of math EOGs and math EOG growth scores for 2007-08 and 2008-09 among similarly experienced teachers were all non-significant.

A significant, positive effect was found for non-TFA teachers when examining reading achievement in 2007-08 among first-year teachers and when examining 2008-09 reading growth outcomes for teachers with two years of experience. Remaining comparisons of reading EOGs and reading EOG growth scores for 2007-08 and 2008-09 among similarly experienced teachers were all non-significant. Significant positive effects were found for TFA teachers compared to non-TFA teachers when examining EOC and EOC growth outcomes in both 2007-08 and 2008-09 for teachers with equivalent years of experience.

The second report conducted by the Center for Research and Evaluation found mixed results for TFA teaches when their student outcomes were compared to those of similar teachers who were not Teach For America recruits. Elementary level math proficiency rates for TFA teachers were similar to Comp-TFA (similar teachers) teachers assigned to TFA schools (TFA-Comp), but fell short of Comp-TFA teachers assigned to Comp-TFA schools (Comp-TFA). Middle school math proficiency rates for TFA teachers were greater than TFA-Comp rates, but were still lower than Comp-TFA rates. Elementary reading and science proficiency rates for TFA teachers were similar to TFA-Comp teachers, but fell short of Comp-TFA teachers. Middle school reading and science proficiency rates for TFA teachers were similar to TFA-Comp rates, but were still lower than Comp-TFA rates. EOC proficiency rates for TFA teachers were similar to TFA-Comp rates in Algebra I, Biology, English I in 2009-10, and U.S. History in 2009-10. EOC rates for TFA were greater than TFA-Comp rates in Algebra II in 2009-10, Civics & Economics in 2008-09, and Geometry in 2009-10. TFA rates were higher than TFA-Comp and Comp-TFA rates in English I in 2007-08 and Physical Science in 2008-09 and 2009-10. Elementary math growth for TFA teachers was similar to TFA-Comp and Comp-TFA teachers, exhibiting an increase across the three years of analysis. Middle school math growth for TFA teachers was greater than TFA-Comp and Comp-TFA teacher growth (Schoeneberger, 2011).

Similar studies have been conducted nationally concerning whether Teach For America teachers are as effective as similarly experienced certified teachers. Controlling for teacher experience, degrees and student characteristics, uncertified TFA recruits are less effective than certified teachers, and perform about as well as other uncertified teachers. TFA recruits who become certified after 2 or 3 years do about as well as other certified teachers in supporting student achievement gains; however, nearly all of them

leave within three years (Darling-Hammond, et al., 2005). TFA teachers perform better than in math and science classes (Decker, et al., 2004; Glazerman, et al., 2006; Xu, Hannaway, et al., 2006). A recent New York City study revealed that on average TFA teachers produce student achievement gains in middle school math that exceed those of teachers from other pathways with comparable years of experience (Boyd et al., 2010).

Other studies have shown some negative or mixed results (Darling-Hammond, et al., 2005). Analyses of the student achievement data suggest that TFA teachers in Texas are making a positive impact on high school students' achievement in mathematics. In all eight (i.e. two cohorts and four student groups) of the possible high school level comparisons conducted, students of TFA teachers made greater gains (statistically significant) than students of non-TFA teachers. The greater gains for economically disadvantaged and minority students suggest that TFA teachers in Texas are contributing to the reduction of the math achievement gap for high school students. The analyses also revealed other areas where TFA teachers performed equally as well as their non-TFA counterparts. Finally, lower gains in ELA/R were evident for Hispanic students of TFA teachers (Ware et al., 2011).

2.7 Summary

American public education has not yet settled on a universal definition of what constitutes an effective teacher, although North Carolina and other states have begun to link teacher evaluations to student outcomes. High Risk Schools is also attempting to establish a definition of an effective teacher, and the district has used Teach For America teachers to address low academic achievement in some of its high-poverty, low-performing schools. Research to date in High Risk Schools and elsewhere has indicated

that Teach For America teachers are more effective in some areas and some schools than similar non-TFA teachers, particularly in the teaching of mathematics. However, research performed in school districts across the United State has also shown inconclusive results for TFA teachers across the country.

CHAPTER 3: METHODOLOGY

The researcher compared student performance on the Algebra I North Carolina End of Course test in High Risk Schools between TFA and non-TFA classrooms. The use of a mean comparison in this non-experimental study was appropriate because the researcher is seeking to identify the quantitative learning outcomes a convenience sample of students who were taught by TFA teachers in comparison to students who were taught by non-TFA teachers. The research will take place in High Risk Schools in a school district in the southeastern part of the United States. Ten high schools were purposely selected for the study, all of which are FOCUS or Title I schools.

3.1 Research Question

Using the analysis of outcomes of the North Carolina Algebra I EOC and the predictive scores, this study seeks to answer the question:

Does having a Teach For America ("TFA") teacher have an influence on a student's Algebra I EOC score, independent of gender and race?

To analyze the data, the responses were measured using the composite Algebra I EOC scores, and the explanatory variables of student gender (male or female), race (African-American Hispanic and White), and teacher type (TFA or non-TFA). Employing a hierarchical linear modeling procedure gender and race are level 1 variables, and teacher type is a level 2 variable.

Level 1:

$$Y_{ij} = \pi_{0i} + \pi_{1j} X_{1ij} + \pi_{2j} X_{2ij} + e_{ij}$$

where

Y_{ij} is the outcome variable corresponding to one of the dependent measures (Algebra I EOC) at student i in classroom j;

X_{1ij} takes on a value of 0 for non-African American student and a value of 1 for African American student;

X_{2ij} takes on a value of 0 for female student and a value of 1 for male student;

Level 2: Each of the independent variables was used to predict the coefficients for the Level 1 model separately in the simple conditional models.

$$\pi_{0i} = \beta_{00} + \beta_{01}(TFA)_i + r_{0i}$$
$$\pi_{1i} = \beta_{10} + \beta_{11}(TFA)_i + r_{1i}$$
$$\pi_{2i} = \beta_{20} + \beta_{21}(TFA)_i + r_{1i}$$

β_{00} is the average initial value on the outcome variable (Algebra I EOC) for non-African American, female students. Since "TFA" is an indicator variable and is dichotomous, the corresponding regression coefficients can be interpreted as teacher effects. That is, β_{01} represents the gap in the initial value (i.e., the extent to which TFA and non-TFA students are different from each other) on the outcome variable (Algebra I EOC) between and β_{10} is the average race gap between African American and non-African American students. β_{11} represents the impact of TFA on this gap. β_{20} represents the average gender gap between male and female students. β_{21} represents the impact of TFA on this gap.

3.2 Hypotheses

The hypotheses tested in the study relates to the research question:

$Ho_{1.}$ There is no significant difference in North Carolina End-of-Course Algebra I scaled scores for students who receive instruction from a TFA teacher and students who received instruction from a non-TFA teacher.

$Ha_{1.}$ There is a significant difference in North Carolina End-of-Course Algebra I scaled scores for students who receive instruction from a TFA teacher and students who received instruction from a non-TFA teacher.

3.3 Research Design

The research will use an Ex Post Facto (also called Causal Comparative Research) research design. A causal comparative design is useful whenever there are two groups which differ on an independent variable and the researcher wants to test hypotheses about differences on one or more dependent variables or have two groups which already differ on a dependent variable and want to test hypotheses about differences on one or more independent variables. Causal-comparative research, like correlational research, seeks to identify associations among variables (Airasian & Gay, 2002). The basic causal-comparative approach is to begin with a noted difference between two groups and then search for possible causes for, or consequences of, this difference. There are three types of causal-comparative research (exploration of effects, exploration of causes, exploration of consequences), which differ in their purposes and structure. When an experiment would take a considerable length of time and be quite costly to conduct, a causal-comparative study is sometimes used as an alternative.

3.4 External and Internal Validity

The external validity of the study shows how the results of this study can be generalized to describe the influence of TFA on student performance on the North Carolina Algebra I EOC Test. This study encompasses the High Risk School District, which has 33 high schools. The results of this study may be generalized to represent school districts across the states that are similar in size and demographics. Additionally, students in all the schools complete the same assessment based on the same standards while being taught by teachers who all meet the definition of highly qualified, through a traditional or alternative program.

Threats to Internal Validity are:

- Two weaknesses in causal-comparative research include a lack of randomization and an inability to manipulate an independent variable.
- A major threat to the internal validity of a causal-comparative study is the possibility of a subject selection bias. The chief procedures that a researcher can use to reduce this threat include matching subjects on a related variable or creating homogeneous subgroups, and the technique of statistical matching.
- Other threats to internal validity in causal-comparative studies include location, instrumentation, and loss of subjects. In addition, type 3 studies are subject to implementation, history, and maturation, attitude of subjects, regression, and testing threats (Airasian & Gay, 2002).

A study conducted by the University of Texas at Dallas' Education Research Center revealed that years of teaching experience had little or no effect on student performance (Ware, et al., 2011). The use of years of experience as a control variable will

remove this factor as a threat to internal validity. However, research done by Gary Henry from The Carolina Center for Public Policy shows that teaching experience does have an impact. Class sizes and student demographics can also contribute to academic outcomes. Each teacher has different class sizes each day. No teacher in the study has more than 25 students in a class; however, several classes are in the 10-15 student range. This difference in class size could bias the results because the teacher may be able to give the students twice as much attention if there are half as many students in the classroom. This study did not control for class size.

Another threat to internal validity is the number of classes taught during the semester. For example, in some high schools Algebra I teachers are only assigned to teach Algebra I, while other schools require teachers to undertake multiple levels and preparations of mathematics courses during the semester. This threat was not controlled for.

Another issue that needs to be addressed is that the size of the school may affect whether or not the Algebra I teachers have common planning with other teachers. Due to scheduling limitations, small schools may not be able to provide common planning for Algebra I teachers. The lack of common planning may affect both TFA and non-TFA teacher effectiveness. Another threat to internal validity is that some Algebra I students received Introduction to Algebra (first semester), which results in double the amount of time for instruction. These students enrolled in Algebra I second semester. Students who were not allotted this opportunity failed to receive the benefits of the basic skills taught in the introduction class.

3.5 Participants and Setting

After carefully analyzing the data received from the High Risk Schools data warehouse, the researcher created a table that illustrates all of the teachers and the students that will be a part of the study. The researcher eliminated any TFA teacher who taught Algebra I in a middle school. In addition, the researcher removed from the study any Title I or FOCUS schools that did not have any TFA teachers teaching Algebra I.

Table 3: Number of teachers and students selected , by school

High School Code	Number of TFA Teachers	Number of Non-TFA Teachers	Number of TFA Students	Number of Non-TFA Students
School A	1	4	49	122
School B	1	3	101	95
School C	2	1	253	41
School D	2	5	176	394
School E	1	10	86	788
School F	1	9	70	566
School G	1	1	76	36

School H	1	3	41	72
School I	1	3	6	119
School J	1	2	44	26
Total	12	40	902	2259

**Total number of students and staff prior to data analysis*

Teach For America aims to address teacher shortages by sending graduates from elite colleges, most do not have a formal background in education pedagogy, to teach in low-income rural and urban schools for a two-year commitment (Heilig & Jez, 2010). In the High Risk Schools, TFA members are assigned to its neediest schools- Title I or FOCUS. The other schools in the study were identified as priority schools. Priority schools were schools that had EOC pass rate below 60%.

The sample size of the research study will be 52 Algebra I teachers in the selected Title I and FOCUS schools. The distribution of teachers in the convenience sample is 12 TFA teachers and 40 non-TFA teachers. The teachers' schools' total student populations range from a large, comprehensive high school with an enrollment of 2200 students to a small, alternative high school with an enrollment of 200. The maximum number of TFA teachers in one school that taught Algebra I was two; however, several TFA teachers delivered algebra instruction to over 100 students. Based on the review of the data, five Title I and FOCUS schools did not assign a TFA member to Algebra I classroom and as a result, the schools were not included in the study.

3.6 Participants' Rights

An application was submitted to the International Review Board (IRB) to obtain approval for the proposed research. The conditions present that permit the study to be exempt include the collection and study of existing data, and the sources used to obtain research data are publicly available from a website maintained by the North Carolina Department of Public Instruction. School demographics and accompanying variables are presented in such a manner that subjects enrolled in schools of interest cannot be identified directly nor are identifiers linked to the subjects. Data intended to measure student performance involves publicly reported outcome scores from the EOC tests given annually. Secondary data analysis of archival data took place for the proposed study, and no new data was collected. It is through the above criteria that the proposed research was granted exemption from IRB review. The researcher will formally reviewed 2009-2010 data.

3.7 Operational Definitions of Variables

Dependent variables: the dependent variables are student achievement scaled scores and leveled scores. The NC Algebra I EOC measures student achievement. The range for scale score is from 118-178 which converts from a raw score of 0 to a raw score of 64. The number 64 represents the number of test questions. A raw score of 0 equals a score of 118 and a raw score of 64, which means the student correctly answered all of the questions, is a 178. North Carolina considers a student to be meeting the grade level if the student achieves a score above 148.

3.8 Data Collection

All of the data collected for this study was provided by the High Risk Schools' Center for Research and Evaluation which retrieved the data from the High Risk Schools Data Warehouse. A data dictionary was also provided to the researcher to determine the different types of variables in the data file.

The study compared the students' NC Algebra I scores from the selected high schools 2009-2010 that received instruction from a TFA teacher to those who did not have a TFA teacher.

3.9 Instrumentation

The State Board of Education implemented the ABCs Accountability Program in grades K–8 effective in the 1996–1997 school year and grades 9–12 effective during the 1997–1998 school year. The purpose of the assessments developed under the ABCs Accountability Program is to test students' mastery of basic skills (reading, writing, and mathematics). The ABCs Accountability Program was developed under the Public School Laws mandating local participation in the program, the design of annual performance standards, and the development of student academic performance standards. The EOC tests in Algebra I were administered as field tests in 2005–2006 and were administered operationally for the first time in School Year 2006–2007 (Bazemore, Englehart, Kramer, Gallagher, & Brown, 2008).

The School-Based Management and Accountability Program shall be based upon an accountability, recognition, assistance, and intervention process in order to hold each school and the school's personnel accountable for improved

student performance in the school (G.S. 115C-105.21c). Schools are held accountable for student learning by public reporting of student performance results on North Carolina tests. Students' scores are compiled each year and released in a report card. Schools are then recognized for the performance of their students. Schools that consistently do not make Adequate Yearly Progress (AYP) may receive intervention from the state.

Reliability refers to the consistency of a measure when the testing procedure is repeated on a population of individuals or groups. In testing, its use is to be made of the gathering of information, then the information should be stable, consistent, and dependable. If any use is to be made of the information from a test, then the test results must be reliable. If decisions about individuals are to be made based on test data, then it is desirable that the test results are reliable and replicable. For a high-stakes, multiple-choice test, the reliability coefficient should be at least 0.85 points (Bazemore et al., 2008). The reliability coefficient range for the North Carolina Algebra I test is from 0.87-0.93 points.

The validity of a test is the degree to which evidence and theory support the interpretation of test scores. Validity provides a check on how well a test fulfills its function. For all forms of test development, the validity of the test is an issue to be addressed from the first stage of development through the analysis and reporting of scores. The process of validation involves accumulating evidence to provide a sound scientific basis for the proposed test score interpretations. Those interpretations of test scores are evaluated rather than the test itself. Validation, when possible, should include several types of evidence and the quality of the evidence is of primary importance.

Algebra I was one of three EOC tests of mathematics during the 2009-2010 school year. These tests measure the different levels of mathematics knowledge, skills, and abilities specific to the areas with particular focus on assessing students' ability to process information and engage in higher-order thinking. These elements of mathematics measured by the North Carolina EOC tests are also categorized into strands: number and operations, measurement and geometry, data analysis and probability, and algebra. Almost all of the test items are written by North Carolina teachers and other educators. Some of the math items were written under a contract with a major testing company to handle the logistics, but that contract specified that at least half of the items be written by teachers from North Carolina. Additionally, the items were all reviewed by North Carolina teachers (Bazemore, et al., 2008).

The Department of Public Instruction (DPI) routinely administers questionnaires to teachers in an effort to evaluate the validity and appropriateness of the North Carolina EOG and EOC tests of mathematics. Teachers are asked to evaluate the following statements using a five-point scale, with the highest score being "to a superior degree," and the lowest score being "not at all." In the most recent administrations, responses to statements reflect that the tests generally met these criteria to a "superior" or "high" degree (Bazemore, et al., 2008).

1. The test content reflects the goals and objectives of the (Subject / Grade X) Mathematics curriculum as outlined on the enclosed list of (Subject / Grade X) Mathematics objectives.
2. The test content reflects the goals and objectives of the (Subject / Grade X) Mathematics curriculum as (Subject / Grade X) is taught in my school or school system.

3. The items are clearly and concisely written, and the vocabulary is appropriate to the target age level.

4. The content is balanced in relation to ethnicity, race, sex, socioeconomic status, and geographic districts of the state.

5. Each of the items has one and only one answer that is best; however, the distractors appear plausible for someone who has not achieved mastery of the represented objective.

Table 4: Instructional validity of the content of the North Carolina EOC tests of Algebra I

Statement	% indicating to a superior or high degree	% indicating to an average degree	% indicating to a low degree
Test alignment to SCS	73	27	0
Test alignment to instruction	50	50	0
Item clarity and vocabulary	54	46	0
Content and demographic balance	92	0	0
Distractor Design	92	9	0

*Note: SCS means Standard Course of Study. EOC means End of Course.

(Bazemore, et al., 2008)

3.10 Criterion-Related Validity

Analysis of the relationship of test scores to variables external to the test provides another important source of validity evidence. External variables may include measures of some criteria that the test is expected to predict, as well as relationships to other tests

hypothesized to measure the same constructs. Criterion-related validity of a test indicates the effectiveness of a test in predicting an individual's behavior in a specific situation. The criterion for evaluating the performance of a test can be measured at the same time (concurrent validity) or at some later time (predictive validity). For the North Carolina EOC test of Algebra I, teachers' judgment of student achievement, expected grade, and assigned achievement levels all serve as sources of concurrent validity. The Pearson correlation is used to provide a measure of association between the scale score and the variables listed above. The correlational coefficients for the North Carolina EOC Test of Algebra I range from 0.62 to 0.79 points indicating a moderate correlation between EOC scale scores and their correlated associated variables (Bazemore et al., 2008)

Table 5: Pearson correlation coefficient table for variables used to establish criterion-related validity for the North Carolina EOC Tests of Algebra I

Comparison	Pearson Correlation Coefficient
Teacher Judgment of Achievement Level by Assigned Achievement Level	0.63
Teacher Judgment of Achievement Level by Expected Grade Level	0.79
Teacher Judgment of Achievement Level by Scale Score	0.65
Assigned Achievement Level by Expected Grade	0.60
Expected Grade by Scale Score	0.62

(Bazemore et al., 2008)

3.11 Data Analyses Procedures

Multilevel analysis allows variance in outcome variables to be analyzed at multiple hierarchical levels, whereas in simple linear and multiple linear regressions all effects are modeled to occur at a single level. Thus, Hierarchical Linear Models (HLM) are appropriate for use with nested data. The term "nested" is used to describe pieces of data that are contained within a larger unit. An example of a multilevel data structure pertaining to schools are: Level 4 District, Level 3 School, Level 2 class and Level 1 student. For this research, the researcher only used three levels: Classes that are nested with the school and students who are nested within the classes. The hierarchical linear model will use prior achievement, demographics variables and school enrollment to model current year achievement prior to consideration of TFA teacher effects.

At the student level, the model included achievement levels for gender and ethnicity. Using HLM the researcher was able to explore if there is a significant influence on outcomes of males or females based on whether or not they were in a class taught by a TFA or non-TFA teacher. The model also explores the relationship between TFA status and different ethnic groups. The researcher analyzed the results of Hispanic, White and African-American students only, because there were limited numbers of other ethnic groups enrolled in the selected schools. The researcher selected these variables to study to see if there is a difference in how students who are taught by a TFA teacher perform in math when different ethnic groups are compared. The model also tested the aggregate achievement of the classroom and school building. Hierarchical linear modeling was the analysis used for this study. In the following paragraphs, HLM is described fully in terms of how it differs from regression and the advantages of using this analysis strategy.

HLM is similar to regression in that researchers add factors to the model to try to explain as much of the variability in the outcome as possible. The unexplained variability remains in the error term. However, one regression model can only explain a certain amount of variability before one reaches the point of spurious results (Noell & Gansle, 2009). Because of the numerous extraneous variables in the TFA data set, HLM was recommended to the researcher. Often research questions, such as the research question for this study, are more intricate and require a closer look at the student, classroom, and school at the same time (i.e., a nested design); thus, a more complex model is required. In this case, each student is nested in their classroom with a specific teacher, which allowed for an examination of how school factors may have influenced student achievement (Raudenbush & Bryk, 2002).

HLM is an analysis that runs multiple regression models at different levels of hierarchy simultaneously. Sometimes referred to as multilevel modeling, HLM captures and explains as much variability as possible at all levels. This enables a researcher to see a "snapshot in time" of many different levels to answer one research question as opposed to getting only a glimpse at the classroom level or just a look at the aggregated data (Noell & Gansle, 2009).

Aggregating data to a higher level is a common solution for satisfying the independence assumption of regression models; therefore, a significant amount of data and valuable student information is lost (Raudenbush & Bryk, 2002). HLM allows more specific questions about the topic to be investigated because of the flexibility of the covariance structure and the additional error terms at each level. Additionally, HLM's efficiency allows a researcher to simultaneously test the effects of variables within a level

(e.g., within a classroom comparing one student to the next) and test the effects of variables across multiple levels (e.g., how a student performs who has a TFA teacher in comparison to a non-TFA teacher).

HLM also offers the flexibility of investigating cross-level interaction effects, such as the interaction of teachers teaching in a large, comprehensive high school and a teacher who delivers instruction in a small school. This allows researchers to ask more specific research questions (Raudenbush & Bryk, 2002). HLM measures the homogeneity of a cluster utilizing a procedure called intraclass correlation (ICC) (Noell & Gansle, 2009). If the ICC is 0, then there is no dependency occurring within a cluster or unit. If the ICC is greater than approximately .2, then the cluster is sharing information and factors may have to be added at that level to account for the dependency. When the ICC is overlooked, the possible homogeneity may cause smaller variance estimates erroneously thereby increasing the chances of a Type I error (reporting statistical significance in error) (Raudenbush & Bryk, 2002).

Therefore, HLM is the appropriate statistical procedure for nested data in order to account for the variance within any particular level (e.g., within students) and between levels (e.g., between students and schools) (Raudenbush & Bryk, 2002). This study used test scores describing Algebra I achievement as outcomes, student data describing student characteristics, and school data describing schools' practices. Based on a preliminary view of the TFA data set, many of the students have transferred from one school to another. It is very likely that all of the schools that students effect their achievement differently; the impact on the student from the transition may also affect his or her achievement. These effects should be taken into account.

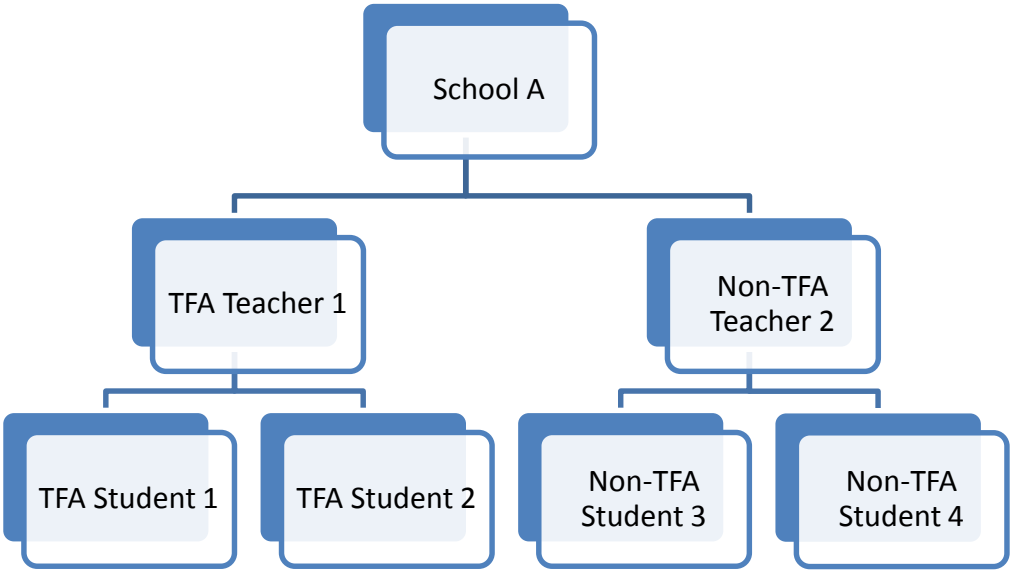

Figure 1: Nesting structure of students within teachers TFA and non-TFA teachers within schools (example of one High Risk School)

3.12 Summary

The purpose of this section was to describe the hypothesis, participants, procedures, design, and data analysis. The purpose of this quantitative study is to identify the relationship between the type of teacher TFA and non-TFA and its influence on student achievement. The researcher used as the data analysis method HLM. Again, HLM is ideal for this study due to the fact that the data is "nested." For example, the study contains individual student data that is "nested within the class" (TFA/nonTFA) and multiple classes are nested within the school. Teach For America corps members have been assigned to low-performing schools across the United States to help resolve the issue of ineffective teachers in the most fragile schools. The collected data has variables that will affect the results of the study. Comparing the TFA teachers to the non-TFA teachers who teach Algebra I required a deep analysis.

CHAPTER 4: RESULTS

As stated in Chapter 1, the study reported here examined in detail the problems encountered nationally with not having an effective teacher in every classroom. The High Risk School District has addressed this issue with multiple strategies, including reliance on Teach For America (TFA) recruits in many of its struggling schools. This chapter is organized in terms of the specific research question posed in Chapter 1. Using the analysis of the outcomes of the North Carolina Algebra I End of Course (EOC) this study seeks to answer the following research question: Does having a Teach For America ("TFA") teacher have an influence on a student's Algebra I EOC score, independent of gender and race? This chapter reports the findings from the quantitative data collected.

The data for this study originated from the High Risk Schools' Data Warehouse which abstracted the data from the North Carolina Department of Public Instruction. The school year that the data came from was the academic year 2009-2010. The method of sampling for the study was convenience sampling. The sample size of the research study is 52 Algebra I teachers in the selected Title I and FOCUS schools. The distribution of teachers in the sample is 12 TFA teachers and 40 non-TFA teachers. A total of 3161 students were enrolled in Algebra I in the selected schools. 2259 students received instruction from a non-TFA teacher in comparison to 902 who were taught by a TFA teacher. It should be noted that after careful review of the Grade-Level chart in the frequency table that over 35% of students who were enrolled in Algebra I were in the

10^{th} -12^{th} grade. The vast majority of high school students complete Algebra I in the eighth or ninth grade, however, in this particular population a large percentage of students are enrolled in grades 10^{th} -12^{th}.

4.1 Analysis of Variance (ANOVA) Results

The following tables illustrate whether or not (ANOVA) testing detected any statistically difference between gender, Table 6; ethnicities, Table 7; school, Table 8; TFA Status Table 9, LEP Status Table 10, and EC Status Table 11. ANOVA testing is a collection of statistical models in which observed variance is partitioned into components due to different sources of variation. In its simplest form ANOVA provides a statistical test of whether or not the means of several groups are equal. The benefit of ANOVA over the simple T-Test is that the research can analysis more than two mean. The ANOVA test served as a baseline test for more advanced testing- HLM.

Table 6: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by Gender

	Gender	N	Mean	SD	Minimum	Maximum
Algebra1	Female	1242	-.54	.76	-.2.68	2.31
	Male	1141	-.53	.82	-2.88	1.82
	Total	2383	-.54	.79	-2.88	2.31
Math 8	Female	1317	-.57	.72	-2.74	2.21
	Male	1383	-.60	.75	-2.52	1.78

Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) failed to detect any statistically significant differences between male and female students in either Algebra I, $F(1, 2381) = 0.32$, $p = .86$, or Eighth-Grade Math, $F(1, 2698) = 1.19$, $p = .28$.

Table 7: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by Ethnicity

	Race	N	Mean	SD	Minimum	Maximum
Algebra1	Asian	80	-.51	.99	-2.68	1.42
	Black	1778	-.57	.77	-2.88	1.82
	Hispanic	333	-.45	.79	-2.59	2.01
	Indian	11	-.80	.67	-1.70	.54
	Multi	61	-.44	.89	-2.49	1.72
	White	120	-.35	.85	-2.88	2.31
	Total	2383	-.54	.79	-2.88	2.31

Math8	Asian	70	-.45	.70	-2.20	1.13
	Black	2042	-.64	.72	-2.74	1.78
	Hispanic	372	-.43	.74	-2.52	2.21
	Indian	12	-.57	.64	-1.56	.38
	Multi	68	-.42	.80	-1.84	1.78
	White	136	-.37	.70	-2.09	1.45
	Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) showed statistically significant differences between students in different ethnicities in both Algebra I, $F(5, 2377) = 3.11$, $p = .008$, and Eighth-Grade Math, $F(5, 2694) = 8.89$, $p < .001$. Post-Hoc analysis with Tukey's HSD method suggested that the only statistically significant difference in Algebra I was between White and Black students, $p = .04$. In Eighth-Grade math, however, statistically significant differences were noted between White and Black as well as between Black and Hispanic students.

Table 8: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by school

	School	N	Mean	SD	Minimum	Maximum
Algebra1	A	110	-1.06	.66	-2.59	.64
	B	189	-.30	.78	-2.39	1.62
	C	290	-.15	.72	-2.88	2.31
	D	400	-.50	.80	-2.88	1.33
	E	568	-.64	.80	-2.68	1.42
	F	549	-.68	.74	-2.68	2.01
	G	79	-.66	.72	-2.00	1.62
	H	44	-.50	.75	-2.39	1.13
	I	97	-.60	.82	-2.39	1.42
	J	57	-.73	.60	-1.31	1.42
	Total	2383	-.54	.79	-2.88	2.31

Math 8	A	171	-1.20	.48	-2.74	.16
	B	187	-.26	.74	-2.05	1.45
	C	284	-.06	.65	-1.77	1.78
	D	506	-.64	.73	-2.39	1.67
	E	704	-.77	.68	-2.62	1.78
	F	511	-.44	.66	-2.52	2.21
	G	85	-.70	.70	-2.05	.70
	H	87	-.75	.69	-2.25	.70
	I	103	-.62	.70	-2.52	1.02
	J	62	-.45	.69	-1.94	1.02
	Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) showed statistically significant differences between these schools in both Algebra I, $F(9, 2373) = 23.77$, $p < .001$, $\eta^2 = .08$, and Eighth-Grade Math, $F(9, 2690) = 48.98$, $p < .001$, $\eta^2 = .14$. Post-Hoc analysis with Tukey's HSD method suggested that School A is statistically significantly different from all other schools. Based on ANOVA results, School F, School G, School E, School I, School D, and School H are in a homogeneous group. Some homogenous groups were not surprising. For an example, School B and School C were homogenous for eighth grade math and Algebra I. These findings were obvious due to the fact that both schools have entrance requirements. As for eighth grade math, School A is statistically significantly different from all other schools. These results were not surprising because the students who were assigned to School A were below grade level in math which was a requirement for admission to the school.

The researcher analyzed eighth grade math z-scores to ensure equivalent grouping of students once they entered high school to control for sampling bias. Students who were assigned to TFA or non-TFA classroom did not have a significant difference in academic achievement. A description of each school is included in Appendix A.

Table 9: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by TFA status

	Teacher Type	N	Mean	SD	Minimum	Maximum
Algebra1	Non-TFA	1658	-.59	.79	-2.88	2.01
	TFA	705	-.40	.77	-2.88	2.31

	Total	2383	-.54	.79	-2.88	2.31
Math 8	Non-TFA	1908	-.60	.73	-2.62	2.21
	TFA	792	-.55	.72	-2.74	1.78
	Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) showed statistically significant differences between students taught by TFA teachers and their counterparts taught by non-TFA teachers in Algebra I, $F(1, 2381) = 30.37$, $p < .001$, but not in Eighth-Grade Math, $F(1, 2698) = 2.21$, $p = .14$.

Analysis of Covariance (ANCOVA) with eighth-grade math scores as a covariate suggested a statistically significant difference between students of TFA teachers and those of non-TFA teachers, $F(1, 2079) = 22.63$, $p < .001$, $\eta^2 = .01$. Levene's test of equality of error variances showed that the assumption of homogeneity of variance was met, $F(1, 2080) = 0.57$, $p = .45$. The assumption of the linear relationship between the dependent variable and the covariate was also met, $r = .64$, $p < .001$.

Table 10: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by student LEP Status

	Student Type	N	Mean	SD	Minimum	Maximum
Alg1z	Non-LEP	2050	-.54	.78	-2.88	2.31
	LEP	333	-.51	.86	-2.68	2.01
	Total	2383	-.54	.79	-2.88	2.31
Ma8z	Non-LEP	2349	-.60	.72	-2.74	1.78
	LEP	351	-.48	.78	-2.52	2.21
	Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) showed statistically significant differences between LEP and Non-LEP students in Eighth-Grade Math $F(1, 2698) = 7.51$, $p = .006$, but not in Algebra I, $F(1, 2381) = 0.34$, $p = .56$.

Table 11: Descriptive statistics of Algebra I and Eighth-Grade Math Z scores by EC Status

	Student	N	Mean	SD	Minimum	Maximum

	Type					
Alg1z	Non-EC	2182	-.48	.76	-2.88	2.31
	EC	201	-1.16	.83	-2.88	1.62
	Total	2383	-.54	.79	-2.88	2.31
Ma8z	Non-EC	2412	-.52	.72	-2.74	2.21
	EC	288	-1.15	.61	-2.46	.70
	Total	2700	-.58	.73	-2.74	2.21

Analysis of Variance (ANOVA) showed statistically significant differences between EC students and Non-EC students in both Algebra I, $F(1, 2381) = 144.53$, $p < .001$, and Eighth-Grade Math, $F(1, 2698) = 209.14$, $p < .001$.

4.2 Hierarchical Linear Modeling Results

The two-level unconditional model is as follows:

Level I:

$$Y_{ij} = \beta_{oj} + r_{0j}$$

Where Y_{ij} is the Algebra I z-transformation score for student i in classroom j, β_{oj} is the average Algebra I z-transformation score for classroom j, and r_{0j} is the random effect (residuals).

Level II:

$$\beta_0 = \gamma_{00} + u_{0j}$$

Where γ_{00} is the average Algebra I z-transformation score for all students in the sample, and u_{0j} is the random effects (residuals).

The unconditional model revealed that the Level I variance (σ^2) is 0.55464 whereas the Level II variance (τ_{00}) is 0.09670. The intra-class correlation (ICC) coefficient was 0.1485 using the formula as follows:

$$\rho = \frac{\tau_{00}}{\tau_{00} + \sigma^2}$$

The ICC values suggests that 14.85% of the variance in student Algebra I z-transformation scores lies between classrooms. Therefore, it is necessary to use a two-level model to account for the variance between classrooms.

Since teacher information is not available, no predicators were added to the second-level model but student information was added to the first-level model. This information includes z-transformation, mathematics score at Grade 8 (*MA8z*), whether or not being taught by TFA teachers (*TFA*), whether or not being classified as limited English proficiency (LEP), whether or not being classified as exceptional children (*EC*), whether or not being in the Hispanic group (*HISP*), and whether or not being in the White group (*WHITE*). The two-level unconditional model is as follows:

Level I:

$$Y_{ij} = \beta_{oj} + \beta_{1j}TFA_{ij} + \beta_{2j}LEP_{ij} + \beta_{3j}EC_{ij} + \beta_{4j}HISP_{ij}$$
$$+ \beta_{5j}WHITE_{ij} + \beta_{6j}MA8z_{ij} + r_{0j}$$

Where Y_{ij} is the Algebra I z-transformation score for student i in classroom j;

β_{oj} is the average Algebra I z-transformation score for all African American students who are not taught by TFA teachers who are not identified as LEP or EC in classroom j;

β_{1j} is the difference between students taught by TFA teachers and non-TFA teachers;

β_{2j} is the difference between LEP students and non-LEP students;

β_{3j} is the difference between EC students and non-EC students;

β_{4j} is the difference between African American students and Hispanic students;

β_{5j} is the difference between African American students and White students;

β_{6j} is the relationship between eight-grade mathematics z-transformation score and ninth-grade Algebra I z-transformation score;

Level II:

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

$$\beta_{5j} = \gamma_{50}$$

$$\beta_{6j} = \gamma_{60}$$

HLM result after considering the nesting nature of students within different schools, we found that students taught by TFA out performed students taught by non-TFA students, $t(1956) = 3.23$, $p = .002$. Students taught by TFA teachers for all subgroups White, Black and Hispanic out performed students taught by non-TFA teachers (all $ps < .01$).

Results found that EC students perform worse than non-EC students, $t(1956) = -6.05$, $p < .001$. Theses finding are consistent with previous research that students with disabilities tend to perform worse than student without disabilities. There were also a significant relationship between 8th grade math and Algebra I, $t(1956) = 32.50$, $p < .001$. There was no significant difference between LEP students and Non-LEP students, $t(1956) = -0.42$, $p = .68$. No significant difference between White students and African American students, $t(1956) = 0.35$, $p = .73$. No significant difference between Hispanic students and African American students, $t(1956) = 1.20$, $p = .23$. The effect size of the model is 0.7134, which means that 71.34% of the variance in the z-transformation of Algebra I scores of ninth-grade students was explained by the variables included in the two-level hierarchical linear models.

CHAPTER 5: CONCLUSION

This study attempted to assess the ongoing problem of teacher effectiveness in under performing schools and the strategy of hiring Teach For America (TFA) and assigning them to schools with the greatest academic needs. The study consisted of Twelve TFA teachers was assigned to teach Algebra I in ten low performing schools in the High Risk School District. The ten schools in the study also had 40 non TFA teachers to teach Algebra I. Each of the schools in the study was an intercity school with a large population of Africa-American and Hispanic students. The portion of economically disadvantaged students at the schools ranged from 61 to 89 percent. Although unknown how many or which students in the Algebra I classes were economically disadvantaged, it was assumed that the composition of these classes is similar to that percentage for the school itself.

5.1 Findings

The findings in this study are similar to conclusions presented in the literature review. Glazerman et al., (2004) found that TFA teachers performed better than non-TFA in math and science. Henry, et al., (2009) identified TFA as the most effective source of early career teachers. Noell et al., (2009) found that TFA teachers outperformed other new teachers and are as effective as veteran teachers. The analysis of the research question in this study, "Does having a Teach For America teacher have an influence on students' Algebra I EOC scores, independent of gender and race?" indicates

that students who were taught Algebra I by a TFA teacher outperformed students who were taught by a non-TFA teacher. These finding were consistent for all racial subgroups.

The study also found that students who were identified as exceptional children performed significantly worse than non-EC students, however, surprisingly there was no significant relationship between LEP students and non-LEP students. Also, interesting, is that the researcher found no significant difference between African-American students and white students. Lastly, there was no significant difference between Hispanic and African-American student performance.

5.2 Explanation of Outcomes

The results of the study indicate that students who received Algebra I instruction from a TFA teacher performed significantly better than students who received instruction from a non-TFA teacher. The result of the study could be attributed to the rigorous selection process of TFA. A process according to TFA which is "a student-driven selection approach." The approach that TFA uses in selecting corps members is based on a vision of student success. During the selection process, the organization looks for candidates who have a deep belief in the potential of all students. Each candidate must demonstrate leadership ability and demonstrate strong achievement in academics, professional setting and extracurricular activity. TFA looks for these characteristics in applicants throughout the admissions process and admits those individuals who show the most potential to succeed in high-need classrooms ("Teach For America," n.d.). While it cannot be assumed that non-TFA teachers lack these personal characteristics, it may be that these motivational characteristics of TFA teachers influence student outcomes.

Another reason why students who receive math instruction from a TFA teacher may perform better on average than students who receive instruction from a non-TFA is that TFA corps members often have a strong liberal arts background and may even have stronger math backgrounds than non-TFA teachers. The thought here is that even though the TFA teachers may lack pedagogical skills, this shortcoming may be offset by superior content knowledge. The explanation of this outcome is consistent with other larger-scale reports conducted recently that illustrate that TFA teachers are perhaps more effective in fostering better student outcomes in subjects like mathematics and science.

The fact that the researcher found no significant difference in the performance between African-American students and white students is counterintuitive. Generally, studies have shown that white students' performance in standardized test is superior to African-American student performance. This finding may be due to the fact both groups of students were similar socio-economically. The conclusion is that when students come from similar socioeconomic backgrounds student performance is constant.

5.3 Strengths and Limitations

The findings of this study can have an influence on how school districts staff high-poverty schools in the future. TFA teachers are only assigned to teach at high-poverty schools and the results of this study, although limited, are promising to school districts. Another strength is that the TFA teacher performance was significant across racial and gender groups. An ongoing question that policymakers have in this country is how to effectively teach African-American and Hispanic students from high poverty backgrounds.

Another strength of the study is the data analysis procedures of hierarchical linear modeling. This is seen as a strength because it allowed specific questions about the topic to be investigated because of the flexibility of the covariance structure and the additional error terms at each level. Additionally, HLM's efficiency allows the researcher to simultaneously test the effects of variables within a level (e.g., within a classroom comparing one student to the next) and to test the effects of variables across multiple levels (e.g., how a student performs who has a TFA teacher in comparison to a student with a non-TFA teacher).

HLM also offered the flexibility of investigating cross-level interaction effects, such as the interaction of a teacher teaching in a large school (School E) and a teacher who delivers instruction in a small alternative high school (School A).

A limitation to the study which is consistent with other studies of high-poverty schools is missing data. Of the 3,300 students in the original data set, only 1,900 students' data could be analyzed. The other 1,600 students had missing Algebra I z-scores. This is a problem for the researcher because the most disenfranchised students' data were not analyzed.

The study is limited in scope to only selected schools in the High Risk Schools District but the schools' population is consistent with the type of schools that TFA focuses on changing. There are limitations to the amount of resources that each school has based on their Title I status. Title I schools identified in the study have additional funds for professional development and staffing. Not all of the schools in the study are identified as Title I. Another limitation of the study is the number of TFA teachers staffed

at each school. TFA teachers who are assigned to schools that have few TFA teachers may feel isolated from the general staff.

The last limitation identified is that there was no way to identify whether or not the non-TFA teachers had received any specialized training. High Risk School District has numerous teachers who come from alternative teaching programs, as well as regular state certified teachers.

5.4 Recommendations

Policy makers consider the significant recurring costs of TFA, estimated at over $70,000 per recruit, and press for a five-year commitment to improve achievement and reduce re-staffing (Heilig & Jez, 2010). If there is no increase in years of commitment then only support TFA staffing when the alternative hiring pool consists of uncertified and emergency teachers or substitutes. This recommendation is important because many urban school districts struggle to staff high poverty schools. The program guidelines require participants to only teach for two years. TFA teachers comprise 0.5% of the teachers in North Carolina, approximately one-third of TFA teachers persist 3 years and less than 10% persist for five years (Carolina Institute for Public Policy, 2012). A high percentage of TFA teachers leave the field after the obligatory two years, thereby contributing to a phenomenon known as the “revolving door” in which TFA teachers are simultaneously entering and leaving. This revolving door approach to teacher retention necessarily confers both direct and hidden costs to districts, schools and students through the loss of teacher talent which highest developmental trajectories among all other teachers entering the profession through different routes (Carolina Institute for Public

Policy, 2012). Further, the time cost it takes to hire their replacements is also a factor. These costs may be particularly burdensome for schools in challenging circumstances.

The second recommendation is that educators who are responsible for hiring make decisions based on student academic outcomes. There is ongoing conflict between advocates for the traditional teacher preparation system and alternative education programs. TFA teachers are often blamed or accused of interfering with the progress made by educators who are trained traditionally through the university system. TFA promotes the idea that effective teachers simply need strong content knowledge and can learn pedagogical skills in a short period of time. There needs to be a common ground, in which teachers, regardless of their route to the teaching profession are judged primarily on their impact on student achievement. Highly effective teachers come from various teaching preparation programs.

5.5 Conclusion

The results of this study demonstrate that TFA teachers assigned to Algebra I classes have a positive influence on increasing student achievement. Other studies have shown that TFA teachers, in comparison to regularly certified teachers, have a negative influence on achievement, especially when teaching reading. Educators who are responsible for hiring teachers should continue to measure teacher effectiveness based on student outcome gains. Policy makers who are responsible for alternative teacher certification programs might analyze the association between teacher retention on school systems. In general, additional studies are needed that address the relationship between teacher retention and alternative teaching programs.

REFERENCES

"Academic Genocide" in Charlotte's Bottom-Performing HS, Judge Manning Concludes (45th ed., Vol. 7, Rep.). (2005). Raleigh, NC: Public School Forum Of NC.

The Achievement Zone. (2008). Retrieved October 16, 2011, from http://www.massinsight.org/publications/stgresources/99/file/1/pubs/2010/04/20/III_District_Profile_CMS_AZ.pdf

Airasian, P., & Gay, L. (2002). *Educational Research: Competencies for analysis and application*. Upper Saddle River, N.J. Prentice Hall.

Adelman, C., (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington D.C.: U.S. Department of Education.

Amrein-Beardsley, A. (2012). Recruiting expert teachers, into high-needs schools: Leadership, money, and colleagues. *Education Policy Analysis Archives*, *20*(27). Retrieved January 11, 2013, from http://epaa.asu.edu/ojs/article/view/941

Bazemore, M., Englehart, T. P., Kramer, L. M., Gallagher, M. P., & Brown, R. A. (2008). *The North Carolina mathematics tests.* (North Carolina Department of Public Instruction Technical Report Edition 3- Draft). Retrieved October 14, 2011, from http://www.ncpublicschools.org/docs/accountability/reports/mathtechmanualdrafted2.pdf

Behrend, D., Fernandez, M., Horowitz, A., & Luong, D. (2009). *Promoting teacher effectiveness in North Carolina.* (North Carolina Department of Public Instruction). Retrieved October 16, 2011, from http://www.ncpublicschools.org/docs/intern-research/reports/teachereffectiveness.pdf

Boyd, D., Grossman, P., Hammerness, K., Landford, H., Loeb, S., Ronfeldt, M., & Wyckoff, J. (2010*).* Recruiting effective math teachers: How do math immersion teachers compare?: Evidence from New York. *National Bureau of Economic Research*, Cambridge, MA. Retrieved October 03, 2011, from http://www.nber.org/papers/w.16017.pdf

Boyd, D., Grossman, P., Hamilton, L., Loeb, S., & Wyckoff, J. (2005). How changes in entry requirements alter the teacher workforce and affect student achievement? *Education Finance and Policy,* 1(2).

Boyd, D., Lankford, H., Loeb, S., Rockoff, J., & Wyckoff, J. (2008). The narrowing gap in New York City teacher qualifications and its implications for student achievement in high-poverty schools. *Journal of Policy Analysis and Management, 27*(4), 793-818. doi: 10.1002/pam.20377

Buddin, R., & Zimmer, R. (2005). Student achievement in charter schools: A complex picture. *Journal of Policy Analysis and Management, 24*(2), 351-371. doi: 10.1002/pam.20093

Buddin, R. (2011). *Measuring teacher and school effectiveness at improving student achievement in Los Angeles elementary schools* (Rep.). Munich, Germany: University Library of Munich. Retrieved November 16, 2012, from http://www.mpra.ub.uni-muenchen.de/31963/

Carolina Institute for Public Policy. (2012). *UNC Teacher Quality Research: Teacher Portals Effectiveness Analysis*. Retrieved from https://publicpolicy.unc.edu/research/PortalsEffectivenessReport.pdf

Center for Research and Evaluation. (n.d.). *Home*. Retrieved October 16, 2011, from http://www.cms.k12.nc.us?cmsdepartments/accountability/cfre/Pages/default.aspx

Chait, R. (2010). *Removing chronically ineffective teachers.* (Center for American Progress). Retrieved September 18, 2011, from http://www.americanprogress.org/issues/2010/03/pdf/teacher_dismissal.pdf

Chambers, D. (2002). The real world and the classroom: Second-career teachers. *Clearing House, 75*(4), 212-217.

Charlotte Mecklenburg Schools Fast Facts. (2012, Summer). Retrieved October 27, 2012, from http://www.cms.k12.nc.us/mediaroom/aboutus/Pages/FastFacts.aspx

Charlotte-Mecklenburg Planning Department. (n.d.). *Charlotte-Mecklenburg Planning Department*. Retrieved April 05, 2012, from http://charmeck.org/city/charlotte/planning/ResearchGIS/Census/MecklenburgCountyDashboard.pdf

Charlotte Mecklenburg Schools. *Strategic Plan 2014: Teaching our way to the top* (n.d.). Retrieved October 09, 2011, from Charlotte Mecklenburg Schools District website: http://www.cms.k12.nc.us/LearningZones/Documents/Strategic%20Plan%202014%20cument.pdf

Charlotte-Mecklenburg Schools Title I. (n.d.). Retrieved February 05, 2012, from http://www.cms.k12.nc.us/cmsdepartments/ci/fed-state-programs/title-I/Pages/default.aspx

Closing the Expectations Gap, 2011 (Rep.). (2011). (ERIC Document Reproduction Service No. ED515848)

Cody, C. A., Mcfarland, J., Moore, J. E., & Preston, J. (2010.). *The evolution & use of growth models.* Retrieved October 15, 2011, from http://www.ncpublicschools.org/docs/intern-research/reports/growth.pdf

Coleman, J., Campbell, S., Hobson, D., McPartland, J., Mood, A., Weinfield, F., & York, L. (1966). *Equality of educational opportunities*. Washington, DC: US Government Printing Office.

Corbin, W. (1992). Alternative certification programs: Problems and prospects. *Clearing House*, 65(4), p241. Retrieved December 27, 2011, from http://web.ebscohost.com/detail?sid=a8668c443

Darling-Hammond, L., Berry, B., & Thoreson, A. (2001). Does teacher certification matter? Evaluating the evidence. *American Educational Research Association*, *23*(1), 57-77.

Darling-Hammond, L., Holtzman, D., & Heilig, J. (2005). *Education Policy Analysis Archives*. Retrieved October 16, 2011, from http://epaa.asu.edu/ojs/article/view/147

Decker, P. T., Mayer, D. P., & Glazerman, S. (2004, June 9). The effects of Teach for America on students: Findings from a national evaluation. *Mathematica Policy Research, Inc*. Retrieved October 16, 2011, from http://www.mathematica-mpr.com/publications/pdfs/teach.pdf

Department of Education. (2009, July 29). Race to the top fund. *Federal Register*. Retrieved May 25, 2012, from http://www2.ed.gov/legislation/FedRegister/proprule/2009-3/072909d.pdf

Dingman, J. (2010). *A quantitative correlational study of teacher preparation program on student achievement* (Doctoral dissertation, University of Phoenix). AAT3431867.

Dobbie, W. (2011). *Teacher Characteristics and Student Achievement:*. Retrieved May 05, 2012, from http://www.people.fas.harvard.edu/~dobbie/research/TeacherCharacteristics_July2011.pdf

Fetler, M. (1999). High School staff characteristics and mathematics test results. *Education Policy Analysis Archives*, *7*, 1-23. Retrieved from http://epaa.asu.edu.ojs/article/view/544/667

FOCUS Schools [Advertisement]. (2009, Fall). Retrieved October 16, 20011, from www.cms.k12.nc.us/mediaroom/aboutus/Documents/FOCUS%Schools.pdf.

Gay, L. R., Mills, G. E., & Airasian, P. W. (2006). *Educational research: Competencies for analysis and applications*. Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Glazerman, S., Mayer, D., & Decker, P. (2006). *Alternative routes to teaching: The impacts of Teach for America on student achievement and other outcomes*. Retrieved October 16, 2011, from http://onlinelibrary.wiley.com/doi/10.1002/pam.20157/abstract

Goe, L. (2008). *Key issue: Using value-added models to identify and support highly effective teachers.* Retrieved October 16, 2011, from http://www2.tqsource.org/strategies/het/UsingValueAddedModels.pdf

Goe, L., Bell, C., & Little, O. (2008). *Approaches to evaluating teacher effectiveness: A research synthesis*. Retrieved October 03, 2011, from National Comprehensive Center for Teacher Quality website: http;//www.tqsourcorg/publications/Evaluating TeacherEffectiveness.pdf

Goldhaber, D., & Brewer, D. (1997). Why don't schools and teachers seem to matter? Assessing the impact of unobservables on educational productivity. *The Journal of Human Resources*, *32*(3), 505-523.

Gordon, R., Kane, T., & Staiger, D. (2006). *Identifying effective teachers using performance on the job.* Retrieved October 27, 2012, from http://www3.brookings.edu/views/papers/200604hamilton_1.pdf

Hassel, B. C. (2002). *Better pay for better teaching: Making teacher compensation pay off in the age of accountability*. Intellectual Takeout (ITO). Retrieved October 14, 2011, from http://www.intellectualtakeout.org/library/research-analysis-reports/better-pay-better-teaching-making-teacher-compensation-pay-age-accountability

Hechinger, J. (2010*). U.S. teens lag as China soars on international test.* Bloomberg. Retrieved September 18, 2011, from http://www.bloomberg.com/news/2010-12-07/teens-in-u-s-rank-25th-on-math-test-trail-in-science-reading.html

Heilig, J., & Jez, S. (2010). Teach for America: A review of evidence:. *Education and the Public Interest Center & Education Policy Research Unit*. Retrieved April 23, 2012, from http://epicpolicy.org/publication/teach-for-america

Henry, G., Thompson, C., Bastian, K., Fortner, C., Kershaw, D., Purtell, K., & Zulli, R. (2011). Which qualifications matter? Effect of teacher entry portals on student achievement. *Education Finance and Policy*.

Herbert, M. (2010). *Harvard study examines teacher effectiveness*. Retrieved from DA District Administration website October 16, 2011, from http://www.districtadministration.com/article/harvard-study-examines-teacher-effectiveness

Higgins, M., Robison, W., Weiner, J., & Hess, F. (n.d.). Creating a corps of change agents : *Education Next*, 11, 18-25. Retrieved June 23, 2012, from http://educationnext.org/creating-a-corps-of-change-agents/

Hough, L. (2010). It Stems from Algebra: Professor Chris Dede and Assistant Professor Jon Star. *Ed Magazine.* Retrieved May 20, 2012, from http://www.gse.harvard.edu/news-

impact/2010/05/it-stems-from-algebra-professor-chris-dede-and-assistant-professor-jon-star/

Ingels, S., Dalton, B., Holder, T., Lauff, E., & Burns, L. (2011). *The High School Longitudinal Study of 2009 (HSLS:2009):A First Look at Fall Ninth-Graders. NCES 2011-327. EBSCO.* Retrieved from (ED521115)

Kane, T., & Staiger, D. (2008). *Estimating Teacher Impacts on Student Achievement: An Experimental Evaluation.* Retrieved from National Bureau of Economic Research website October 09, 2011 http://www.nber.org/papers/w14607.

Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2006). *What does certification tell us about teacher effectiveness? Evidence from New York City*. Retrieved October 15, 2011, from http://www.gse.harvard.edu/news/features/kane/nycfellowsmarch2006.pdf

Kane, T. J., Taylor, E. S., Tyler, J. H., & Wooten, A. L. (2011, Summer). Evaluating teacher effectiveness. *Evaluating Teacher Effectiveness :*. Retrieved October 16, 2011, from http://educationnext.org/evaluating-teacher-effectiveness/

Kopp, W. (2001). *One day, all children--: The unlikely triumph of Teach for America and what I learned along the way*. New York: PublicAffairs.

Lackzko-Kerr, I., & Berliner, D. (2002). The effectiveness of Teach for America and other under-certified teachers on student academic achievement: A case of harmful public policy. *Education Policy Analysis Archives*. Retrieved March 13, 2013, from http://epaa.asu.edu/epaa/v10n37

Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective instruction*. Alexandria, VA: Association for Supervision and Curriculum Development.

McCaffrey, D. F., Lockwood, J. R., Koretz, D. M., & Hamilton, L. S. (2003). Evaluating value-added models for teacher accountability. *Rand Education*. Retrieved October 16, 2011, from http://www.cgp.upenn.edu/pdf/rand.pdf

McREL. (2009). *North Carolina Teacher Evaluation Process*. Retrieved March 9, 2012, from https://mxweb3.media-x.com/home/ncval/

NCTeach II: North Carolina Teachers of Excellence for All Children. (n.d.). Retrieved September 23, 2011, from University of North Carolina website http://www.northcarolina.edu/ncteach/index.htm

Noell, G., & Gansle, K. (2009). *Teach for America Teachers' contribution to student achievement in Louisiana in grades 4-9: 2004-2005 to 2006-2007*. Baton Rouge, LA: Louisiana State University. http://www.nctq.org/docs/TFA_Louisiana_study.PDF

North Carolina Department of Public Instruction. (n.d.). *Lateral Entry Teachers*. Retrieved October 22, 2011, from http://www.dpi.state.nc.us/licensure/lateral/

North Carolina Department of Public Instruction. (n.d.). *K-12 Curriculum an instruction/NC standard course of study.* Retrieved October 16, 2011, from http://www.ncpublicschools.org/curriculum/

North Carolina Department of Public Instruction. (n.d.). *North Carolina end-of-course test*. Retrieved October 16, 2011, from http://www.ncpublicschools.org/accountability/testing/eoc/

Nye, B., Konstantopoulos, S., & Hedges, L. V. (2004). How large are teacher effects? *Educational Evaluation and Policy Analysis*, *26*(3), 237-257. doi: 10.3102/01623737026003237

Praxis II Overview. (n.d.). Retrieved from ETS March 10, 2012, from http://www.ets.org/praxis/about/praxisii

Quinn, T., & Keith, M. (2010). *Within reach: Leadership lessons in schools reform from Charlotte-Mecklenburg Schools*. Charlotte: Charlotte Mecklenburg Schools.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage Publications.

Report Card on the Effectiveness of Teacher Training Programs. (2010). Retrieved from http://www.tn.gov/thec/Divisions/fttt/report_card_teacher_train/2010%20Report%20Card%20on%20the%20Effectiveness%20of%20Teacher%20Training%20Programs.pdf

Report on the Strategic Plan Charter: Achievement Zone. (2009). Charlotte, NC: Charlotte Mecklenburg Schools presented to the board of education.

Rivkins, S., Hanushek, E., & Kain, J. (2005). Teachers, schools, and academic achievement. *Ecometrica*, *73*(2), 417-458.

Rockoff, J. E. (2004). The impact of individual teachers on student acheivement. *Amercia Economic Review*, *94*(2), 247-252. 10.1257/0002828041302244

Sanders, W., & Rivers, J. (1996). Cumulative and residual effects of teachers on future student academic achievement (Rep.). Knoxville, TN: University of Tennessee.

Sass, T., Hannaway, J., XU, Z., Figlio, D., & Feng, L. (2010). Value added of teachers in high-poverty schools and lower-poverty schools (Working paper). Retrieved April 22, 2012, from http://www.caldercenter.org/UploadedPDF/1001469-calder-working-paper-52.pdf

Sawchuk, S. (2010). Comparing teacher effectiveness in high- and low-poverty schools.

Education Week. Retrieved October 16, 2011 from http://blogs.edweek.org/edweek/teacherbeat/2010/12/comparing_teacher_effectiveness.html

Schoenberger, J. (2011). *Evaluation of Teach for America in the Charlotte Mecklenburg Schools* (Rep.). Charlotte, NC: Charlotte Mecklenburg Schools in collaboration with the Department of Educational Leadership, College of Education University of North Carolina @Charlotte.

Schoenberger, J., Dever, K., & Tingle, L. (2009). *Evaluation of Teach for America in Charlotte Mecklenburg Schools*. Charlotte, NC: Center of Research and Evaluation, report prepared for the Charlotte Mecklenburg Board of Education.

School Progress Reports. (n.d.). *Document Moved*. Retrieved October 23, 2011, from http://www.cms.k12.nc.us/cmsdepartments/accountability/spr/Pages/SchoolProgressReports.aspx?year=2009-2010

School turnaround: Models emerging turnaround strategies and results. (2010). Retrieved from Mass Insight Education and Research Institute website October 16, 2011, from http://www.massinsight.org/publications/stg-resources/112/file/1/pubs/2010/07/20/Turnaround_Models_7_19_10.pdf

Strategic Staffing: 'The moral thing to do'. (2009). Retrieved October 16, 2011, from Charlotte-Mecklenburg Schools website http://www.warreninstitute3.org/images/download/RT_031011/AR/A_Baxter_WhitePaper4_Strategic_Staffing.pdf

Stronge, J. H. (2002). *Qualities of effective teachers*. Alexandria, VA: Association for Supervision and Curriculum Development.

Stronge, J. H., Ward, T. J., Tucker, P. D., & Hindman, J. I. (2007). What is the relationship between teacher quality and student achievement? An exploratory study. *Personnel Evaluation in Education*, *20*(3-4), 165-184.

Teach For America. (n.d.). *Teach For America*. Retrieved from http://www.teachforamerica.org/

Teach for America National Principal Survey. (2009, July). Retrieved November 11, 2011, from http://www.teachforamerica.org/assets/documents/2009_Principal_Survey_National_Results_Highlights_08_09.pdf

Teacher Employment Patterns and Student Results in Charlotte Mecklenburg Schools (Rep.). (2010). Cambridge, MA: Center for Educational Policy Research at Harvard University.

Tissington, L., & Grow, A. (2007). Alternative certified teachers and children at risk. *Preventing School Failure*, *51*(2), 23.

Tourangeau, M. (n.d.). Learning to Give, Philanthropy education resources that teach giving and civic engagement. *Learning to Give*. Retrieved April 28, 2013, from http://learningtogive.org/papers/paper161.html

Ware, A., LaTurner, R. J., Parsons, J., Okulicz-Kozaryn, A., Garland, M., & Klopfenstein, K. (2011). Teacher preparation programs and Teach for America research study. Retrieved from related:http://www.tea.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id

Wayman, J., Foster, A. M., Mantle-Bromley, A. M., & Wilson, C. A. (2003). A comparison of the professional concerns of traditionally prepared and alternatively licensed new teachers. *High School Journal, 86*(3), 35-40. *10.1353/hsj.2003.0005*

Weighted Student Funding Report. (2006). *Mecklenburg ACTS*. Retrieved October 14, 2011, from http://goleaguego.org/weightstfureport.pdf

Weisberg, D., Sexton, S., Mulhern, J., & Keeling, D. (2009). *The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness*. Retrieved October 05, 2011, from http://widgeteffect.org/downloads/TheWidgetEffect.pdf
.

Wilson, S., Ball, D. L., Bryk, A., Figlio, D., Grossman, P., Irvine, J. J., ... Porter, A. (2003). Teacher quality. Retrieved October 16, 2011, from National Academy of Education website http://www.naeducation.org/Teacher_Quality_White_Paper.pdf

Wingert, P. (2010, October 12). An offer they wouldn't refuse. *The Daily Beast*. Retrieved October 23, 2011, from http://www.thedailybeast.com/newsweek/2010/10/12/how-one-district-fixed-its-failing-schools.html

Xu, Z., Hannaway, J., & Taylor, C. (2009). *Making a difference? The effects of Teach for America in high school*. Durham, NC: The Urban Institute and CALDER.

Zientek, L. R. (2006). Do teachers differ by certification route? Novice teachers' sense of self-efficacy, commitment to teaching, and preparedness to teach. School Science and Mathematics, 106, 327. http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1949-8594

APPENDIX A: SCHOOL DESCRIPTIONS

School A

The school was created to increase the likelihood that the district's lowest performing students will graduate from high school. School A opened as an alternative high school in August, 2007 to students who did not meet the North Carolina End-of-Grade (EOG) Gateway requirements for promotion from 8th to 9th grade, who had been previously retained, and who were assigned to schools with the highest concentrations of the district's lowest-performing students. The School A's population during the 2009-2010 school year was 185 students. Student demographics: Africa-American 91 percent, White 2 percent, Hispanic 2 percent, Asian .5 percent and other 2 percent. The percentage of students who are economically disadvantaged is 89 percent. The per-pupil expenditure was $9,686, the highest in the district. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 55.6 percent. The Algebra I EOC tests results indicate that 44 percent of the students were on grade level.

School B

School B serves students throughout the county who choose to participate in a college-preparatory curriculum. The school has two countywide magnet programs of study: International Baccalaureate (IB) and Math, Science and Environmental Studies (MSES). The school population during the 2009-2010 school years was 981 students. Student demographics: Africa-American 89 percent, White 2 percent, Hispanic 3 percent, Asian 4 percent and other 3 percent. The percentage of students who were economically disadvantaged was 62 percent. The per-pupil expenditure was $5708. Students performing at or above standard on EOC composite tests for the 2009-2010 school years

were 86.5 percent. The Algebra I EOC tests results indicate that 86.7 percent of the students were on grade level.

School C

School C is a full magnet school offering a countywide Science, Technology, Engineering and Math program applied in three academies– Engineering Technology, Information Technology and Medical & Biotechnology. The school requires a rigorous academic program focused on math and sciences, which includes an independent research project and experiential senior internship and encourage students to reach for high standards at a pace that is appropriate to their individual needs. The school population during the 2009-2010 school year was 1202 students. Student demographics: Africa-American 74 percent, White 9 percent, Hispanic 11 percent, Asian 3 percent and other 4 percent. The percentage of students who were economically disadvantaged is 89 percent. The per-pupil expenditure was $5,666. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 89 percent. The Algebra I EOC tests results indicate that 91 percent of the students were on grade level.

School D

School D had the most significant academic gains over the last four school years. In the 2005-2006 school year the school had the lowest EOC composite results in the district- 34.8 percent. For the 2009-2010 school year the EOC composite results were 72.1 percent. The school received recognition from the state for being one of the most improved schools in the district. The school population during the 2009-2010 school year was 1758 students. Student demographics: Africa-American 84 percent, White 2 percent, Hispanic 8 percent, Asian 5 percent and other 1 percent. The percentage of students who

are economically disadvantaged is 78 percent. The per-pupil expenditure was $5,254. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 72 percent. The Algebra I EOC tests results indicate that 91 percent of the students were on grade level.

School E

In 2009, School E students made significant gains in EOC scores for Biology, Physical Science, U.S. History, Civic and Economics, Geometry, Algebra I, Algebra II and Physics. The school continues to employ the Advancement Via Individual Determination (AVID) program. This reform initiative has not only had a tremendous impact on academic achievement, but also gives students the support and organizational skills they need to be eligible for college. The school population during the 2009-2010 school year was 2,043 students. Student demographics: Africa-American 68 percent, White 11 percent, Hispanic 11 percent, Asian 7 percent and other 3 percent. The percentage of students who are economically disadvantaged is 75 percent. The per-pupil expenditure was $4,964 . Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 74 percent. The Algebra I EOC tests results indicate that 71 percent of the students were on grade level.

School F

School F is a comprehensive high school located on a beautiful 220 campus in the heart of the University Research Park in the city. The school population during the 2009-2010 school year was 1,712 students. Student demographics: Africa-American 67 percent, White 6 percent, Hispanic 21 percent, Asian 3 percent and other 2 percent. The percentage of students who were economically disadvantaged is 68 percent. The per-

pupil expenditure was $5,011. Students performing at or above standard on EOC composite tests for the 2009-2010 school year was 71 percent. The Algebra I EOC tests results indicate that 68 percent of the students were on grade level.

School G

School G is one of several small high schools located on one campus in northeastern part of the city. The school End-of-Course results increased 23 percent to 71.4 percent from 48.4 last year. The school population during the 2009-2010 school year was 356 students. Student demographics: Africa-American 60 percent, White 4 percent, Hispanic 27 percent, Asian 7 percent and other 2 percent. The percentage of students who were economically disadvantaged is 84 percent. The per-pupil expenditure was $5,559. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 71 percent. The Algebra I EOC tests results indicate that 74 percent of the students were on grade level.

School H

At the close of the 2009-2010 school year, School H was designated a Strategic Staffing school. Strategic Staffing as mentioned earlier is a district initiative to strengthen a school's instructional and administrative team. The school population during the 2009-2010 school year was 374 students. Student demographics: Africa-American 68 percent, White 4 percent, Hispanic 22 percent, Asian 4 percent and other 2 percent. The percentage of students who were economically disadvantaged is 89 percent. The per-pupil expenditure was $5,857. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 61 percent. The Algebra I EOC tests results indicate that 50 percent of the students were on grade level.

School I

School I is a School of International Studies and Global Economics and was created in 2006 with a grant from the Bill Gates Foundation and the Coalition of Essential Schools. The school is located in the southwest part of the city and is one of four small schools housed on one campus. The school population during the 2009-2010 school years was 369 students. Student demographics: Africa-American 44 percent, White15 percent, Hispanic 26 percent, Asian 10 percent and other 4 percent. The percentage of students who are economically disadvantaged was 58 percent. The per-pupil expenditure was $5,052. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 81 percent. The Algebra I EOC tests results indicate that 68 percent of the students were on grade level.

School J

School J is one of several small high schools located on one campus in northeastern part of the city. At the end of the 2009-2010 school year, the entire campus was designated an ABC Schools Strategic Staffing School. As mentioned earlier, SSS is a district initiative to strengthen a school's instructional and administrative teams. Students were grouped into five separate academics that together made up one school. The school population during the 2009-2010 school year was 342 students. Student demographics: Africa-American 52 percent, White 4 percent, Hispanic 38 percent, Asian 5 percent and other 1 percent. The percentage of students who are economically disadvantaged is 85 percent. The per-pupil expenditure was $5,611. Students performing at or above standard on EOC composite tests for the 2009-2010 school years were 85 percent. The Algebra I EOC tests results indicate that 89 percent of the students were on grade level.