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Identifying most significant predictors of low mathematics achievement in African American male middle school students

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IDENTIFYING MOST SIGNIFICANT PREDICTORS OF LOW MATHEMATICS ACHIEVEMENT IN AFRICAN AMERICAN MALE MIDDLE SCHOOL STUDENTS

By

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in partial fulfillment of the requirements for the degree of a Doctor of Education in Educational
Leadership
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ABSTRACT

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Research has shown that African American males have been singled out due to the fact most local and national data of academic achievement finds the group to underachieve significantly (Garibaldi, 2007). The purpose of this study is to examine variables which significantly predict lower levels of math achievement in regards to African American males. This study also examines variables that predict low math achievement for African American males to determine the most significant of the predictors. This quantitative case study includes sixth, seventh, and eighth grade African American male subjects from a middle school in the Southeast. Socioeconomic status, attendance, tests, discipline, and residential data for the study were collected from a database. A hierarchical multiple regression analysis was conducted to determine the most significant of the independent variables. The independent variables consist of socioeconomic status (SES), absences, prior math achievement, In School Suspension (ISS) days, and residential zones; the dependent variable was math achievement, measured by Criterion-Referenced Competency Test (CRCT) scores. There are multiple predictors that educators utilize when identifying students who need supplemental instruction and opportunities. Some predictors are more significant than others. This study attempts to identify the most crucial predictors to assist educators in guiding instructional practices to help African American males at risk.

ACKNOWLEDGMENTS

DEDICATION

I dedicate this dissertation to my supportive family; particularly to my understanding and patient husband, William, who has put up with many years of research, and to our precious son Cullen, who is the joy of our lives. I must also thank my loving mother, Joan Wilson, whom offered much support during this process and instilled the importance of an effective educational system into my upbringing. Finally, I dedicate this work to my late father, Billy Adams, whom believed in the power of an education, the pursuit of academic excellence, and me.

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CHAPTER 1

Introduction

For several years, educators have observed the achievement gap between African American male middle school students and their counterparts (Garibaldi, 2007; Jeynes, 2005; Lubienski, 2002). As the expectations for students increase, guaranteeing increased development in all African American middle school males can be difficult. As an effort to resolve gender and ethnicity deficits, the No Child Left Behind (NCLB) was passed and made into law by President Bush in 2002 (Georgia Department of Education, n.d; McMillian, 2003). This law is intended to assist in closing the achievement gap; however, there are challenges to many African American middle school males that must be met in order to comply with NCLB (Jeynes, 2005).

Research has shown that African American males have been singled out due to the fact most local and national data of academic achievement finds the group to underachieve significantly (Garibaldi, 2007). In the educational realm, many measures are utilized to analyze the progress of specific students or groups of students (Garibaldi, 2007). The African American-Caucasian achievement gap occurs in practically every educational progress measurement, such as dropout rate, standardized tests, GPA, and retention (Jeynes, 2005; Stinson, 2006). Previous research has shown that a range of variables predict this gap such as disciplinary consequences (Chung et al., 2011; Farmer, Goforth, Clemmer, & Thompson, 2004; Majors & Billson, 1993), socioeconomic status (Burnett & Farkas, 2009; Conley & Yeung, 2008; Eccles, Gutman, & Sameroff, 2002), and attendance (Attwood & Croll, 2006; Eccles et al., 2002; Lamdin, 1996; Sheldon & Epstein, 2004). Investigating disciplinary consequences, such as In School

Suspension (ISS) and Out of School Suspension (OSS), are important because African American children cannot afford to have limited access to educational opportunities (Townsend, 2000). Socioeconomic status, math attendance, test scores, In School Suspension (ISS), Out of School Suspension (OSS), and residential data was collected from Infinite Campus, a database utilized by the school district involved in this study. The researcher examined the variables that predict low math achievement for African American males to determine the most crucial predictors.

Local and national academic achievement data has shown that African American males underachieve significantly compared to their peers (Garibaldi, 2007). Therefore, assumptions are based on research about African American males and academic achievement (Davis & Jordan, 1994; Garibaldi, 2007; Mickelson & Greene, 2006). The Education Trust, an educational organization, found 61% of African American students performed below basic levels on an eighth grade measure of math attainment in comparison to 21% of Caucasian students (Martin, Martin, Gibson, & Wilkins, 2007). For the purposes of this research, ISS and OSS are defined as disciplinary consequences resulting from a disciplinary referral, which will be discussed in detail later in this research. This quantitative study examined and identified the most important predictors of low math achievement for African American males.

Education professionals must pay close attention to African American male achievement and restructure the academic achievement process as a treatment gap to increase achievement among African American students (McMillian, 2003). African American students experience different social and educational experiences as a product of gender (Honora, 2002). African American males suffer from stereo-types facilitated by media; these stereo-types consist of a variety of social restraints. African American males tend to be at greater risk for dropping out of school, less likely to complete high school in four years, and exhibit fewer academic ambitions

(Honora, 2002). African American stereotypic self-schemas add to the result of gender variances in capability beliefs and task values for math, as well as differences in the power of the influence on math grades, and enrollment intentions and decisions (Crombie et al., 2005).

The research design utilized in this study enables the investigation of multiple predictors and determine the ones most crucial. Attendance is another variable that may predict low academic achievement; this may include missed instructional time due to ISS and OSS. Absenteeism among African American males has shown to be partially responsible for low grades (Davis & Jordan, 1994). This study examined the significance of the relationship between attendance and math achievement. Students who have a high number of absences generally lag behind their peers in academic achievement and the development of social skills (Ford & Sutphen, 1996). Not only does absenteeism influence a decline in academic achievement, it also decreases the probability of schools meeting the attendance objective of NCLB. NCLB legislation stresses the importance of attendance as an indicator of adequate yearly progress (AYP) related to elementary and middle school accountability (Spencer, 2009).

Students who tend to be truant are more likely than their peers to drop out of school. Chronic absenteeism was found to be the most significant predictor of the 2001 dropout rate (Sheldon & Epstein, 2004). When students do not have parental support, dislike educators, and come from low socioeconomic backgrounds, absenteeism is more probable. Truancy may be a direct effect of specific occasions, such as an altercation with an educator, a move into an unfavorable environment, suspension from school, or even an incident of bullying (Attwood & Croll, 2006). Educators must be aware of students who have been participants of these specific situations in order to combat the unfortunate option of dropping out. Many schools offer attendance incentives, communication with families, and mentoring programs in hopes of

decreasing the number of truant students, consequently decreasing the number of students who drop out.

Few students from high SES families are truant; substantially more students from low- and even medium SES families are truant (Attwood & Croll, 2006). Many previous studies have found that students, who are considered to be of low socioeconomic status, are more likely to achieve lower academic performance. The factor of poverty has been consistently related to the achievement gap among African American male students (Martin et al, 2007). Lower socioeconomic background, less cultural capital, and minimal parental involvement are factors that attribute to lower levels of academic achievement (Mickelson & Greene, 2006).

Because income plays a crucial role in residency, this study examined the impact of residency and socioeconomic status on math achievement. Challenges such as the ones above often produce negative attitudes toward education within African American male students. These students, who have more negative attitudes toward education, do not excel academically, are placed in less rigorous classes, begin middle school with lower levels of prior achievement, and are likely to achieve lower academic outcomes (Mickelson & Greene, 2006). For the past 20 years, African American males, as a group, have had lower graduation rates, lower standardized test scores, and higher dropout rates when compared to their female and European American counterparts (Irving & Hudley, 2008). These measurable outcomes may be partially explained by disidentification, a coping strategy in which students disassociate their self-esteem from academic domains and instead focus on other domains such as sports or peer relations (Steele, 1997).

The purpose of this study was to examine variables that predict lower levels of math achievement for African American males. The predictors considered when developing school

improvement strategies were narrowed to the most important to increase teaching efficacy of African American males. The research design was developed for the purpose of utilizing the findings to assist African American male students in achieving mathematical success. The researcher hopes that educational reformation will be guided from the findings of this study.

Statement of the Problem

The problem investigated in this study was what academic, behavioral, absence, and socioeconomic predictors are most important when identifying African American middle school males who under achieve in mathematics. Many variables can affect math achievement. Disruptive behaviors, such as defiance or inattention, undermine the learning environment, thus frequently resulting in more disciplinary referrals and compromising the efficacy and quantity of received instruction. In many cases, these types of disciplinary referrals result in OSS, which mandates a number of absences. Disproportionally, African American students are found significantly more likely than their counterparts to be suspended or expelled for truancy, defiance, and disruption (Chung et al., 2011). Absences are not only related to disciplinary actions, but absences are associated with socioeconomic characteristics of students' families, with children of parents in low skill and status occupations or with no job at all (Attwood & Croll, 2006). The number of absences accrued, quantity of days in ISS and OSS spent, level of SES, and culture instilled may be predictors of African American male achievement. Therefore, these predictors are associated with the achievement gap between African American and Caucasian students who appear in essentially all measures of academic progress, such as Grade Point Average (GPA), standardized tests, the dropout rate, and the extent to which students are retained in a grade (Jeynes, 2005).

According to Stinson (2006), there has been an overall lack of investigation regarding the explicit mathematics schooling experiences of African American students and other minority students, such as Caribbean, Native American, and Latino. Participants in mathematics education, teachers, researchers, and curriculum developers should explore possible solutions to the problems of African American male underachievement. This study examined several variants, such as prior mathematics achievement, days spent in ISS and OSS, absences, socioeconomic status, school residential zones, and educational diagnostic software, as possible predictors of low mathematics achievement in regards to African American male middle school students.

Research Questions

1. What is the significance of previous year's math CRCT scores when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

2. What is the significance of days spent in ISS and OSS when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

3. What is the significance of days absent in math courses predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

4. What is the significance of socioeconomic status when predicting African American male math achievement scores in middle school?

5. What is the significance of residential zones when predicting African American male math achievement scores in middle school?

6. Does educational diagnostic software predict math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

7. What predictors are most significant when analyzing African American male math achievement in middle school?

Definitions of Terms

<u>Math Achievement</u>—Math achievement was measured using math subtests from the 2011 Georgia Criterion-Referenced Competency Test.

<u>Criterion Referenced Competency Test (CRCT)</u>— The CRCT is designed to measure how well students attain the skills and knowledge outlined by the state adopted curriculum including the Common Core Georgia Performance Standards (CCGPS) in reading, English/language arts, and mathematics and the Georgia Performance Standards (GPS) in science and social studies. The assessments provide information on academic achievement at the student, class, school, system, and state levels. CRCT is a standardized test that will measure prior math achievement and math achievement. For the purpose of this study, only the 2010 and 2011 Georgia Criterion-Referenced Competency Test was utilized (GADOE, n.d.b).

<u>Prior Academic Achievement</u>—Prior Academic Achievement was measured by previous years' math Georgia CRCT scores.

<u>In School Suspension (ISS)</u>—ISS is a consequence, resulting from a disciplinary referral, that entails sitting in isolation during the school day with no teaching instruction. While in ISS, students are expected to complete classroom assignments.

<u>Out of School Suspension (OSS)</u>—OSS is a consequence, resulting from a disciplinary referral, which entails spending school time at home. While in OSS, students are sometimes permitted to complete classroom assignments.

Low Socioeconomic Status (Low SES)—For the purpose of this study, students who are classified as low SES qualify for free or reduced lunch. A form is distributed to guardians of students that contains a table detailing the qualifications for free, reduced, or non-reduced lunch. Based on the information supplied by these guardians, students who do not meet the requirements of non-reduced lunch become classified as low SES.

Achievement Gap—The achievement gap is defined as the difference between achievement between African American and Caucasian students. Achievement can be determined by many types of measurements, such as standardized test scores, dropout rates, GPA, course grades, and so forth.

African American Male Middle School Students—American students of African descent who are in middle school.

Limitations

Limitations of this study include: a) case study of only one school; b) validity of students' SES; c) validity of students' residences, and d) the researcher's role at the middle school under study. The first limitation consists of being a case study of only middle schools in the district where the researcher is employed. The explanation for the limitation is future application of findings at the research site. Another limitation is validity considerations in regards to students' SES and residences. SES is determined by eligibility of free or reduced lunch; the federal qualifications chart is printed on the district's free or reduced application. Residences are validated by parents only; they are not corroborated by the district.

Summary

This chapter consisted of an introduction to the research focused upon in this study. It offered a brief synopsis of the purpose of the study containing the goals for the proposed research, a statement of the problem, the research questions, and definitions. The foundation and limitations of the study were also reflected.

CHAPTER 2

Literature Review

The following chapter provides a review of the literature on factors that can affect African American male math achievement including achievement gap, Criterion-Referenced Competency Test (CRCT), disciplinary consequences, socioeconomic status, culture, attendance, gender, academic achievement, and educational diagnostic software.

Achievement Gap

The achievement gap between African American students and Caucasian students exists in virtually every measure of educational progress, such as GPA, standardized tests, the dropout rate, and the extent to which students are retained in a grade (Jeynes, 2005). Although the National Assessment of Educational Progress' (NAEP) mathematics scores increased for both African American students and Caucasian students between 1990 and 2000, the gap between African American students and Caucasian students increased at grade 8 and remained roughly the same in grades 4 and 12. The weakness of SES, as an explanation for the gap in achievement, was revealed by the fact that in both 1990 and 1996 the lowest SES Caucasian students scored equal to or higher than the highest SES African American students (Lubienski, 2002).

African American males fall behind their counterparts in achievement. Possible explanations for this gap are uncreative approaches to teaching, poorly constructed textbooks, teachers without adequate preparation in mathematics and science, and teacher misassigment (Ladson-Billings, 1997). However, according to Ladson-Billings (1997), it is more than what happens in our classrooms that impacts the creation of a mathematically ignorant culture. People fear the subject of mathematics because they feel that it is too challenging and revere it because they feel that only intellectuals grasp the concepts of mathematics. The stereotypic perceptions of mathematics do not encourage students to embrace the subject as an essential skill (Ladson-Billings, 1997). Research has shown that U.S. urban public schools are progressively African American; therefore, it is crucial to find methods of offering African America students' educators who can be advocates of their learning, development, and intellectual growth (Murrell, 1994).

When a school's African American enrollment increases, the number of classes identified as high ability decreases. Schools where African American students are the majority of the population have less challenging mathematics programs and offer fewer college preparation courses, such as algebra and calculus (Ladson-Billings, 1997). Teachers, who assume that students of a particular race or ethnicity cannot be expected to achieve at high levels in mathematics, fail to offer those students a stimulating, academically rigorous mathematics curriculum. According to Ladson-Billings (1997), there are three fronts to be fought when improving the mathematical achievement of African American students: programmatic, personal, and political. Programmatically, educators must facilitate the development of meaningful and challenging curricula. Personally, compassionate relationships must be created and born of

informed empathy, not sympathy. Politically, we must realize that our future is tied to our children's ability to make the most of their education (Ladson-Billings, 1997).

Der-Karabetian conducted a study to examine middle school children's perceptions of family process factors, such as parental attitudes about mathematics and their relationship to mathematics performance (2004). Der-Karabetian's study focused on the gap contribution of family process factors to mathematics performance. The study accounted for predictors differing for Latino Americans, African Americans, and European American middle school students (2004). The purpose of the study was to determine the comparative contributions of parental attitudes including fathers' and mothers' attitude toward students' mathematics ability and family process variables, such as perceived parental interest in school, parental support of the student, parental expectations, and parental involvement in school (Der-Karabetian, 2004).

The sample consisted of 2,078 seventh and eighth graders from four middle schools in a southern California school district. Latino Americans (64%), European Americans (19%), and African Americans which were a good representation of the ethnic-racial composition of the entire district (12%) were enrolled in regular math, pre-algebra, and algebra (Der-Karabetian¸ 2004). Parental process factors measures exhibited predictable relationships with variables, such as achievement scores and self-esteem measures. Attitudinal instruments included father and mother attitude scales which measure a student's perception of his or her parents' confidence, interest, and awareness of the importance of mathematics. These scales also measured student perception of the interest, encouragement, and confidence of the parents in the students' ability (Der-Karabetian, 2004).

According to Der-Karabetian, the study found that students who were considered to have low socioeconomic backgrounds (receiving free or reduced lunch) scored lower on the SAT-9

mathematics score than higher economic background students (2004). When the three ethnic groups were compared, significant differences were apparent; European Americans scored higher than Latino Americans, who scored higher than African Americans (Der-Karabetian, 2004). Latino Americans and African Americans showed no differences on any of the family process factors. European Americans scored higher than African Americans in the following areas: parental expectation, parental involvement, mother's attitude, and father's attitude. Latino Americans scored lower than European Americans on parental expectations, parental involvement, and parental support but not on parental interest (Der-Karabetian, 2004).

Parental expectation was the most significant predictor of SAT-9 mathematics scores for European American and Latino American students. Der-Karabetian found a mother's attitude was the strongest predictor followed by parental support and parental expectations for African Americans (2004). On the other hand, a father's attitude combined with parental support and a father's attitude were negative predictors. Latino American students' mother's attitude was a weaker positive predictor, and parental interest was a weaker negative predictor. Parental expectations were the only predictors for European American students (Der-Karabetian, 2004).

These findings emphasize the important role of the mother within African American families. According to this research, it should be understood that African American students, which combined the effect of mother's positive mathematics attitude and high expectations in regards to particular math capability, may be significant factors in increasing mathematics achievements (Der-Karabetian, 2004). Parental involvement did not turn out to be a significant independent predictor of SAT-9 math scores for any of the three ethnic-racial groups. However, parental expectations play a strong role for all three ethnic racial groups in predicting SAT-9 math scores (Der-Karabetian, 2004)

Criterion-Referenced Competency Test

According to the Georgia Department of Education (n.d.b), the Criterion-Referenced Competency Tests (CRCT) assesses information on academic achievement at the student, class, school, system, and state level. The data obtained from the CRCT allows the diagnosis of students' strengths and weaknesses in regards to curricula. The Georgia A+ Education Reform Act of 2000 mandates that all students in grades one through eight take the CRCT in the subject areas of reading, English/language arts, and mathematics. The end-of -year assessments consist of multiple choice items only. The GADOE explains that CRCT is planned to assess the standards outlined in Georgia's Performance standards (GPS). CRCT providers offer electronic and paper disaggregated reports at the school, system and state levels. Student performance data are in the following categories: all students, all regular program students (subcategories include: Section 504, limited English proficient, and all others), all special education students (subcategories include primary classification/disability), gender, and race/ethnicity (GADOE, n.d.b).

To authenticate the age appropriateness of CRCT, a team of external experts in the areas of standards and assessments reviewed the tests as a part of meeting federal requirements for state standards. The team, assembled by the U.S. Department of Education evaluated data in the following areas: content and academic achievement standards, technical quality, alignment, inclusion, and scoring and reporting. CRCT met national professional and technical standards for assessment programs (GADOE, n.d.c).

On January 8, 2002, President George W. Bush signed the No Child Left Behind Act of 2001 (NCLB) that significantly increased expectations for states, local school districts and students that all students will meet or exceed state standards in mathematics and reading by the

2013-2014 school year. Adequate Yearly Progress (AYP) is one of the foundations of NCLB. It measures year to year student achievement on state assessments; Georgia utilizes the CRCT for state assessments required by NCLB. Permitted by GADOE, students who are enrolled in public schools, who have not met AYP for two or more consecutive years and then identified as Needs Improvement, have the option of enrolling in a higher performing public school (GADOE, n.d.d).

The NCLB centers on outputs and racial achievement gaps in place of inputs, availability, resources, and quality of instruction. While NCLB does stress the significance of improving inputs, it fails to define these inputs and identify their effects (McMillian, 2003). McMillian (2003) asserts that NCLB imitates today's social structure where Caucasian students are the norm and 'others' must meet this expectation. This Eurocentric expectation supports stereotypes in regards to capability, which decrease students' engagement, performance on assessments, and other forms of achievement by accentuating stereotypes about capability.

Disciplinary Consequences and Math Achievement

Current publications have refocused national attention on the plight of the African American male student. In 2000, 65% of African American high school dropouts in their twenties were unemployed due to not being able to find work, being incarcerated, not seeking employment, or otherwise incapacitated (Holzer, Edleman, & Offner, 2006). That percent drastically increased to 72% by 2004, in comparison to 34% of Caucasian and 19% of Hispanic dropouts. Another startling piece of data is that the African American male incarceration rate significantly increased during the 1990's. In 1995, 16% of African American males in their twenties who did not attend college were in prison or jail. By 2004, 21% were incarcerated

(Holzer, Edleman, & Offner, 2006). These challenging statistics coupled with high levels of African American-on-African American crime, and a widespread hip-hop culture promoting gangster life and instant gratification (Spiller & Land, 2010).

According to Spiller and Land (2010), young African American men encountered tremendous social and economic obstacles many years before hip-hop entered the picture. It is crucial for the nation's political leaders to attempt to do more to create jobs that pay adequate wages; such efforts would go a long way towards eradicating the persistent income gaps acknowledged for young African American.

Many school-based practices have been shown to influence the achievement of African American students, specifically males, in negative ways (Spiller & Land, 2010). Among these practices are tracking, cultural discontinuity, underprepared teachers, and low teacher expectations. Tracking is an assignment method utilized at the beginning of the year to group students based on ability and keeping them with in that group regardless of their performance (Harmon & Ford, 2010). Research has shown that African American males are assigned to lower tracks. Students who believe they are in learning environment which they feel do not meet their educational needs either withdraw or act out (Oakes, 1985). African American students claim they experience cultural discontinuity more than their Caucasian peers; many African American students believe that they are forced to participate in a system that has little regard for their beliefs, culture, values, and cultural-specific behaviors (Oakes, 1985).

According to Harmon and Ford, another influential school practice is African American students being taught by middle class Caucasian female teachers (2010). They lack the cultural awareness and empathy essential for developing meaningful relationships with and effectively teaching African American students, especially males. Research on the impact of teacher

expectations for student achievement overwhelmingly reveals that they have powerful

implications for student achievement (Harmon & Ford, 2010). Other research determines that

teachers often perceive low-performing African American students as more challenging than

low-performing Caucasian students and provide them with less support (Ogbu, 1992). Teachers

view these challenging students as disruptions and troublemakers, and indicate that they would

prefer to spend time assisting those students who perceive to be willing and interesting in

learning (Harmon & Ford, 2010).

The evidence points to several unique academic and social challenges faced by African

American males; some of these include: their disproportionate numbers of suspensions and

expulsions, relatively poor scholastic performance, tendency to avoid academic engagement and

competition, and decreasing college attendance rates (Garibaldi, 1992). Discipline practices

often utilized in schools such as ISS and OSS prevent instructional time from students who

obtain disciplinary referrals. Research has found that students from African American families

are 2.19 (elementary school) to 3.78 (middle school) times as likely to be referred to principles

for problem behavior as their Caucasian counterparts (Chung et al., 2011).

Chung et al. (2011) also conducted descriptive and logistic regression analyses which

indicated that students from African American and Latino families received expulsion or OSS

more often than their white peers for the same problem behavior. Substantially, large numbers

of U.S. African American males in inner-city schools were suspended, referred to special

education programs, expelled, and consequently left with less personal resources than their

Caucasian counterparts (Murrell, 1994). Without the necessary academic instruction, students

will struggle with new concepts and pre-existing academic challenges. As an attempt to prevent

negative behavior, many schools implement incentive programs to encourage positive behavior (Murrell, 1994).

Middle school African American students were significantly more likely than Caucasian students to be expelled or suspended for tardiness and truancies, disruptions, and moderate infractions (Chung et al., 2011). Research has found expulsion and suspension inequalities at the middle and elementary school levels between African American students and their counterparts. The disproportionality begins at referral in the areas of tardiness and truancy, noncompliance, and disruption (Chung et al., 2011). Further research is essential in determining the significance of specific variables such as administrative and classroom disproportionalities.

The following research examined school discipline problems in relating to interpersonal and academic skills of African American middle school students of a rural low-income community. The sample consisted of 259 students (83 males, 176 females). According to Farmer, Goforth, Clemmer, & Thompson, school records found more than 50% of the females had no offenses and fewer than 20% had major offenses (2004). The females identified as having no offenses were inclined to be proficient in academic, behavioral, and social domains, while females with major offenses tended to have numerous problems. As for males, 34% had no offenses and 37% had major offenses. Aggressive infractions appeared to be the primary cause that differentiated among males who were classified as 'major offenses' and 'no major offenses' (Farmer et al., 2004).

The county participating in this study was identified in annual reports as among the poorest in a southern state. More than half of school-aged children in this county live below the national poverty level. However, 30% of the county's population is European American, but the student population in the public schools is more than 99% African American (Farmer et al.,

2004). More than 96% of the students (7th – 8th graders) qualified for free and reduced price lunches. Data was collected 2 months after school started through confidential surveys. School record data was also utilized at the end of the school year (Farmer et al., 2004).

The researchers utilized a questionnaire to examine the southern impoverished predominately African American school. The Interpersonal Competence Scale-Teacher (ICS-T) is an 18-item questionnaire that consists of 6 primary subscales: aggressive, popularity, academic, affiliative, Olympian, and internalizing. The researchers used the ICS-T, peer nominations, 7-point Likert Survey, and other surveys to gather data about interpersonal competence, social adaptation, socio metric status, and social cognition. Participants were also classified into 3 discipline offense categories: no offenses, minor rule offenses, and major rule offenses (Farmer et al., 2004).

The no offenses category consisted of students who did not receive any disciplinary referrals; minor rule offenses were infractions based on rude and disruptive behavior, classroom disruption, does not follow directions, obscenity, sleeping in class, and dress code violations. Major rule offenses were infractions based on weapons, fighting, threatening, theft and vandalism, skipping, cheating, gambling, or sexual acts during school. If a participant received at least one major rule referral, that participant was placed in the major rule offenders' category (Farmer et al., 2004).

According to this study, research suggests that discipline problems in early adolescence are related to specific characteristics of youth. Also, the pattern of characteristics encompassed in minor and major offenses differs some for females and males. The sum of 29% of the boys was classified as minor offenders and 37% were classified as major offenders. Teachers perceived boys with no offenses as less involved in bullying and less likely to be bullied than

minor offenders. Moreover, they were less likely to be peer nominated as aggressive and in peer groups that did not have any popular members. They were more likely to be popular, and their grades were significantly higher at the end of the year than males with major offenses (Farmer et al., 2004).

According to Farmer et al., these finding suggest that males may be susceptible to behavior problems in middle school and that differences among males may be explained by the social strengths and absence of aggressive involvement by the no offense group (2004). Consequently, Majors and Billson (1993) expressed that Caucasian teachers frequently misunderstand and become frightened by African American male cultural-specific behaviors. African American students are frequently physically disciplined, suspended, and recommended for remedial and special-education classes regularly in comparison to any other recognizable group of students (Majors & Billson, 1993).

Based on the findings of Farmer's study, there is a need of universal screeners and preventative measures. Contrary to the general view that aggression is a result of peer rejection, there is a literary movement indicating that many aggressive males are perceived as being popular; some take on leadership roles and associate with other peers who are recognized as popular (Farmer et al., 2004). In regards to future research, a standardized referral would be beneficial to analyze ethnically diverse samples in a variety of regions. Common assessments would add validity to similar disciplinary studies.

Socioeconomic Status and Math Achievement

Studies of risk and resilience in poverty-stricken children correlate significantly with children's academic success. Due to issues of transportation, healthcare, and family care, high tardy rates and truancy are frequent problems among low-SES students (van Ijzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004). The negative effect of poverty throughout elementary school produces and creates achievement gaps that will influence decisions about the tracks, advanced, standard, or remedial, students will be assigned when they enter middle school. The students are more likely designated into this specific track for the rest of their secondary education, thus decreasing the capability for poverty status to significantly change their future math scores (Burnett & Farkas, 2009).

As the Civil War came to an end, traditional civil rights leaders were dead, jailed, or battle worn, and African American institutions and organizations bankrupt; the civil rights challenges were unfathomable (Spiller & Land, 2010). Different classes within the African American community developed, partly, by the achievements of the civil rights movement further worsened conditions for the impoverished African American poor, and specifically for African American males. Between the late 1970's to the early 1980's, race based residential segregation restricted most African Americans to all African American neighborhoods regardless of their social and economic status. Due to the passing of fair housing legislation in 1968, African American individuals and families who were part of the working and middle class were enabled to relocate to non-traditional African American neighborhoods, leaving behind the poorest of the poor (Spiller & Land, 2010).

Family wealth has a significant relationship with the cognitive achievement of school-aged children. There is an even more significant relationship with school-aged children's math

scores than their reading scores (Conley & Yeung, 2008). Children from low income homes experience material deprivation which includes a lack of educational resources, such as technology, books, and tutoring. There is reason to suspect that race contrasts in wealth levels may assist in the explanation of the African American-Caucasian achievement gap. The National Assessment of Educational Progress (NAEP) has found a substantial lag in the achievement of African American students and their Caucasian counterparts (Conley & Yeung, 2008).

Conley and Yeung (2008), authors of "Black-White Achievement Gap and Family Wealth", conducted a study based on the data from the Panel Study of Income Dynamics (aged 3-12) to determine the extent to which family wealth affects the African American-Caucasian test scores in young children. Racial disparities in test scores were eliminated when child and family demographic variables were held constant (Conley & Yeung, 2008). Also, wealth may not produce a short-term narrowing of the African American-Caucasian achievement gap, but encouraging low income families to accrue wealth may influence long-term goals which may in turn benefit specific subgroups.

However, encouraging wealth for low socioeconomic students and parents is difficult. National variations in unemployment may have little impact on the job situation in low socioeconomic communities that encounter consistent high unemployment (Yeakey, 2002). When focus is on specific low socioeconomic neighborhoods, the correlation between crime and underemployment increase dramatically. Hagan and Peterson found that victimization rates were 80% higher for crimes of theft and 40% higher for crimes of violence in urban neighborhoods with high unemployment than in neighborhoods with low unemployment (1995). Furthermore, Yeakey states that high levels of incarceration have weakening effects on impoverished

communities that the most rudimentary components of informal social control and social cohesion are not only damaged but destroyed in minority communities (2002). The effects of the vast number of African American males being taken out of the community are colossal. As sons are taken from mothers, husbands from wives, brothers from sisters, and fathers from children, informal methods of social cohesion and social integration are destroyed first in families then in communities (Yeakey, 2002). According to Yeakey (2002), social cohesion acts as a form of social control and organization which assists in building discipline, order, pride, and sense of family and belonging. It also helps to build the precise structures which connect and sustain a group and to elevate succeeding generations (Yeakey, 2002).

Culture

As cited in Harmon and Ford (2010), the *Brown v. Board of Education of Topeka, KS* decision in 1954 allowed for desegregation to become the face of educational culture. According to Harmon and Ford, the image of schools eventually changed to promote racial balance and equity amongst students and the community (2010). African American students were faced with new obstacles with the desegregation of schools, such as being taught by mostly Caucasian teachers, utilizing a Eurocentric curriculum, and African American families' participation declined. The new curriculum did not include African American culture and history which would enable increased participation and motivation. The declined parental involvement was due to location of residency; the newly integrated schools brought transportation issues that caused difficulties for parents to attend school conferences and events (Harmon & Ford, 2010). During the 1970's, African American test scores increased with the desegregation of schools. However, in the 1980's the test score gains began to decline, possibly due to the 20 years of

experimentation with integration strategies and busing. These possible substantial reasons for the decline of African American test scores have dismantled the efforts to desegregate schools (Harmon & Ford, 2010).

If low achievement among African American males is a cultural phenomenon, the solution is to analyze individual and family values as well as dispositions towards educational progression (Dantley & Leonard, 2010).   For example, if a student and family do not place value on a college education, then achievement in school is not part of the end result. According to Dantley and Leonard simply improving facilities, offering additional support programs, and hiring well-educated teachers will not improve achievement and educational attainment (2010). Improving factors, such as the shortage of teachers with degrees in specific content areas, inadequate schools, poor housing, and poor nutrition and health care, would decrease the overall effect of poverty and enable focus on achievement gains. The significance of school culture cannot be dismissed as a commonality that simply proposes that African American males can be successful athletes but not at excelling in mathematics or science (Dantley & Leonard, 2010).

Ogbu and Simons proclaim that the enslaved Africans were made up America's first involuntary minorities (Ogbu & Simons, 1998). From the early 1600's and for nearly 30 years, African Americans were barred from accessing educational opportunities from simple literacy to proper schooling. Consequently, involuntary minority parents seem to convey to their children contradictory messages about education; they tell their children to work hard in school, but then their own attitudes and comments show a mistrust of schools in terms of quality education and future economic rewards. Involuntary minority parents hold schools and teachers rather than their children responsible for poor academic performance. When their children receive poor grades, they blame teachers for not teaching their children properly, for not informing parents in

time that their children are not doing well in class, and for treating their children in a discriminatory manner (Ogbu & Simons, 1998).

The effects of parental involvement on the academic achievement of African American youth have been discussed in many of today's educational learning communities. Unfortunately, due to the lack of research on large samples of African American children, it is not known whether parental involvement really effects African American achievement significantly (Jeynes, 2005). Jeynes (2005) utilizes the National Educational Longitudinal Survey (NELS) study from 1990 and 1992 to research African American parental involvement with 10th and 12th graders. The variables studied in the General Linear Model (GLM) regression and logistic regression analyses consisted of parental involvement, academic achievement, gender, and socioeconomic status (Jeynes, 2005).

According to Jeynes (2005), the difference between scores of African American students with highly involved parents and less involved parents were about .4 of a standard deviation. However, the results also indicated that the extent of parental involvement strongly related to SES. There are many reasons why parental involvement and SES are so closely associated. First, parents who have a high level of education are likely to have a strong determination to be successful. Next, high-achieving SES parents believe that a good education is crucial in attaining the American dream. Subsequently, the children of these parents benefit from the determination of achieving long-term goals of parental support and the education system (Jeynes, 2005). Other reasons for the close relationship between parental involvement and SES include family structure, availability, and the extent to which parents try to accommodate their child's educational needs. The final reason is parents believe that by having a higher level of education

and income, their children will have a higher quality of life and be the beneficiaries of a better education (Jeynes, 2005).

Family decision-making styles and peer group affiliations have been studied as predictors of the academic achievement of African American students. The National Education Longitudinal Study of 1988 (NELS: 88) was used by Bailey and Engerman (2006) to further examine family decision-making styles, peer group affiliations, and academic achievement as predictors of future academic achievement for African American students. An authoritarian parenting style encompassed absolute obedience and minimal personal freedom. An authoritative parenting style facilitates a supportive and stable environment where parents respect their child's individuality (Bailey & Engerman, 2006). African American families are found to be authoritarian, and African American adolescents complied with rules even if they did not agree with the rules (Smetana, 2000). According to Bailey and Engerman (2006), adolescents from an authoritative style usually have high social and moral maturity, self-esteem, and academic achievement. Adolescents from an authoritarian style are not as well adjusted (Bailey & Engerman, 2006).

Peer group affiliation has much to do with proximity. For selection, proximity does not require attention to the characteristics of peers but the acknowledgement and utilization of shared space (Bailey & Engerman, 2006). Bailey and Engerman (2006) found major settings that create the boundaries that facilitate peer proximity are the school, community, and home. Consequently, students who are in close proximity with each other tend to form a peer affiliation (Bailey & Engerman, 2006). Although peer groups are known to influence academic performance (Reis, Colbert, & Hébert, 2005), the study conducted by Bailey and Engerman

(2006) revealed affiliation with learning oriented peers in 10th grade did not predict 12th grade academic achievement.

The study conducted by Eccles, Gutman, and Sameroff (2002) investigated the effects of multiple risk, promotive, and protective factors on three achievement measures (i.e., math achievement test scores, grade point average, and number of absences) for African American 7th grade students (n=837). The researcher examined the effects of positive family interaction, social support factors, and multiple risks on the achievement outcomes of African American children during early adolescence. To fully comprehend this research and its findings, the terms protective factors and promotive factors must be defined. Protective factors as defined by Garmezy (1983) are aspects of occasions, environments, persons, and situations that seem to alter predictions of psychopathology based on a person's at-risk position. According to Sameroff (1999), a better term for the positive end of the risk element would be promotive rather than protective factors. For the purposes of this study, the researchers identified negative demographic and structural variables as risk factors and parent interaction and social support variables as positive factors to stress the relationship between these two groups of influences on adolescent development (Eccles et al., 2002).

Instead of investigating academic outcome, the study encompassed grade point average, number of absences, and achievement test scores; these three measures mirror the diverse types of behaviors that are incorporated in school achievement (Eccles et al., 2002). The study found that adolescents whose parents were more involved in their school and delivered consistent discipline had higher grade point averages than did their peers. The next finding was that adolescents whose parents were more involved in their school and provided more consistent discipline had fewer absences than did their peers. Although adult school support was

hypothesized by Eccels et al. (2002) to have a positive effect, adolescents who perceived their teachers as being more supportive had lower math achievement test scores than their peers. The reasoning behind this finding offered by the researchers may be because students in this study who prompted more teacher support may also be the students who were more likely to experience personal and academic difficulties (Eccles et al., 2002).

The researchers concluded that grade point average and number of absences may be more strongly related to risk than achievement test scores for African American children during early adolescence. They also confirmed that the authoritative style family, with consistent discipline and parental school involvement, had positive effects on adolescents' grade point averages and number of absences (Eccles et al., 2002). Eccles et al. branded factors that were protective only as peer support and factors that were promotive only as parental school (2002). Protective factors are related to better outcomes in high risk samples but not in low risk samples. Promotive factors are related to better outcomes for all children (Burchinal, Roberts, & Zeisel, 2008). Implications suggested by the researchers included intervention strategies targeted at increasing parental school involvement and strategies designed to increase peer networks in early adolescence, such as tutoring programs for African American students (Eccles et al., 2002).

Additional research by Stinson explores the sociocultural discourse exhibited by the personal experiences of four African American males in their early 20's. According to Stinson (2006), the participants read literature that consisted of theoretical perspectives that would expose the participants to prominent educational discourse. Reading engaging literature concerning African American students' schooling experiences, specifically African American male students, offered the participants and researcher a common vocabulary for dialogue during the study. Stinson explains that the purpose of reading was not for the participants to endorse the

validity or worth of the theoretical perspectives presented in the literature but to express their experiences and schooling in accordance with the theoretical perspectives discussed (2006). Stinson's research is broken down into two specific sections, "discourse of deficiency" and "discourse of rejection" (2006).

Stinson's identified "discourse of deficiency" section concentrations on professed African American students' schooling, life experiences, and deficient culture. Teachers and school administrators who contribute to their discourse often ascertain that the academic underachievement of many African American students occurs because they experience higher rates of poverty, live in high-crime communities, have a unstable single parenting, and minimal parental involvement; moreover, they also determined this occurs due to negative effects of slavery, segregation, racism, and discrimination (Stinson, 2006). Stinson's research is guided by Ogbu's (1978) historical summary and critique of several theoretical perspectives. Ogbu attempted to explain African American students' lower academic achievement, specifically the African American-Caucasian achievement gap (Stinson, 2006).

Ogbu describes cultural deprivation theory as African American students achieving lower academically than Caucasian students since they are culturally deprived coming to school because of a home and neighborhood environments that do not offer sufficient structured stimulation for regular development (1978). Ogbu believes that the cultural deprivation theory does not explain why students who are culturally deprived perform poorly in school or why students who are culturally deprived excel in school. Most importantly, Ogbu (1978) dismissed the cultural deprivation theory because it expresses the hypothesis that children who are failing in school are to be responsible for their failure not the school or society.

According to Stinson (1996), the culture conflict theory has two variants that clarify why African American students achieve lower academically than Caucasian students. The first variant stresses the failure of the African American community to prepare African American students with the Caucasian, middle-class skills required for school success. The other variant stresses the failure of the schools to effectively use the experiences of African American students. Ogbu (1978) stated that the culture conflict theory is insufficient in explaining the difference in achievement between African American and Caucasian students, since it fails to expound on why the conflict even exists. Additionally, he argued that the presence of cultural differences does not inevitably lead to conflict or to school failure (Ogbu, 1978).

The next theory discussed by Stinson (2006), the institutional deficiency theory, claims that African American students perform lower academically than Caucasian students because the foundation of school is structured to enable middle class and upper class non-minority children to subdue the ambitions of children form underprivileged groups. Ogbu dismissed the institutional deficiency theory claiming that it fails to acknowledge schools as agents of a caste society. Another theory incorporated into Stinson's research, the educational equality theory, explains that African American students achieve lower academically than Caucasian children because the African American students schooling experiences and opportunities are unequal (Ogbu, 1978). Ogbu canned this theory stating that it is unsuccessful in examining the collective effects of a traditionally unequal education opportunity (1978). Finally, the heredity theory claims that the achievement gap between African American and Caucasian students occurs because African American students have inferior genetic endowments for specific types of intellectual skills (Ogbu, 1978). Ogbu entirely dismissed the heredity theory quoting abundant methodological and data distortion in the theory (1978).

Stinson concludes that the "discourse of deficiency" section, which consists of theoretical theories, is possible accounts of African American students. These African American students, specifically African American male students, are often classified as incompetent of meeting schools' goals and objectives and missing the behavioral and social skills and life experiences to be academically successful (2006). The labels 'at-risk learner' and 'special needs learner', which have been created out of the discourse of deficiency, are terms that facilitate discussions about African American students, specifically about African American males and African American male adolescents (Stinson, 2006). Interventions frequently employed by educators consist of at-risk curricula, pullout programs, and culture development programs. While these methods are intended to improve student achievement, they often require the experiences of African American male students and thus have little positive outcome (Stinson, 2006). Stinson also claims African American male students become keenly involved in these types of discourse as they respond to low teacher expectations and reject the labels 'at-risk learner' and 'special needs learner'(2006). The damaging consequences of this response and rejection are evident by a 1992 analysis of New Orleans Public Schools. African American males accounted for 58% of the retained, 65% of the suspensions, 80% of the expulsions, and 45% of the dropouts; however, African American males accounted for only 43% of the school population (Garibaldi, 1992).

Stinson (2006) states the apparent deficiency can cause school administrators and teacher to require lower achievement and behavioral expectations for African American students, specifically for African American male students. Most importantly, the discourse of deficiency formed the terms 'at-risk learner' and 'at-risk programs'; both concepts require African American children's school experiences (Stinson, 2006). The overwhelming consequences of the discourse of deficiency on African American male students are portrayed through the small

percentages of African American male students involved in school honors and advance placement courses, especially in mathematics, compared to the large percentages of African American male students included in school retentions, suspensions, expulsions, and dropouts (Stinson, 2006). According to the American Council on Education's most recent report on minorities in higher education, approximately only 25% of the 1.9 million African American males between 18 and 24 were in college in 2000 (Stinson, 2006).

Stinson's identified "discourse of rejection" section concentrates on the African American student rejection of school and academics, specifically by African American male students, or on the rejection of cultural-specific African American behaviors by African American students, specifically by African American male students (Stinson, 2006). There were three fundamental theories found in the literature reviewed by Stinson (2006) that analyzed the rejection of schooling and academics: Majors and Billson's cool pose theory (Majors & Billson, 1993); Steele's stereotype threat theory (Steele, 1997); and Ogbu's cultural-ecological theory (Ogbu, 1978).

Majors and Billson's (1993) cool pose theory proposes that some African American males cultivate ritualized types of masculinity that enable them to handle and endure in a racist and oppressive environment. Consequently, cool pose is then a surviving mechanism that is encompassed in ritualized types of masculinity, which consists of scripts, impression management, physical posturing, behaviors, and carefully crafted performances. These types of masculinity convey the purposeful message of control, pride, and strength (Majors & Billson, 1993). These ritualized types of masculinity essentially create themselves through culturally specific walks, gestures, demeanors, handshakes, stances, and through culturally-specific fashion styles (Majors & Billson, 1993). Majors and Billson (1993) state that when Caucasian people

witness African American males displaying cool pose and being seemingly fearless and detached, they could view them as shady and cool. In addition to the previous perception, Caucasian people may also view them as unmotivated, suspicious, and irresponsible. What the African American males may regard as cool, the Caucasian person may view as an attitude problem (Majors & Billson, 1993).

Steele's (1997) stereotype threat theory focuses on how social stereotypes about specific groups can guide the intellectual functioning and identity growth of individual group members. This theory threatens individuals with being harmfully stereotyped or with the prospect of conforming to the stereotype. The lack of African American men who could exemplify adult male behavior has had a significantly negative influence on African American boys who have been overwhelmed with derogatory images and stereotypes of African American males by the media. Contributing to the perception of the African American male are the disparaging visuals in rap music and videos that glamorize gangsters and pimps (Harmon & Ford, 2010). Stinson (2006) claims that stereotype threat becomes self-threatening when an individual of a group arises to strongly self-identify with a behavior that has been unusually stereotyped for that particular group. Subsequently, an individual may counterbalance the self-threatening effects of stereotype threat by disidentification (Steele, 1997). Stinson (2006) clarifies by claiming that the stereotype is no longer a threat for a school-identified African American if that school-identified African American eliminates or rejects school success from his or her self-identity.

The final theory discussed by Stinson in the "discourse of rejection" section is Ogbu's (1978) cultural-ecological theory which emphasizes that the American racially caste system influences the academic underachievement of certain racial minorities in U.S. schools. According to Stinson (2006), Ogbu claims that the core curriculum perception is insufficient

because it neglects to address the multifaceted characteristics of minority cultural diversity in and out of the context of schools. Also, teaching each group in accordance to its cultural educational style is not feasible in today's American public school (Ogbu, 1978). Fordham's (1996) raceless persona theory contends that African American students who succeed in school and academic achievement are often conflicted and feel the necessity to reject their cultural and racial identity in the course of succeeding in academic and school achievement. Fordham (1996) stated that even though African American students who conform to the Caucasian school norms have a better chance of academic and school achievement; they either unconsciously or consciously distance themselves from the African American collective norms in opposition of Caucasian norms thus creating a raceless persona. Fordham and Ogbu's (1986) examination of successful students considered in the acting Caucasian theory had learned coping methods exhibited that masked their success by being active participants in athletics, which are viewed as African American activities, or by becoming the class clown; while others obtained protection from the school bullies and hoodlums in exchange for help with schoolwork and homework. Acknowledging the afflictions of the acting Caucasian theory, Fordham and Ogbu (1986) identified an additional problem existing for successful male students; the affliction of being called gay. They felt that repelling or rejecting academic and school achievement is related to African American male masculinity and sexuality (Fordham & Ogbu, 1986). Stinson (2006) claims that even though the discourse of rejection may explain the schooling experiences of some African American students, the discourse concerning rejection continues to place the liability for the lower academic achievement of African American students on African American students instead of on the structure of the U.S. schools and society.

According to Yeakey, matters of culture are even more complicated due to the relationship between race, class, and the overrepresentation of children of color committed to residential facilities in the justice system, specifically African American males (2002). Data on residents in juvenile custody, drawn from the Census of Juveniles in Residential Placement, indicates that nationally custody rates for African American male juveniles is double the rate for Latinos and five times the rate for Caucasian (U.S. Department of Justice, 2000). Yeakey believes that due to increasing immigration and a second baby-boom generation, our youth population will double predominantly among juveniles of color (2002). One can only wonder as to the possible consequences of an exploding juvenile population of color in an increasing climate of intolerance. The high reoffending rate of juvenile offenders in maximum facilities, who move to adult facilities, tells a profound loss and waste of human potential (Yeakey, 2002).

In a study conducted by Barrett, Katsiyannis, and Zhang, predictors of offense severity, prosecution, incarceration, and repeat violations for first time adolescent male and female offenders in South Carolina were examined. Data was drawn from the South Carolina Department of Juvenile Justice Management Information System (Barrett, Katsiyannis, & Zhang, 2006). The sample consists of 12,468 juveniles all born in 1985. Each of the juveniles has been referred to the South Carolina Juvenile Justice System (DJJ) on at least one occasion "referral" (Barrett et al., 2006).

The 1985 cohort all entered the system between 1989 and 2002. The sample consists of 8,074 males and 4,394 females; the racial composition is 6,214 African American, 6,069 Caucasian and 185 other (Asian and Hispanic). The mean age of the juveniles when they were first referred to the system was 14.44 (SD=1.92); the average age at the second referral was 15.00 (SD=1.52). The average age at the third referral was 15.26 (SD=1.34). The total number

of referrals ranged from 1 to 18 with a mean of 2.17 (SD=1.87). Of the 12, 468 juveniles, 6,746 (54.11%) had one referral only, 2,397 (19.23%) had two referral, and 3,325 (26.66%) had three or more referrals (Barrett et al., 2006).

The researchers state that data on family living arrangements were available for 59.35% of the sample (Barrett et al., 2006). Of this group 22.27% lived with both parents at the time of last referral, 44.73% lived with the biological mother only, 10.92% lived with the biological mother and a stepfather, and 22.08% lived in another living arrangement. Family income data was accessible for 51.74% of the sample. Of these families, 41.28% had an average income of more than $20,000 at the time of the last referral, 34.69% had an income between $10,000 and $20,000, and 24.03% had incomes under $10,000. School status data was available for 59.56% of the sample. Of this group, 71.72% were enrolled in a regular day school program at the time of last referral with 5.56% expelled and 2.42% enrolled but retained; 0.84% were in night school and 8.97% were enrolled in special education (Barrett et al., 2006).

To conduct data analysis on severity, the most grave of the multiple crimes was recorded if the reason was multiple (that is, more than one crime). To categorize the seriousness of the crime, a coding method employed by South Carolina was utilized (Barrett et al., 2006). For analysis purposes, the researchers further categorized offenses as low (level I), moderate (II), high (III) and very high (IV) in severity. DJJ severity levels 1 and 1.5 (status offenses—truancy, running away) were allocated to the low severity category; severity levels 2—3 (misdemeanor offenses—simple assault and battery, criminal domestic violence) were allocated to the moderate severity category; severity levels 5—8 (non-violent felony—grand larceny, carrying a weapon on school grounds) were allocated to the high severity category; and severity levels 8.5—25 (violent felony – assault and battery of a high and aggravated nature, sexual assaults, armed robbery)

were allocated to the highest severity level category. More than 50% of the juveniles were first referred to the system for offenses that were at the misdemeanor level (n=7,530, 61.31%), followed by status offense level (n=2405, 19.58%), non-violent felony level (n=1536, 12.51%), and violent felony level (n=811, 6.60%) (Barrett et al., 2006).

Analyses continued through three stages. In the first stage the researchers examined age, gender, and race influences on severity levels for first referrals. Then, they examined the impact of age, gender and race on disposition of the cases (e.g., diversion, adjudication, incarceration) when severity of the referral violation was controlled. Finally, the researchers examined the role of gender, age, race, offense severity, and previous disposition (e.g., adjudication as opposed to non-adjudication) in predicting whether or not the juvenile would be sent to the juvenile justice system a second or third time (Barrett et al., 2006). Analyses were completed using a sequence of logistic regression analyses in which one or more dichotomous predictor variables were utilized to predict a dichotomous outcome variable (Barrett et al., 2006). The researchers claim to have begun by trying to predict severity level. Severity levels were represented by three dummy variables. They then tried to predict the probability of diversion, incarceration, and adjudication. Next, Barrett et al. developed dichotomous variables representing the differences of adjudication versus non-adjudication, diversion vs. adjudication, and incarceration versus other adjudication (2006).

Barret et al. (2006) then delved into predicting first offense referral severity. The second analysis studied the variables predicting felony level offense versus misdemeanor. As in the previous analysis, there were significant effects for gender, $\chi^2 = (1, N = 12282) = 103.52$, $p < .001$, race $\chi^2 = 15.01$, $p < .001$ and gender x race interaction, $\chi^2 = 6.81$, $p < .01$. African Americans and males were more likely to be referred for felony offenses. The third analysis

predicted violent vs. non-violent offenses. Yet again, there were significant effects for gender, χ^2 = (1, N = 12282) = 33.85, p < .001, race χ^2 = 28.52, p < .001 and gender x race interaction, χ^2 = 8.79, p < .01. African Americans and males were more likely to be referred for violent felonies (Barret et al., 2006).The significant interaction effect seems to be based on the disproportionately low number of Caucasian females and the disproportionately high number of African American males committing violent felony offenses; mean proportions for Caucasian females, Caucasian males, African American females and African American males were .020, .064, .056, and .098 respectively (Barret et al., 2006).

Barrett et al. (2006) then attempted to predict first offense adjudication. The significant race x gender interaction (χ^2 = 11.09, p < .01) seems to reveal the fact that while Caucasian females were more probable than Caucasian males to be adjudicated, African American females were less probable than African American males to be adjudicated; mean proportions adjudicated for Caucasian females, Caucasian males, African American females and African American males were .287, .221, .197, and .225, respectively (Barrett et al., 2006). Next, the researchers attempted to predict prosecution versus diversion. In this analysis, only youth who had been assigned a diversionary activity, which usually included community service, or adjudicated were included. Age of first offense was a significant influence to the equation; χ^2 (1, N = 8909) = 7.95, p < .01, with persons referred at older ages more likely to be prosecuted rather than being diverted. Furthermore, those referred for felonies were more likely to be prosecuted than diverted, χ^2 = 522.76, p < .001, and those referred for non-violent offenses, χ^2 = 22.05, p < .001. African Americans and males were more likely than Caucasians and females to be diverted opposed to being prosecuted (Barrett et al., 2006).

Next the researchers attempted to predict second and third referrals. Youth who were younger at the time of the first referral were more probable to be referred a second time. Also, youth whose first offense was a status offense were more probable to be referred a second time than those whose first offense was more serious, $\chi^2 = 126.53$, $p < .001$. When incarceration is controlled, youth who were adjudicated on the first referral were more probable to be referred for a second offense than those who were not adjudicated, $\chi^2 = 101.35$, $p < .001$. Lastly, it was apparent that when a variable is incorporated, which represents diversion versus other non-adjudication, youth who were diverted were more probable to be referred again to juvenile justice, $\chi^2 = 9.81$, $p < .01$ (Barrett et al., 2006). Youth who were younger at the time of the first referral were more probable to be referred a third time. Furthermore, youth whose first offense was a status offense were more likely to be referred a third time than those who first offense was more serious, $\chi^2 = 71.40$, $p < .001$ (Barrett et al., 2006).

Analyses on referral severity exhibited significance in age, gender, and race differences, with older youth; African Americans and males referred for more serious offenses. Older youth and Caucasians were more likely to be adjudicated than younger youth and African Americans with Caucasian females showing the highest likelihood of prosecution; this was accurate with severity level controlled (Barrett et al., 2006). Analyses on prosecution versus diversion revealed that African Americans and males were less likely than others to be prosecuted and more likely to be diverted. Youth referred for violent crimes were most likely to be incarcerated (Barrett et al., 2006). The result that African Americans and females are less frequently prosecuted than Caucasians and males exhibit that the criminal justice system, at least in South Carolina, does not treat minority youth more harshly than majority youth. The researchers believe that the reasons for gender and race differences are apparent. They also feel that an understated kind of racial

and gender prejudice causes the differences. They also concluded that if judges are inclined to see males as more characteristically antisocial than females and African Americans as more antisocial than Caucasians then judges might have higher behavioral standards for females and Caucasians, thus judges may prosecute more hastily for these subgroups (Barrett et al., 2006).

Attendance and Math Achievement

Attendance is related to the socioeconomic characteristics of the pupils' families, with the children of parents in low skill and low status occupations or without jobs much more likely to truant than other pupils (Attwood & Croll, 2006). Coming from less advantaged backgrounds, having parents who do not monitor school work closely, and disliking teachers create a situation in which truancy is more likely, but they do not directly cause truancy and most young people with these characteristics do not become truants. Truancy may be directly precipitated by particular events; a move of school into an atmosphere they dislike, an incident with a teacher, an episode of bullying, suspension from school (Attwood & Croll, 2006).

Absenteeism is important given that non-attendance and truancy are correlated to dropout rates (Dynarski & Gleason, 1999) and low academic achievement (Lambin, 1996). Research has also shown that school absenteeism is a multifaceted issue that is influenced by many risk factors (Levine, 1984). The risk factors that predict problem behaviors offer an in-depth comprehension of the multifaceted issues behind truancy and other related behaviors (Lawson & Anderson-Butcher, 2001). Truant behaviors are more likely to take place among students who live in poverty (Farrington, 1985; McNeal, 1999), single-parent homes (McNeal, 1999), or who have low self-esteem (Barth, 1984). Boys are even more likely than girls to absent from school

(Jordan, Lara, & McPartland, 1996). Furthermore, parent-guardian involvement in school is less likely among students who are truant than those who attend school regularly (McNeal, 1999).

Students who are consistently absent are more probable than their peers to drop out of school (Sheldon & Epstein, 2004). Absenteeism is a significant element correlated with dropout rates. Schools can be influential in molding children's lives, but only if the children show up (Jensen, 2011). Research of dropouts reveals that exiting school is simply the concluding process of a lengthy withdrawal process from school (National Center for Education Statistics, 2003). According to the U.S. Department of Education (1998), 15% of public school teachers report truancy as a serious problem at their school. Many schools have incentive programs in place to decrease the number of absences accrued by chronically absent students. Researchers, Sheldon and Epstein, state that improving school absenteeism requires a complete approach that focuses on classroom and school factors as well as factors outside of school (2004).

Assisting families and communities in becoming active participants in reducing student absenteeism is an educator's responsibility (Sheldon & Epstein, 2004). Sheldon and Epstein (2004) conducted a study that identifies six types of involvement through which schools can connect the community and families with the purpose of improving particular student outcomes: (1) decision making, (2) communicating, (3) parenting, (4) volunteering, (5) collaborating with the community, and (6) learning at home. Four of the types of involvement were the independent variables of the study: parenting practices, communication practices, volunteering, and collaborating with the community. Communication activities involved sending newsletters home containing excellent attendance lists, leading parent orientations outlining school attendance policies, and distributing school contact information on the internet. There were three items used to measure parenting practices: making home visits, using contracts to require parents

to bringing students to school, and hosting workshops about bringing students to school. Volunteering data was measured by inviting parents to attendance award ceremonies. Two items were utilized to gather data about collaborating with the community: assigning a community mentor to chronically absent students and bringing in speakers to present information about the importance of completing school. Chronic absenteeism, the dependent variable, was identified by Sheldon and Epstein as missing 20 days or more during the 1999-2000 and 2000-2001 school year (2004). The difference between 2001 and 2000 indicated a decrease or increase rate.

Findings indicate that family, school, and community involvement can significantly decrease chronic absenteeism (Sheldon & Epstein, 2004). Specifically, celebrating good attendance with families and students, communicating with families about attendance, and matching chronically absent students with community mentors have decreased students' absenteeism from year to year. The study also revealed that prior chronic absenteeism is the strongest predictor of the 2001 rate (Sheldon & Epstein, 2004). Another result found by the study is that chronic absenteeism is more challenging in high-poverty schools, secondary schools, and large urban schools (Sheldon & Epstein, 2004).

Many school-related risk factors are symptomatic of increased absenteeism (Newsome, Anderson-Butcher, Fink, Hall & Huffer, 2008). Low student academic achievement, disciplinary problems, and socioeconomic status are a few of the factors indicative of truancy issues (Farrington, 1985). According to Newsome et al., it is crucial that prevention and intervention supports be positioned within schools in an attempt to address these multifaceted issues (2008). Such rick factors are obstacles to learning and hinders students' achievement in school. Once these primary factors that predict truancy and low achievement are addressed, students will be

more likely to achieve in school and life. One intervention to help address risk factors that underlie school truancy consists of social work services in schools (Newsome et al., 2008).

School social workers are positioned in the role of demonstrating that the services they offer are effective, productive, and cost efficient in increasing and improving student achievement. However, limited research has analyzed the impact of school social work services on student performance. Newsome et al.'s study considered the outcome of school social work interventions on school absenteeism and associated risk factors among students in an urban community school (2008). The research found that school social work interventions had encouraging impacts on reducing the risk factors measured in the study. Also, students who were receiving school social work services exhibited statistically significant increases in their satisfaction with their self-esteem and school. Moreover, the students' view of their academic performance and how academically supportive their home environments are as a result of the intervention significantly increased. Simply, students were at less risk for truancy as an outcome of the intervention (Newsome et al., 2008).

Gender and Math Achievement

About 50% of the U.S. public school population consists of students of color, 17% consists of African American students, and only 8.3% consists of African American males. African American students constitute almost 40% of these students placed in special education (National Center for Education Statistics, 2007). Out of the African American students place in special education, 80% are male. In regards to gifted and talented programs, only 8% of the students are African American; of those, only a meager 3.5% are male (National Center for Education Statistics, 2007).

One revealing study reports that only 2% of African American males enrolled in a public secondary school system of a large Midwestern city achieved a cumulative grade point average of at least 3.0 on a four-point scale, while more than three-fourths of African American males in that system were performing below average (Leake & Leake, 1992). Other studies propose that African American adolescents are at higher risk for remedial instruction, school suspension, course failure, and school drop-out (Oakes, 1985).

Math grades and course enrollment intentions may be changed by gender similarities and differences. Crombie and colleagues conducted a study to investigate the prospect of gender similarities and differences in models of math grades and enrollment intentions (Crombie et al., 2005). The researchers focused on competence beliefs and task values for mathematics based on Eccles and colleagues' expectancy theory of achievement (Eccles & Wigfield, 2002). The main focus of the research was to study the strength of relationships among gender similarities and differences in competence beliefs, task values, performance in math (grades), and enrollment intentions in a sample of 9th graders. Genders stereotypic self-schemas may contribute to the effect of gender differences in competence beliefs and task values for math, as well as contrasts in the strength of the impact on math grades and enrollment intentions and decisions (Crombie et al., 2005). According to Crombie and colleagues (2005), gender differences in competence beliefs in math may have an impact on other achievement results, such as math enrollment decisions and intentions. Limited academic performance among these youths may be due to the following identified factors: academic tracking, limited teacher support, cultural mistrust, and disidentification with the academic culture of school (Oakes, 1985).

All of Crombies' participants completed a questionnaire that tested several variables pertaining to students' task values, academic competence beliefs, and educational plans in

different subject areas. Math performance was measured by the students' final math averages per year (8th grade and 9th grade). The study found that boys achieved significantly lower math grades than did girls in 8th grade and expressed lower intentions to continue taking math after 9th grade. Males were found to have significantly greater competences beliefs on the questionnaire (Crombie et al., 2005). A possible reason for these findings is that males who are successful in math are encouraged through teachers and parents to continue with more advanced course work, separate of whether they have assumed a sense of competence in this area. Teachers should address the degree to which students' value math and inspire students to continue to take math at the high school level. One effective strategy is to encourage students to stay in math courses and stress the usefulness of math for future educational and career plans (Crombie et al., 2005).

Honora (2002) studied the connection between school achievement and future outlook amongst low-income African American students. Eight males and eight females from 14 to 16 years of age participated in a pen-and-paper questionnaire and two semi-structured interviews measuring the expectation and projected timing of major life events. One of the data measurements utilized in the study was the Future Events Listing; it examined events expected to take place in the future, when students expect the events to occur, and whether the events will be observed as positive or negative (Honora, 2002). The study established that the data comparison from the Future Events Listing across gender, males listed a lesser percentage of goals than girls in three of the four main content categories. Females (29%, 21%, 33%) listed more goals than males (23%, 20%, 7%) in the areas of education, employment, marriage and family, and individually. The one main content category led by boys was sports and leisure (42% vs. 6%). (Honora, 2002)

According to Honora (2002), higher achieving males concentrated on expectations and academic objectives. These adolescents were planning on expanding their educations; however they were afraid of not being capable to finance college. The Future Events Listing found higher achieving males listed the bulk of the expectations and future goals in the category of sports and leisure. While lower achieving males perceived sports as a conceivable profession choice, higher achieving males perceived sports as a method of financing college and were conscious of students who had attended college on athletic scholarships. On the other hand, Honora (2002) found lower achieving males tended to be more inclined to focus on job-related goals; these careers selected would not involve attending college. Their job-related goals consisted of becoming an actor, a professional athlete, and two students were interested in becoming businessmen (Honora, 2002). Honora (2002) prepared several conclusions relevant to gender differences in regards to the future outlook for African American male adolescent students.

While African American females set more goals in the areas of education, employment, marriage, and family; males led only in the category of sports and leisure. Also, the pattern of gender variances could be credited to the historical and cultural environment by which African American adolescents make choices regarding the future. African American adolescents have very different educational and societal experiences as an effect of gender (Honora, 2002). For example, African American males are inexplicably characterized on social constructs, such as violence and crime. These results concerning gender differences in future outlook are specifically affecting in spite of inconsistencies in school achievement among African American adolescents, and they propose the need to further study future outlook as a factor that may assist in clarifying these inconsistencies. African American males have a tendency to show fewer

academic ambitions, are less likely to finish high school in four years, and are at greater risk of dropping out of school in comparison to African American females (Honora, 2002).

Engagement studies find that African American students, specifically African American males, are prone to academic disengagement (McMillian, 2003). Attention placed on gender identity concerns as a strategy of increasing African American male opportunities to learn, and focusing on their achievement gaps is drawing the attention of educators and policymakers (Davis, 2010). According to Davis (2010), the efforts taken by federal, state, and local education departments to combat African American males' gender-identity problems have basically failed to alleviate concerns about educational value of schooling for this subgroup. Education is an essential resource to improve the life opportunities of African American males more than ever before. School experiences and opportunities are limited by ethnicity and race, but the correlation between race and gender is frequently overlooked in educational research (Davis, 2010).

Many low-SES children incur social and emotional instability. Anxious characteristics formed by children in poverty become the foundation for overwhelming insecurity during early childhood years. Unfavorably, there tends to be an increased predominance of adverse factors, such as teen pregnancy, depression, and inadequate health care in impoverished families. These factors lead to lessened compassion toward the child and eventually, low academic performance and behavior on the child's part (van Ijzendoorn et al., 2004). Children raised in low-SES households often fail to learn appropriate social and emotional responses to the demise of their academic achievement (Jensen, 2011). Teachers may perceive students' emotional and social deficits as a lack of respect, but it is important to understand that these students come to school

with a small range of appropriate emotional responses. Simply, many children do not have the repertoire of essential responses (Jensen, 2011).

Prior Academic Achievement and Math Achievement

African American male students who have negative attitudes toward education and do not succeed academically are assigned to supplemental tracked classes, and these students enter middle school with lower levels of prior achievement. Therefore, these students are likely to have lower academic outcomes (Mickelson & Greene, 2006). According to Mickelson and Greene (2006), prior achievement provides a foundation for future learning. Students with a better introductory knowledge can add to their repertoire in exponential ways. Mickelson and Greene's study found that prior achievement had a significant effect on academic outcomes (2006).

Research found that education aspirations and prior achievement had an indirect effect on End-of-Grade (EOG) scores through their influence on track placement (Mickelson & Greene, 2006). Male students' oppositional attitudes had adverse effects on their EOG scores. Students' attitudes had no effect on EOG scores regardless of their gender, but individuals with higher prior achievement and higher track placement achieved higher test scores. Because males had stronger oppositional attitudes than females, this finding offers insight into the gender gaps in achievement among African American middle school students (Mickelson &Green, 2006). The researchers found that oppositional attitudes being significant predictors of African American male student achievement offers limited support for Ogbu's theory (2003). Students' oppositional attitudes reflect the degree to which students have an oppositional cultural framework.

According to the National Research Council of the National Academy of Science reports, SAT scores predict performance as accurately for African Americans as they do for majority applicants (Fleming & Garcia, 1998). Some researchers argue the report recognizes that mean scores for Caucasians are higher than for African Americans. Just as they are for men in comparison to women, the means do not reveal the different abilities of individuals within those groups, which is what the test is intended to identify (Fleming & Garcia, 1998). Researchers, Fleming and Garcia, present correlations for standardized tests and grades for samples of African American students in 15 colleges, seven predominantly African American and eight predominantly Caucasian. They hypothesized that there would be no difference in the correlation coefficients for Caucasian students in Caucasian colleges and for African American students in predominantly African American colleges. Correlation coefficients would be higher for African American students in predominantly African American college; correlation coefficients for Caucasian students would be higher than for African American students in predominantly African American colleges. Moreover, correlation coefficients would be more variable for African American students in predominantly Caucasian schools (Fleming & Garcia, 1998).

Claims that standardized tests are unfair to African American students continue due to a wide variation in predictive validity as well as problems with lack of prediction, under predictions, and over prediction (Fleming & Garcia, 1998). The study found that variability in regards to studying sex separately is consistent with previous reports of predictive validity for African American males. Moreover, the study is suggestive of situational interference in the translation of tested potential into academic outcomes (Fleming & Garcia, 1998).

Another issue of concern is whether or not Caucasian students produce better correlations on standardized tests because the test are biased against African American students. According to Fleming and Garcia, the average overall correlations for Caucasian students were better, but these differences were insignificant until the senior year (1998). When year and sex were considered, it seems that African American males were at a disadvantage in terms of highly variable correlations. The researchers offer two possible explanations for these concerns. Small numbers of subjects create trends that may not be stable and standardized tests may reflect differential influences present in society as well as in the college environment. The researchers conclude that the trends found in their research appear to be products of society rather than products of standardized tests alone (Fleming & Garcia, 1998).

Another study conducted by Bailey and Engerman (2006) examined the relationship between prior academic achievement and achievement. The sample for this study was 16,489 students who participated in a first follow-up (10th grade) and second follow-up (12th grade) student questionnaire of the National Education Longitudinal Study of 1988 (NELS:88). As for academic achievement, being in the low and middle two quartiles in 10th grade were predictors in a logistic regression model. Findings were based on only 1,628 African American students. The students in the low academic achievement quartile were 12.36 times more likely to be in the low academic achievement quartile in 12th grade than students in the middle two and high quartiles in 10th grade ($p < .001$). Additionally, Bailey and Engerman (2006) found students in the middle two academic achievement quartiles were 1.13 times more likely to be in the middle two quartiles in 12th grade ($p < .01$). Therefore, prior achievement had a significant impact on academic achievement (Bailey & Engerman, 2006; Mickelson & Greene, 2006).

Educational Diagnostic Software and Math Achievement

For about 40 years, an educational diagnostic software program has claimed to provide individualized learning for millions of students with integration in tens of thousands of schools and districts nationwide. The program has an automated ability to analyze each student's actual performance and create a personalized route through the curriculum based program on his or her specific strengths and challenges. Pearson, the educational diagnostic software developer, asserts that the result is a personalized path for students at differing proficiency levels and for a variation of learning needs including Response to Intervention, special education, and English language development. The instructional content for both reading and mathematics was established after a widespread analysis of (a) state standards across the country, (b) the Common Core State Standards Initiative, and (c) recommendations of leading educational organizations, such the National Reading Panel, the National Institute for Literacy, and the National Council of Teachers of Mathematics. As standards and suggestions evolve, the educational diagnostic software maintains that curriculum is updated and always current (SuccessMaker, 2011).

Learning and practicing skills on a computer or other electronic device does provide an opportunity for transfer of learned concepts from tradition instruction in the classroom (Smith & Okolo, 2010). The program is designed to deliver continuous formative assessment and reports for a comprehensive understanding of student performance information. Educators are able to track student progress toward a specific performance target or monitor time on system to make sure students meet school and testing objectives. The system also allows you to progress monitor individual student performance at each school and grade level. The Prescriptive Scheduling Report enables educators to identify the needs of individual students, the student population, or subgroups through demographic queries. The report stipulates how many sessions

a student may need to meet learning goals. This report enables administrators to reasonably

determine which schools or classes may need more attention. The educational diagnostic

software is a prime example of technology-based solutions that individualize instruction based

on progress monitoring data (SuccessMaker, 2011).   Teachers and administrators can compile

individual and group data that can be used to make instructional decisions (Smith & Okolo,

2010).

CHAPTER 3

Methodology

This chapter explains the methods that were used in the study. The explanation of the methodology consisted of research setting, participants, instrumentation, data collection procedures and data analysis that were used to answer the following research questions:

1. What is the significance of previous year's math CRCT scores when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

2. What is the significance of days spent in ISS and OSS when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

3. What is the significance of days absent in math courses predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

4. What is the significance of socioeconomic status when predicting African American male math achievement scores in middle school?

5. What is the significance of residential zones when predicting African American male math achievement scores in middle school?

6. Does educational diagnostic software predict math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

7. What predictors are most significant when analyzing African American male math achievement in middle school?

Setting

This study took place within a relatively small southern school district and examined one middle school. The school serves sixth through eighth grade students. This specific district only has three middle schools that feed into three high schools; students are assigned to school residential zones based on the location of their residence (Troup County School System, 2012).

The school is made up of 75 teachers, three assistant principals, and a principal. Many faculty members have a Master's or Specialist's degree and have been teaching for an average of 12.84 years (J.B. Lanier, personal communication, August 22, 2012). The faculty and community pride itself on providing a comprehensive, high quality education that equips students with the skills to graduate from high school. The school's faculty participates in a variety of professional learning opportunities that offer new instructional strategies, educational information, and required Professional Units (PLU's). The school district under study provides opportunities for PLU's to certified staff throughout the school year (K. Drake, personal communication, March 11, 2013).

Students enter the middle school in sixth grade from five feeder elementary schools. However, there are special cases where students attend these middle schools and did not attend one of the feeder schools. One type of the cases would include school zone reassignment based on a change in residence. Another type of case would consist of declaring a hardship. A hardship maybe granted based on a student's medical condition, parent employment of the school district, child care, student's well-being, and educational well-being. If a hardship is granted, then the student is permitted enrollment at the parent requested school. See Appendix A for more details (TCSS, 2012).

In the middle school researched, African American students accounted for 44% of the 1003 students from the 2011-2012 academic year. Of the 1003 middle school students, 24% were African American males. Out of the 1003 enrolled students, 61% were classified as low SES. Of these 608 students, 257 were African American males; 91% of African American males were classified as low SES (Infinite Campus, 2012). The student body is reflective of Georgia public school demographics. At 2%, Asian students were over or underrepresented. Asians are 3% of the state population (GADOE, n.d.e).

African American and Latin students are deemed minority students, as they are overrepresented in the student population (44% and 12% respectively) in comparison to the population of African Americans and Latinos in the state (37% and 3% respectively). The population of the southeastern middle school similarly parallels the gender make up of other middle schools in the district with male 52% and female 48% (GADOE, n.d.e).

Research Participants

This study consisted of data gathered from a southern district in one of three middle schools during the 2011-2012 school year. The potential subjects were assessed by the CRCT annually in each grade level starting in first grade. Only sixth grade, seventh grade, and eighth grade African American male students were the subjects of this study. The students with incomplete data sets, a missing 2009-10 math CRCT score and/or 2010-11 math CRCT score, were omitted. After examining univariate and multivariate outliers, 29 cases were omitted. The sample size consisted of 64 sixth grade, 55 seventh grade, and 70 eighth grade African American male middle school participants (See Table 1).

Table 1

Study Participants (N = 189)

Grade Level	*n* African American Middle School Males	Percent
6th	64	33.9
7th	55	29.1
8th	70	37.0

Sampling Method. For the purpose of this study, a purposive sampling method was utilized. According to Huck, the researcher starts with a large group of prospective subjects (2008). Then, members of this large group must meet certain criteria established by the researcher guided by the research questions to be answered by the investigation (Huck, 2008). This type of sampling method offers information about a specific target population; in this study, the target population was African American male middle school students.

The school system, which contains the middle school researched, would only approve one of the three middle schools for this research. Therefore, the sample size decreased substantially and was limited to one school zone. The criteria for this purposive sampling method was African American, male, and a middle school student. The purpose of this criterion was to satisfy responses to the study's research questions and to guide future educational reformation.

Data. The subjects' SES, attendance in math class, math CRCT scores, and number of days assigned to ISS and OSS were obtained from Infinite Campus Version E.1106.4, a database utilized by the district researched. Prescriptive reports from the educational diagnostic software were used for examining the number of prescriptive sessions diagnosed for African American male middle school students during the 2011-2012 school year. Also, the subjects' residential

zones were categorized by inner city and outer city residential zones; the residential zones were determined by the researcher based on the expertise of the local police department's data analyst (C. Pritchett, personal communication, November, 9, 2012).

Criterion-Referenced Competency Tests. The Criterion-Referenced Competency Test (CRCT) is designed to measure how well students obtain skills and knowledge outlined in the Georgia Performance Standards. According to the Georgia Department of Education (n.d.f), the CRCT assesses standards specific to the Georgia curriculum and was implemented in the spring of 2000. The reliability of CRCT has been validated by Cronbach's alpha value; According to the Georgia Department of Education (n.d.f), Cronbach's alpha value for sixth, seventh, and eighth grade math sections of the CRCT was 0.92.

Sixth grade students taking the CRCT are assessed in the following mathematical process skill domains: number and operations, measurement, geometry, algebra, and data analysis and probability. Seventh grade students are assessed in the following mathematical process skill domains: number and operations, geometry, algebra, and data analysis and probability. Eighth grade students are assessed in the following mathematical process skill domains: number and operations, geometry, algebra, and data analysis and probability. This assessment is administered to students in grades three through eight in mathematics, reading, and language arts. Scoring ranges from 650 to 950. Scores are categorized as Does Not Meet expectations (Level 1), Meets expectations (Level 2), and Exceeds expectations (Level 3). The criteria for each of the categories includes: (GADOE, 2012a).

Does Not Meet expectations (Level 1) – a score of 650 to 799

Meets expectations (Level 2) – a score of 800 to 849

Exceeds expectations (Level 3) – a score of 850 to 950

Educational Diagnostic Software Prescriptive Report. The software is

designed to deliver formative assessment and reports for an understanding of student

performance information. The system also allows you to progress monitor individual student

performance at each school and grade level in the areas of reading and math. The Prescriptive

Scheduling Report enables educators to identify the needs of individual students, the student

population, or subgroups by using demographic queries. The report specifies the number of

sessions a student may need to meet learning goals (SuccessMaker, 2011).

The middle school researched utilized 6.5 as the course level to assess sixth grade

standards; 7.2 as the course level to assess seventh grade standards, and 8.5 as the course level to

assess eighth grade standards. Based on the advancement through the educational software,

students were prescribed a definite number of sessions to attempt in order to meet the proper

course level. The Prescriptive Report was used to determine whether or not prescriptive sessions

significantly predict low math achievement for African American male middle school students

(SuccessMaker, 2011).

Free and Reduced Price School Meals Family Application. At the

beginning of each school year, the district researched offers parents of students a "Free and

Reduced Price School Meals Family Application" to assist with the payment of school meals.

The three classifications that students can be assigned are Free (F), Reduced (R), and Not

Eligible (N). Federal eligibility tables for free or reduced lunch are included on the school

system's lunch form (See Appendix A). The classification determines the socioeconomic status

of students; free and reduced eligible students who participate in the free or reduced lunch

program are categorized as low socioeconomic. By utilizing the school system's lunch form, 59

of the 64 sixth grade participants, 51 of the 55 seventh grade participants, and 64 of the 70 eighth grade participants were classified as having a low socioeconomic status.

School Residential Zones. The district researched is divided into three school residential zones consisting of elementary, middle, and high schools (See Appendix B).   Zone 1 consists of 4,789 students; Zone 2 consists of 4,620 students; and Zone 3 consists of 2,925 students (Jo Beth Lanier, personal communication, August 22, 2012). When students register each year, proof of residency must be verified through a utility bill, letter from the landlord, tax document, and other document corroborating residency. Each participant was assigned a value correlating to his residential zone (inner city and outer city). The residential zones were determined by the researcher based on the expertise of the local police department's data analyst. The data analyst suggested using an intersection on the town square with a 1.5 mile radius. This location is utilized by the local city police department when analyzing city information. Student residential information was collected from Infinite Campus and matched to a school zone (Infinite Campus, 2012).

Infinite Campus Version E.1106.4. The subjects' socioeconomic status, attendance, math CRCT scores, number of days assigned to ISS and OSS were obtained from Infinite Campus Version E.1106.4. Infinite Campus Version E.1106.4 utilizes any number of attendance or reason codes established by the school or district. Infinite Campus provides functionality for the reporting, collection, and communication of attendance. This information database codes absences based on unexcused or excused, field trips, Out of School Suspensions, and illnesses (Infinite Campus, 2012).

ISS is coded as well; however, it is not considered an absence. For the purpose of this study, ISS and OSS was viewed similar to a normal absence based on the loss of instructional

time in the classroom. Infinite Campus defines and tracks offenses by action code information.

By being informed of the types and details of a specific student's offenses, school faculty is

enabled to get to know their students and behavioral dynamics of the school. The number of

days spent absent, in ISS and OSS were acquired from the district's database, Infinite Campus

Version E.1106.4 (Infinite Campus, 2012).

Campus Grade Book, a component of Infinite Campus, gives teachers secure, real-time

access to grading tasks with abilities to enter grades, comments and mark assignments as turned

in, all of which are immediately available to students, guardians, counselors and school

administrators via the Campus Portal. It also records individual grades, such as tests, quizzes,

and daily assignments, nine week averages, semester averages, and yearly averages for all

subjects from year to year. From the database, 2011-12 yearly averages were obtained for all

middle school African American males in the Southeastern district. The average number of days

spent ISS was 6.88; average number of days spent OSS was 2.78; and the average number of

days absent was 8.39 (Infinite Campus, 2012).

Independent and Dependent Variables

In this study, the independent variables were prior math achievement, number of days

spent in ISS, number of days spent in OSS, number of days absent in math courses, SES, and

residential zones. Prior math achievement was measured by the previous year's math CRCT

scores; SES was determined from the free and reduced lunch application. The zone of residency

was determined by the researcher. Participants' residences were categorized as inner city or

outer city; a center was determined by the researcher based on the advice of the local police

department's data analyst for a 1.5 mile radius. Infinite Campus provided the remaining

independent variable data. The dependent variable included in this study is African American

male achievement, which was measured by 2011-12 math CRCT scores.

Data Analysis

Hierarchical multiple regression analysis was used by the researcher to determine the

contribution of five ordered variables on mathematics achievement. The researcher performed a

multiple regression with prior math achievement, The educational diagnostic software

prescriptive sessions, number of days spent in ISS, number of days spent in OSS, number of days

absent, and socioeconomic status as the independent variables. This model identified the

predictor (independent variables) that had the highest zero-order correlation with African

American male achievement (dependent variable) (See Table 2).   The predictor with a

significant incremental R2 was added to the model. This procedure continued until the only

variables in the model significantly explained the variance in math achievement. Analyses were

run using SPSS version 19.

Table 2

Hierarchical Multiple Regression Analysis Model

Block	Dependent Variable
Block 1: Math Ach-Prior Math Ach	Math Ach
Block 2: Math Ach-Prior Math Ach&SM	Math Ach
Block 3: Math Ach-Prior Math Ach&SM&Zones	Math Ach
Block 4: Math Ach-Prior Math Ach&SM&Zones&Abs	Math Ach
Block 5: Math Ach-Prior Math Ach&SM&Zones&Abs&ISS	Math Ach
Block 6: Math Ach-Prior Math Ach&SM&Zones&Abs&ISS&SES	Math Ach

Prior to the hierarchical regression and descriptive analyses, the following assumptions were tested: a) univariate and multivariate normality, b) multicollinearity, and c) homogeneity of variance for the following variables- 1) prior mathematics achievement, 2) days spent in ISS, 3) days spent in OSS, 4) absences, 5) educational diagnostic software prescriptive sessions, and 6) mathematics achievement. Univariate normality of the variables was tested utilizing z-scores, skewness and kurtosis values, and histograms. Z-scores greater than or equal to $\pm$ 3.29 were considered outliers. Furthermore, variables with skewness and kurtosis values > $|1|$ were considered to show departures from normality. Histograms showing departures from normality were also examined for each variable. Multivariate normality was examined using the Mahalanobis Distance criteria ($\chi^2_5 = 20.52$; $p < .001$). The assumption of multicollinearity was determined by examining the Variation Inflation Factor (VIF) value for each of the variables

such that (VIF > 3) indicates multicollinearity. The final assumption, homogeneity of variance, was analyzed by conducting Levene's test. After testing the assumptions, modifications to the research design were made to ensure that the variables upheld the tested assumptions.

When testing normality of the variables, ISS, OSS, and absences were found to be skewed based on outliers and values of skewness and kurtosis. Skewness and kurtosis values for each variable were $Sk = 2.068$, $K = 4.174$ for ISS, $Sk = 4.017$, $K = 17.996$, for OSS and $Sk = 2.642$, $K = 9.058$ for absenses. In addition, there were univariate outliers ($z > 3.29$) which provided further evidence for the skewness and kurtosis values for the three variables. As such, 19 cases were omitted from these variables to approximate a normal distribution (n = 199).   Once the cases were omitted, skewness and kurtosis values of the three variables were examined again. Skewness and kurtosis values was met for ISS ($Sk = 1.960$, $K = 3.983$) and absences ($Sk = 1.762$, $K = 3.410$), but OSS continued to be positively skewed ($Sk = 3.646$, $K = 17.163$). The examination of multivariate outliers revealed that 10 cases showed departures from normality ($\chi^2_5 > 20.52$; p > .001. These 10 cases were additionally omitted from the study decreasing the number of participants (n = 189). By deleting 29 outliers, the assumptions were met for five of the 6 variables. However, the OSS variable still exhibited severe departures from normality. To ensure the accuracy of the study, the independent variable, OSS, was subsequently deleted from this research.

Based on the VIF values of prior mathematics achievement, days spent in ISS, absences, Prescriptive Sessions, and mathematics achievement, multicollinearity was not determined to be an issue (VIF<3). Levene's test was utilized to determine equal variances across grade levels. For two of the variables, prior mathematics achievement and prescriptive sessions, the

homogeneity of variance was not met (p<.05). However, the design was balanced (n = 68/n = 54 < 1.5). Therefore the regression analysis was robust to this violation.

Descriptive statistics were also utilized to enable tabulation, summarization, and depiction of the data collection in an abbreviated fashion (Lomax, 2007). The means of the following independents were examined: days spent in ISS, days absent, prior mathematics achievement, and educational diagnostic software prescriptive sessions. Also, the standard deviations of all of the variables were utilized for examination. The standard deviation provided an overall measurement of how much on average participants' scores differ from the mean math achievement score for African American males (Pyrczak, 2006). The correlation between the independent variables and mathematics achievement was also analyzed separately based on the percentage of African American male middle school students who met or did not meet mathematics standards on the 2011-12 CRCT. By analyzing the percentages of students who met or did not meet mathematics standards, one can predict the number per hundred (Pyrczak, 2006).

Prior to conducting a hierarchical multiple regression analysis, the relevant assumptions of this statistical analysis were tested. First, a sample size of 189 was deemed adequate by G*Power 3.1.5 given the six independent variables to be included in the analysis and a power of .95. Another assumption considered was the researcher's role in determining the order of variable entry. This variable selection method was different from most because the order of entry was determined from a careful consideration of the available research instead of a type of software dictating the sequence (Lomax, 2007). The review of literature was considered when choosing the order of the blocks in the hierarchical multiple regression model.

During the 2011-2012 school year, 257 African American middle school males attended the middle school researched. Of the 257, 21 participants were in the school's special education program; 3 special education students were assessed by CRCT, and the other 18 were assessed by alternate standardized tests. 18 students transferred out of the middle school researched prior to the math testing date of April 23, 2012. The special education students and students who transferred out of the middle school were omitted from the subjects participating in the study due to an incomplete data set consisting of the dependent variable (math achievement). After utilizing z-scores to increase normality of the variables, 29 cases were additionally omitted.

The sample size (N = 189) remained consistent for the dependent variable (math achievement) and for the independent variables: a) prior math achievement, b) days spent in ISS, c) absences, and d) SES. The independent variable, prior achievement, was examined utilizing the same sample size (N = 189), which excluded the subjects who enrolled at the middle school researched after April 25, 2011. CRCT scores for seven students were not included in Infinite Campus because they enrolled after the testing administration; one student did not have CRCT scores for 2010-11 because he had been in the special education program and was not assessed by CRCT.

Each of the variables was analyzed by utilizing the same sample size (N = 189). However, students who completed the 2011-2012 school year at the districts alternative school, were included in the number of subjects because their scores were incorporated in the Adequate Yearly Progress (AYP) reports. Residential zones, another independent variable, were determined by using a center point determined by the local police department's Data Analyst. The center was an intersection located in the downtown square. A radius of 1.5 miles was utilized to categorize inner city (Zone 1) and city (Zone 2) residences of the 189 participants.

CHAPTER 4

Results

This study was designed to examine and better understand the significance between academic achievement predictors and mathematics achievement. Prior mathematics achievement, educational diagnostic software (prescriptive sessions), residential zone, days absent, days spent in ISS, and SES were examined to determine if these variables are significant predictors of low mathematics achievement in African American middle school males. For the purpose of this study, mathematics academic achievement was determined by sixth, seventh, and eighth grade mathematics CRCT scores. In this chapter, hierarchical regression analyses incorporated independent variables that were entered in a specified theoretically-based sequence.

Examination of Research Questions

The data in this section relates to the testing and examination of the questions investigated in this study:

1. What is the significance of previous year's math CRCT scores when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?
2. What is the significance of days spent in ISS when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?
3. What is the significance of days absent in math courses predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

4. What is the significance of socioeconomic status when predicting African American male math achievement scores in middle school?

5. What is the significance of residential zones when predicting African American male math achievement scores in middle school?

6. What is the significance of educational diagnostic software when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

7. What predictors are most significant when analyzing African American male math achievement in middle school?

To investigate these questions, hierarchical multiple regression analysis was used on data collected from Infinite Campus. Table 3 outlines the 189 participants in the three grade levels gathered from the database.

Table 3

African-American Male Study Participants (N = 189)

Grade Level	School Years	n
6th	2010-11 and 2011-12	64
7th	2010-11 and 2011-12	55
8th	2010-11 and 2011-12	70

Descriptive statistics collected from Infinite Campus and the educational diagnostic software were used to further examine the research questions. The minimum, maximum, and mean number of days spent in ISS, days absent, scores of prior mathematics achievement, and

sessions prescribed by the educational diagnostic software were analyzed for the purpose of this study (See Table 4).

Table 4

Descriptive Statistics

Independent Variable	Minimum	Maximum	Mean
Days Spent in ISS	0	32	4.66
Days Absent	0	21	5.81
Prior Math Achievement	754	898	821.73
Prescriptive Sessions	0	259	40.63

A hierarchical multiple regression analysis was utilized in order to provide an explanation of the dependent variable and to allow the effect of any one independent variable to be made more certain (Dunteman, 1989). This is a statistical tool that is an appropriate choice for determining the ability of variables to predict outcomes and for allowing the effects of a single independent variable on a dependent variable to be isolated and understood.

In the analyses, the dependent variable, math achievement, was regressed into the six independent variables. The first variable added to the model was prior mathematics achievement. The remaining independent variables were added to the model following a sequence determined by the researcher of educational diagnostic software prescriptive sessions, zones, absences, days spent in ISS, and SES. This sequence was based on the findings of the literature reviewed for this study.

Numerous research studies have supported the importance of prior academic achievement in predicting low academic achievement (Bailey & Engerman, 2006; Fleming & Garcia, 1998;

and Mickelson & Greene, 2006). Mickelson and Greene (2006) stated that students with better preliminary knowledge can increase their range in exponential ways. Mickelson and Greene's study found that prior achievement had a significant effect on academic outcomes (2006). Fleming and Garcia (1998) stated that according to the National Research Council of the National Academy of Science reports, SAT scores predict achievement as accurately for African Americans as they do for majority applicants. Previous research led to the decision to add in prior mathematics achievement in the regression analysis as the first predictor. The researcher hypothesized that prior mathematics achievement is a strong predictor of mathematics achievement, stronger than any of the other predictors. This predictor was introduced as the first variable (Model 1) in the hierarchical multiple regression analysis.

The remaining predictors were introduced into the regression in the following order: educational diagnostic software (prescriptive sessions), residential zones, days absent, days spent in ISS, and SES. The literature supported the importance of each of these independent variables as predictors of academic achievement with varying degrees of importance in the studies. Based on the literature research, an order was determined.

The educational diagnostic software prescriptive sessions report enables administrators to rationally determine which schools or classes may need more attention. These sessions were incorporated into Model 2. The next independent variable included in Model 3 was zone. Peer groups, which have much to do with proximity, are recognized to influence academic performance (Reis, Colbert, & Hébert, 2005). In the study conducted by Bailey and Engerman (2006), the relationship with learning focused peers in 10th grade did not predict 12th grade academic achievement.

According to Lambin's (1996) study, the coefficient on the attendance variable was statistically significant at the 5% level for a one-tailed test in nine of the specifications and significant at the 1% level for eight of nine. This result strongly suggests that attendance does have a positive influence on student performance. For this reason, the number of days absent was added to Model 4 as an independent variable. The number of days that students spent in ISS were added to Model 5; discipline practices often utilized in schools such as ISS and OSS prevent instructional time from students who obtain disciplinary referrals (Chung et al., 2011). Without the necessary academic instruction, students will struggle with new concepts and pre-existing academic challenges (Murrell, 1994).

The final independent variable examined, SES, was added to Model 6. Family wealth has a significant relationship with the cognitive achievement of students. An even more significant relationship with students' math scores than their reading scores (Conley & Yeung, 2008). Thus, students identified as low SES are more likely designated into a specific track for the rest of their secondary education, thus decreasing the capability for poverty status to significantly change their future math scores (Burnett & Farkas, 2009). SES has a direct relationship with the variable, number of days absent; low student academic achievement, disciplinary problems, and SES are a few of the factors indicative of truancy issues (Farrington, 1985).

Results of Descriptive Analysis

Participants.
The initial sample size was 257 participants. Of the 257, 21 participants were in the school's special education program; 3 special education students were assessed by CRCT, and the other 18 were assessed by alternate standardized tests. 18 students transferred out of the middle school researched prior to the math testing date of April 23, 2012.

The special education students and students who transferred out of the middle school were omitted from the subjects participating in the study due to an incomplete data set consisting of the dependent variable (N = 218). To ensure valid assumptions, 29 outliers were eliminated consequently decreasing the sample size (N = 189). Independent variables, prior mathematics achievement, days spent in ISS, absences, SES, and dependent variable, math achievement, utilized the same sample size (N=189).

Variables. African American male students at the middle school being researched received a minimum of zero days and a maximum of 32 days ISS (M = 4.66, SD = 6.545) (see Table 5). The percent and number of African American male students who met or did not meet math standards on the CRCT were grouped by the number of days spent in ISS (0, 1-5, 6 or more) (See Table 6). Of the students who did not receive any days ISS, 83% met math CRCT standards. However, of the students who received between one and five days ISS, 73% met math CRCT standards; 71% of students who received six or more days ISS met math CRCT standards.

Table 5

Descriptive Statistics of Predictors of Math Achievement in African American Male Middle School Students Variables

Variable	N	Minimum	Maximum	M	SD
Math Achievement	189	759	906	817.84	26.751
Days Spent in In School Suspension (ISS)	189	0	32	4.66	6.545
Days Absent	189	0	21	5.81	4.433

Variable	N	Minimum	Maximum	M	SD
Low Socioeconomic Status	189	1	2	1.08	0.271
Prior Math Achievement	189	754	898	821.73	26.836
Residential Zones	189	1	2	1.21	0.406
Prescriptive Sessions	189	0	259	40.63	54.494

Table 6

Descriptive Statistics Summary: In School Suspension and Math Achievement

	In School Suspension and Math Achievement				
Grade Level	Days Spent in ISS	DNM (Students)	DNM (%)	M (Students)	M (%)
6th	0	7	26%	20	74%
	1-5	7	37%	12	63%
	6 or more	7	39%	11	61%
7th	0	1	3%	28	97%
	1-5	0	0%	12	100%
	6 or more	2	14%	12	86%
8th	0	7	21%	26	79%
	1-5	5	42%	8	68%
	6 or more	7	29%	17	71%
All	0	15	17%	74	83%
	1-5	12	27%	32	73%
	6 or more	16	29%	40	71%

The examination of SES found that 24% of students identified as low SES did not meet math CRCT standards, and 7% of students identified as not being low SES did not meet math CRCT standards (see Table 7). Another relationship analyzed was between residential zones

(Inner and Outer) and math achievement. Students residing within a 1.5 mile radius from the center of the city (Inner) were found to have a higher percent (DNM = 25%) than outer zone of students (DNM = 15%) who met math CRCT standards by 10% (Table 8). SES and residential zones as predictors did not appear to have significant influence in predicting math achievement.

Table 7

Descriptive Statistics Summary: Socioeconomic Status (SES) and Math Achievement

Grade Level	SES and Math Achievement							
	Low SES				Not Low SES			
	DNM (Students)	DNM (%)	M (Students)	M (%)	DNM (Students)	DNM (%)	M (Students)	M (%)
6th	20	34%	39	66%	1	20%	4	80%
7th	3	6%	48	94%	0	0%	4	100%
8th	19	30%	45	70%	0	0%	6	100%
All	42	24%	132	76%	1	7%	14	93%

Table 8

Descriptive Statistics Summary: Residential Zones and Math Achievement

Grade Level	Residential							
	Residential Zones and Math Achievement							
	Inner Zone				Outer Zone			
	DNM (Students)	DNM (%)	M (Students)	M (%)	DNM (Students)	DNM (%)	M (Students)	M (%)
6th	18	35%	33	65%	3	23%	10	77%
7th	3	7%	40	93%	0	0%	12	100%
8th	16	29%	40	71%	3	21%	11	79%

| All | 37 | 25% | 113 | 75% | 6 | 15% | 33 | 85% |

All African American male students in 7th and 8th grade who met the diagnosed number of prescriptive sessions met math standards on the CRCT (see Table 9). Only 9% of African American male students who met the number of prescriptive sessions failed to meet math standards on CRCT. Of the students who did not meet the diagnosed prescriptive sessions, 33% did not meet math standards on the CRCT. The descriptive examination of the educational diagnostic software's prescriptive sessions has proven to be reflective of the hierarchical multiple regression analysis. The number of prescriptive sessions has an adverse effect on math achievement; 91% of African American middle school males who met the number of prescriptive sessions passed the math portion of the CRCT.

Based on the descriptive statistics in Table 5, the lowest score on the math portion of the 2011 CRCT was 754 and the highest score was 898 (M = 821.73, SD = 26.836). Of the 2011 6th grade students who did not meet, 57% did not meet in 2012. Of the 2011 7th grade students who did not meet, 9% did not meet in 2012, and of the 2011 8th grade students who did not meet, 58% did not meet in 2012. Moreover, the African American male middle school students who did not meet in 2011 resulted in 35% students not meeting in 2012 (Table 10). Only one 7th grade student, who met math CRCT standards in 2011, did not meet standards in 2012. Of the students who met in 2011, 79% met in 2012. The descriptive analysis of prior achievement suggested a discrepancy of math achievement between 6th and 8th grade and 7th grade. This discrepancy could be due to rigor of curriculum or assessment. However, the descriptive data supported the findings of the hierarchical regression analysis; the relationship of prior math achievement with math achievement (β = .452, $p<.001$) was found to be statistically significant (Table 12).

As the number of absences increased, so did the number of students who did not meet math CRCT standards (M = 5.81, SD = 4.433) (see Table 5). Of the 6th grade students who

were absent eleven or more days, 35% did not meet math CRCT standards (see Table 11).

Similarly, the findings for the 8th grade students who missed eleven or more days were 33% who

did not meet standards. African American male students who missed five or less days were more

likely to meet math CRCT standards by 58%; 79% of these students passed the math CRCT.

The descriptive analysis of absences proved to parallel the findings of the hierarchical regression

analysis; the independent variable, absences, is a strong predictor of math achievement for

African American male middle school students.

Table 9

Descriptive Statistics Summary: Educational Diagnostic Software Prescriptive Sessions and Math Achievement

Grade Level	Prescriptive Sessions and Math Achievement							
	Met Prescriptive Sessions				Did Not Meet Prescriptive Sessions			
	DNM (Students)	DNM (%)	M (Students)	M (%)	DNM (Students)	DNM (%)	M (Students)	M (%)
6th	6	17%	29	83%	15	52%	14	48%
7th	0	0%	17	100%	3	8%	35	92%
8th	0	0%	24	100%	19	41%	27	59%
All	6	9%	70	81%	37	33%	76	67%

Table 10

Descriptive Statistics Summary: Prior Math Achievement and Math Achievement

Grade Level	Prior Math Achievement and Math Achievement							
	DNM (2011)				M (2011)			
	DNM (Students-2012)	DNM (%)	M (Students-2012)	M (%)	DNM (Students-2012)	DNM (%)	M (Students-2012)	M (%)
6th	8	57%	6	43%	13	26%	37	74%
7th	2	9%	21	81%	1	3%	31	97%
8th	7	58%	5	42%	12	21%	46	79%

All	17	35%	32	65%	26	19%	114	81%

Table 11

Descriptive Statistics Summary: Absences and Math Achievement

Grade Level	Absences	DNM (Students)	DNM (%)	M (Students)	M (%)
		Absences and Math Achievement			
6th	0-5	11	29%	27	71%
	6-10	7	39%	11	61%
	11or more	3	38%	5	62%
7th	0-5	3	9%	29	91%
	6-10	0	0%	12	100%
	11or more	0	0%	11	100%
8th	0-5	9	24%	29	76%
	6-10	7	30%	16	70%
	11or more	3	33%	6	67%
All	0-5	23	21%	85	79%
	6-10	14	26%	39	74%
	11or more	6	21%	22	79%

Results of Regression Analysis

When testing normality of the variables, ISS, OSS, and absences were found to be skewed based on outliers. Outliers ($z \geq 3.29$) were omitted from these variables to increase normality; 19 cases were omitted from the study (N = 199). Once the cases were omitted, days spent in OSS maintained skewness. The multivariate outliers were identified by utilizing the Mahalanobis Distance criteria ($\chi^2_5 = 20.52; p < .001$). Additionally, multivariate outliers, 10 cases, were deleted from the study lessening the number of participants (N = 189). By omitting

29 outliers, the assumptions were met. Conversely, the OSS variable maintained departures from

normality. Subsequently, the independent variable, OSS, was deleted from this research.

When examining the low mathematics achievement variables, the findings revealed that

20.5% of the variance was attributed to Prior Math Achievement (R^2 =.205, $F_{1,\ 176}$ =45.263, p

<.001) (Table 12). The relationship between prior math achievement and math achievement (β =

.452, p <.001) was found to be statistically significant. The explanatory significance added to

the model by including educational diagnostic software prescriptive sessions increased by 2.6%.

This change was statistically significant (R^2 = .231, $F_{1,\ 175}$ = 5.953, p =.016). When the second

variable was added to the model, educational diagnostic software prescriptive sessions (β = -

.172, p = .016) inversely influenced mathematics achievement . When adding the third

predictive variable residential zones, the predictive power only improved by 1.1% above the

prior two variables in the model by explaining 24.2% of the variance in mathematics

achievement (R^2 = .242, $F_{1,\ 174}$ = 2.65, p = .105). Predictive power was not statistically

significant and did not improve for this group.

In addition to these findings, mathematics achievement was statistically influenced when

student absences were added to the model. Absences explained 26.4% of the variance (R^2 =

.264, $F_{1,\ 173}$ = 5.058, p = .001). In this model, the number of educational diagnostic software

prescriptive sessions inversely influenced mathematics achievement (β = -.169, p = .026).

Adding the days spent in ISS (R^2 = .274, $F_{1,\ 172}$ = 2.295, p =.132) did not statistically improve the

explained variance. The final variable added, SES, (R^2 = .274, $F_{1,\ 171}$ = .142, p = .707) also did

not statistically improve the explained variance. The findings revealed that the variance did not change when SES was included in the model.

Table 12

Summary of Hierarchical Regression Analysis for Independent Variables Predicting Low Mathematics Achievement for African American Middle School Males

Math Achievement									
	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*ß*	*B*	*SE B*	*ß*	*B*	*SE B*	*ß*
Prior Ach	.440	.065	.452*	.382	.069	.393*	.366	.069	.377*
SM				-.089	.037	-.172*	-.081	.037	-.157*
Zones							7.058	4.331	.111
Days Abs									
Days ISS									
SES									
R^2		.205			.231			.242	
F for R^2 change		45.263*			5.953*			2.656	

Math Achievement									
	Model 4			Model 5			Model 6		
Variable	*B*	*SE B*	*ß*	*B*	*SE B*	*ß*	*B*	*SE B*	*ß*
Prior Ach	.339	.069	.348*	.326	.070	.335*	.323	.071	.332*
SM	-.087	.036	-.169*	-.084	.036	-.152*	-.084	.036	-.162*
Zones	6.761	4.283	.106	6.515	4.270	.102	6.333	4.308	.099
Days Abs	-.889	.395	-.149*	-.792	.399	-.133*	-.779	.401	-.131
Days ISS				-.430	.284	-.102	-.418	.287	-.099
SES							2.486	6.598	.026
R^2		.264			.274			.274	
F for R^2 change		5.058*			2.295			.142	

*p<.05

An analysis of the R^2 values and the *p* values was made to determine which variables might be predictors of future math achievement. R^2, the squared multiple correlation coefficient, specifies the proportion of variance that could be accounted for by the combinations of the independent variables (Table 12 and Table 13) (Huck, 2008). The R^2 represents the variance of

one linear regression. For a statistically significant finding to occur, the R^2 value must indicate

some correlation, and then it must increase significantly as independent variables are added to

the regression. The R^2 values for the regressions are provided in Table 14.

Table 13

R^2 Values

Table Name	Dependent Variable	R^2 Value
Math Ach-Prior Math Ach	Math Ach	.205
Math Ach-Prior Math Ach&SM	Math Ach	.231
Math Ach-Prior Math Ach&SM&Zones	Math Ach	.242
Math Ach-Prior Math Ach&SM&Zones&Abs	Math Ach	.264
Math Ach-Prior Math Ach&SM&Zones&Abs&ISS	Math Ach	.274
Math Ach-Prior Math Ach&SM&Zones&Abs&ISS&SES	Math Ach	.274

In the first regression of math achievement over prior math achievement, there was a

significant R^2 value of .252, which indicated a strong positive correlation between math

achievement and prior achievement. There was also significant R^2 in the regression of other

regressions of the independent variables, such as the regression of math achievement over prior

achievement and prior achievement over educational diagnostic software prescriptive sessions.

This regression continues with educational diagnostic software prescriptive sessions over

residential zones and residential zones over absences. The increase in the R^2 value from .205 in

the regression of math achievement over prior math achievement to .231 in the regression of

math achievement over prior math achievement over educational diagnostic software prescriptive

sessions is .026, thus accounting for 2.6% of the variance. The increase in the R^2 value from

.242 in the regression of math achievement over prior math achievement over educational diagnostic software prescriptive sessions over residential zones to .264 in the regression of math achievement over prior math achievement over educational diagnostic software prescriptive sessions over residential zones over absences is 2.2% of the variance. This indicated a positive correlation between prior achievement and math achievement, educational diagnostic software and math achievement, and absences and math achievement. The remaining regressions were not statistically significant.

Next, the researcher examined the relevant p values, which indicate the degree of confidence researchers can have in the results. The p values must be less than .05 or a confidence level of 95% for the regression with R^2 values that were significant. The p values in the regression analyses with significant R^2 values are listed in Table 14. Table 14 shows significant probability values for the relevant regressions indicating R^2 for each of the six regressions.

Table 14

Reported p- Values between Math Achievement and Independent Variables

	Independent Variable	*p* value
Math Achievement	Prior Achievement	.000*
Math Achievement	Educational Diagnostic Software	.016*
Math Achievement	Residential Zones	.105
Math Achievement	Days Absent	.026*
Math Achievement	Days Spent in ISS	.132
Math Achievement	Low Socioeconomic Status	.707

*p<.05

CHAPTER 5

Summary, Discussion, Recommendations, and Conclusions

Summary

The purpose of this study was to examine variables which significantly predict low math achievement in African American male middle school students. This study also examined variables that predict low math achievement for African American males to determine the most significant of the predictors. The predictors selected for this study were variables that appeared frequently in literature on math achievement, such as SES, absences, prior math achievement, days spent in ISS, and residential zones. These predictors were examined to determine which predictors of math achievement are most significant as measured by the 2011-12 math portion of the CRCT a standardized test. This quantitative case study included sixth, seventh, and eighth grade African American male subjects from a middle school in the Southeast.

The methods selected to examine the data were a descriptive analysis and hierarchical multiple regression analysis. The hierarchical multiple regression analysis is a method recommended throughout the literature for use in determining the predictive ability of multiple independent variables on a dependent variable. The first regression of math achievement over prior math achievement indicated a strong positive correlation between math achievement and prior achievement. There were also significant R^2 in two other regressions of the independent

variables, which include the regression of math achievement over prior achievement over educational diagnostic software prescriptive sessions, math achievement over prior achievement over educational diagnostic software prescriptive sessions, and over residential zones over absences. The decisions about the ordering of the variables were made as a result of the literature that was reviewed.

The following research questions were determined from the review of literature on math achievement and African American male students:

1. What is the significance of previous year's math CRCT scores when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

2. What is the significance of days spent in ISS when predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

3. What is the significance of days absent in math courses predicting math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

4. What is the significance of socioeconomic status when predicting African American male math achievement scores in middle school?

5. What is the significance of residential zones when predicting African American male math achievement scores in middle school?

6. Does educational diagnostic software predict math achievement scores in sixth grade, seventh grade, and eighth grade for African American males?

7. What predictors are most significant when analyzing African American male math achievement in middle school?

The participants in this study consisted of 189 students in a middle school in the Southeast. All of the participants were given the 2011-2012 math portion of the CRCT appropriate to his enrolled grade level to determine academic achievement. The sample size (N = 189) for the dependent variable, math achievement, and for the independent variables, days spent in ISS, absences, and SES were consistent.

The scores from the portion of the 2011-2012 CRCT were used to evaluate the six predictors of math achievements which included: SES, absences, prior math achievement, days spent in ISS, and residential zones. These predictors were examined hierarchically in multiple regression analyses to determine whether they were significant predictors of African American male middle school achievement. The results of the regression analyses answered the seven research questions outlined earlier in this chapter.

Discussion of Results

Explanation of Analyses. The correlation between prior math achievement and math achievement was predictable; moreover, the correlation between absences and math achievement was also expected. However, the similar correlation between the number of educational diagnostic software prescriptive sessions and math achievement was not anticipated. Furthermore, an explanation of mathematics instruction and the utilization of educational diagnostic software during the earliest grades should promote this understanding.

Beginning in elementary school, the use of educational diagnostic software is required as a mathematics resource. The customized math lessons are designed to address mathematics concepts, such as algebraic fundamentals or problem solving strategies. The software manipulative uses real-world objects, such as graphs or maps. Students work on twenty minute

sessions individually to solve problems using these objects and comprehend mathematical concepts (SuccessMaker, 2011).   Students then receive a percent of correct answers given with always offering verified progression or regression. The educational diagnostic software is designed with a detailed reporting system enabling teachers and administrators to make data-based instructional decisions to personalize learning. The result is a personalized program that is automatic for every learner making the educational diagnostic software an accommodating interactive resource for students at varying proficiency levels and for a variety of learning needs, including Response to Intervention, special education, and English language development (SuccessMaker, 2011).

The middle school researched required students to complete one to two sessions a week during math classes to meet educational diagnostic software prescriptive sessions. Students in additional remedial math classes also utilized the diagnostic software to possibly increase their chances in passing the math portion of the CRCT. Also, frequent progress monitoring of educational diagnostic software prescriptive sessions enabled the school's graduation coach to identify students who needed to complete a large number of sessions. Once these students were identified, the graduation coach facilitated additional opportunities for these students decrease the number of prescriptive sessions suggested by the educational diagnostic software. The commitment of students, teachers, and administrators was imperative in providing data to determine the predictive ability of educational diagnostic software prescriptive sessions.

According to the hierarchical regression analysis, the predictive power of including educational diagnostic software to prior math achievement increased by 2.6% and was found to be statistically significant. The number of educational diagnostic software prescriptive sessions

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inversely influenced mathematics achievement. All African American male students in 7th and

8th grade who met the prescribed number of educational diagnostic software prescriptive

sessions met math standards on the CRCT (see Table 9). Thus, African American middle school

males who utilized the educational diagnostic software and met the specific number of diagnosed

sessions were more likely to attain math achievement.

In addition to these findings, mathematics achievement was statistically influenced when

student absences were added to the regression analysis. Absences explained 26.4% of the

variance (R^2 = .264, $F_{1, 173}$ = 5.058, p = .026). The increase in the R^2 value in the regression of

math achievement over prior math achievement over educational diagnostic software prescriptive

sessions over residential zones to .264 in the regression of math achievement over prior math

achievement over educational diagnostic software prescriptive sessions over residential zones

over absences is 2.2% of the variances. This indicated a positive correlation between math

achievement and absences. As the number of African American middle school male absences

(M=5.81, SD=4.433) increased, so does the number of these students who did not meet math

CRCT standards (M=817.84, SD=26.751) (see Table 5). The hierarchical regression and

descriptive analysis of absences proved to be parallel; the independent variable, absences, is a

strong predictor of math achievement for African American male middle school students.

When examining the low mathematics achievement variables, the findings revealed the

relationship of prior math achievement and math achievement was statistically significant. In the

first regression of math achievement over prior math achievement, there was a significant R^2

value of .205, which indicated a strong positive correlation between prior math achievement and

math achievement. Of the students identified as attaining prior achievement in 2011 on the math

portion of the CRCT, 81% accomplished math achievement in 2012. The descriptive analysis of prior achievement suggested a discrepancy of math achievement between 6th and 8th grade, and 7th grade. This trend was reflective of state and county CRCT data (GADOE, 2012b). This discrepancy could be due to rigor of curriculum or assessment. However, the descriptive data supports the findings of the hierarchical regression analysis. The relationship of prior math achievement with math achievement is a significant predictor of math achievement for African American male middle school students.

Prior achievement, educational diagnostic software prescriptive sessions, and absences clearly predict math achievement stronger than ISS, residential zones, and SES for African American male middle school students. The implementation of an educational diagnostic software program in elementary school, enforcement of a truancy protocol, and monitoring students' previous years' math achievement explains the correlation between these three independent variables and math achievement.

To summarize, mathematics achievement for African American middle school males was significantly influenced by prior mathematics achievement, educational diagnostic software prescriptive sessions, and student absences. However, the predictive power of residential zones, days spent in ISS, and SES were not found statistically significant.

Influence of Limitations. The following limitations, outlined earlier in Chapter III, may have affected the findings of this study:

1. Research was permitted at only one middle school by the school district's IRB. The case study utilized participants who were assigned to the middle school understudy based on residency. Thus the results will not be applicable to all school settings.

2. Students' residences are determined by a criteria deemed by the school system. Proof of residency is confirmed by one of the following: a) a lease or rent agreement, b) property deed, c) utility bill, d) phone bill, or e) tax records (Troup, 2012). There are validity concerns about each of the proof of residency documents. Therefore, results of the study should not be utilized for residential and cultural generalizations.

3. Students' SES is identified by using lunch forms distributed by the middle school researched; the lunch forms include a chart specifying the qualifications of free and reduced lunches. Students whose parents complete the form and qualify for free or reduced lunches are classified as low SES. The study could not take into account SES accuracy.

4. The researcher's role at the middle school under study as an employee. Even after coding the participants, the researcher is familiar with many of the participants at the middle school. Researcher subconscious bias should be considered.

One implication of these limitations was because the participants in this study were from one middle school that served a specific geographic zone a lack of diversity in backgrounds and cultural experiences were not typical of most African American male middle school students. Therefore, the data generated from this middle school may not be representative of all middle schools. However, the demographic make-up of the other two middle schools in the same school system is similar to the middle school researched. Utilization of the findings in this study would be beneficial for demographically similar school systems.

Another implication of these limitations is because the participants' residences were confirmed by documents that may validate temporary addresses, the assigned school and

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residential zones may not be accurate. Consequently, math achievement scores might include participants who reside in another school zone or not include participants who reside in the researched middle school's zone. Also, for the purpose of this study, participants were classified as inner zone and outer zone within the middle school's designated geographic area to analyze the significance of residential location. Therefore, there was no concrete way to determine if the claimed zone was a significant predictor of math achievement for African American male middle school students.

The implication of students being identified as low SES by lunch forms distributed by the researched middle school was the validity of the students' SES. Parents do not have to supply proof of income or the number of occupants in the house to qualify for free or reduced lunches. With the qualification chart on the lunch form, it is easy for parents to determine what number of occupants in the house and income to choose to meet the requirements for free or reduced lunches thus being identified as low SES. The validity of SES data generated to examine the relationship between SES and math achievement may have skewed results.

Finally, the researcher's role at the middle school as an employee contributed to additional implications to the research. The researcher coded the participants, acknowledged possible biases, and utilized the school system's database to acquire most of the data for the study. By coding the participants, the researcher was unable to immediately identify individual students' data. Inevitable biases were acknowledged in an effort to prevent these preconceptions from guiding the research design. The final strategy employed to alleviate the limitation of the researcher's role at the middle school researched was to export data directly from the school system's database; this method was an attempt to maintain consistency with the data.

Conclusions

The conclusions drawn from the results of this study emphasize the importance of identifying the most significant of math achievement predictors for African American male middle school students: prior achievement, educational diagnostic software prescriptive sessions, and absences. Each of the three predictors showed statistically significant correlation with math achievement. The findings of this study were supported by previous research. Mickelson and Greene's study found that prior achievement had a significant effect on academic outcomes (2006); learning and practicing skills on a computer or other electronic device does provide an opportunity for transfer of learned concepts from tradition instruction in the classroom (Smith & Okolo, 2010). Also, absenteeism is important given that non-attendance and truancy are correlated to low academic achievement (Lambin, 1996).

For several years, educators have observed the achievement gap between African American male middle school students and their counterparts (Garibaldi, 2007; Jeynes, 2005; Lubienski, 2002). As an effort to resolve gender and ethnicity deficits, the No Child Left Behind (NCLB) law passed in 2002. NCLB states that all students at least meet standards in the areas of reading and math (GADOE, n.d.a; McMillian, 2003). This law is intended to assist in closing the achievement gap; however, there are challenges to many African American middle school males that must be met in order to comply with NCLB (Jeynes, 2005). Because research has revealed that African American males have been singled out based on most local and national data of staggering academic underachievement (Garibaldi, 2007), significant predictors need to

be identified and utilized to ensure the narrowing of the African American and Caucasian achievement gap.

Students with higher prior achievement and higher track placement achieve higher test scores. Many variables, such as less rigorous classes, student attitude, and learning style, contribute to lower prior achievement. African American students have a greater enrollment in less challenging classes in school and lesser enrollment in academically gifted classes. African American students have internalized educators' perception that they cannot succeed (Hammond, 2000). These perceptions may be the reason that male students express negative attitudes towards education. Male students' oppositional attitudes have adverse effects on their achievement (Mickelson & Green, 2006). A solution to oppositional attitude may be the facilitation of cooperative learning; studies have shown that African American students appear to work best when using a cooperative learning style, which appears to be more conducive to a positive learning outcome (Davis & Rimm, 1997).

Incorporating educational software as predictors for math achievement is beginning to be considered and implemented more the educational realm. Access to a home computer, a computer area in classrooms, child/computer ratio, software, and computers in schools are positively correlated with academic achievement (Judge, 2005). However, children from low income homes experience material deprivation which includes a lack of educational resources, such as technology, books, and tutoring (Conley & Young, 2008). Proficient technology should be a priority for school systems to incorporate for the purposes of increasing academic achievement and closing the African American-Caucasian achievement gap. It is also crucial that teachers provide equitable time for all students to experiment with technology and not view

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the computer program as more appropriate for one group of children than another (Judge, 2005).

Additional research, such as that of Judge (2005), should be conducted to determine the most

effective educational software for African American male math achievement.

Absenteeism is crucial given that absence and truancy are correlated to dropout rates

(Dynarski & Gleason, 1999) and low academic achievement (Lambin, 1996). Males are even

more likely than females to absent from school (Jordan, Lara, & McPartland, 1996). Low

student academic achievement, disciplinary problems, and socioeconomic status are a few of the

factors indicative of truancy issues (Farrington, 1985). Positive reinforcement and incentive

programs are a beneficial strategy to utilize in combatting disciplinary and truancy problems.

According to Newsome et al., it is crucial that prevention and intervention support programs be

positioned within schools in an attempt to address these problems (2008). Absenteeism obstacles

challenge learning and obstruct students' achievement in school. Once the main factors that

predict truancy and low achievement are confronted, students will be more likely to achieve in

school and life (Newsome et al., 2008).

In summary, the findings of this study successfully addressed the main purpose of the

study, which was to examine variables which significantly predict lower levels of math

achievement in regards to African American males in middle school. The results of the

regression analyses and descriptive summary answered the research questions. The results

specifically indicated that three variables were significant predictors of African American male

middle school achievement. Prior math achievement, educational diagnostic software

prescriptive sessions, and absences are significant predictors of math achievement for African

American male sixth, seventh, and eighth students. In addition, out of the six predictors

examined, the study found the strongest correlation to be between prior math achievement and math achievement.

Recommendations

Based on the findings of this investigation and the experience acquired during the progression of the study, recommendations for future research and recommendations for teachers and administrators were developed. Additionally, this study generated some specific inquiries outlined below that would be beneficial to investigate in the future.

Research Recommendations.
While this study focused on prior achievement, educational diagnostic software prescriptive sessions, days spent in ISS, residential zones, absences, and SES, these predictors were not examined individually in depth. The significant predictors should be examined individually to determine which elements of these predictors contribute to the strong correlation between them and African American male middle school math achievement. The knowledge that prior achievement predicts future math achievement creates an interesting focus of possible future investigation into the specific standardized assessments, which are most significant to administer. Another research recommendation would be to examine the efficacy of educational diagnostic software as math and reading curricula evolve. Absences should be analyzed by reasons for truant behavior, truancy intervention programs, and demographic subgroups. Future research for these three significant predictors of African American male middle school achievement would have the potential to provide even more specific information to increase the probability of narrowing the African American-Caucasian achievement gap.

The other predictors of math achievement examined in this study, number of days spent in ISS, residential zones, and SES, should be examined separately to conclude which components of these predictors would contribute to a stronger correlation between them and African American male middle school math achievement. When analyzing the number of days spent in ISS, the specific disciplinary offences, teachers' years of experience, and number of prior disciplinary referrals may offer findings with a stronger correlation to math achievement. Future research should plan for validity concerns with the identification of residential zones and classification of SES. Research could include the most efficient methods and strategies for collecting accurate residential and SES data which could be incorporated in a multitude of other future studies.

Recommendations for Teachers and Administrators. Teachers and school administrators should find this study valuable as they develop support systems for increasing African American male achievement and closing the achievement gap. Research shows a strong correlation between high rates of absenteeism, poor academic performance, incomplete education, sporadic employment, low wages, and even criminal activity (Gottfied, 2009). Positive Behavior Support (PBS) refers to a structured system of rewards and consequences, either extrinsic or intrinsic, to strengthen desired behaviors, thus PBS helps to increase the probability that the desired behaviors will increase or be repeated and the problems will cease (Zirpoli, 2008). By incorporating absences in the implementation of PBS, the criteria for meeting students' goals may be a valuable strategy to increase African American male attendance at school.

Another recommendation of the study for teachers and administrators is the requirement of utilizing educational diagnostic software. Administrators should provide quality professional development to enable teachers to facilitate students in using the software and to run reports. Also, a school official should be held accountable for progress monitoring students, classes, and subgroups through the educational diagnostic software prescriptive sessions report. The school official could offer detailed areas of weaknesses to teachers by examining the Areas of Difficulty report. Through progress monitoring of reports, identification of students at risk for not achieving mathematically will be possible with ease. The scheduling of additional time on educational diagnostic software to complete diagnosed prescriptive sessions could be arranged to increase the chances of African American math achievement measured by CRCT.

When predicting whether or not an African American male may be at risk for not achieving mathematically, prior achievement should be considered. For the purpose of this study, prior achievement was determined by 2011 math CRCT scores. Low achieving African American male students in previous years should be monitored for academic progress throughout the academic year to guide support systems. Each of the recommendations should be implemented continuously and consistently to increase the probability of African American male math achievement. The commitment to progress monitoring of prior achievement, educational diagnostic software prescriptive sessions, and absences is crucial when developing programs and strategies to narrow the African American-Caucasian achievement gap and assisting African American male students to achieve in mathematics.

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APPENDICES

Appendix A: 2011-2012 School System Lunch Form
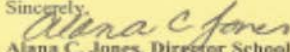
Troup County Board of Education   2011-2012
100 North Davis Road, Building A * Lagrange, Ga 30241 * 706-330-8218

Dear Parent/Guardian:

Children need healthy meals to learn. Troup County Schools offer healthy meals every school day. Breakfast is free for student's grades pre-K-5 and $1.25 for grades 6-12. Lunch costs $1.95 for pre-K-5 and $2.15 for 6-12. Your children may qualify for free meals or for reduced-price meals. Reduced price is $.30 for breakfast in 6-12 (free grades pre-k-5) and $.40 for lunch all grades.

1. DO I NEED TO FILL OUT AN APPLICATION FOR EACH CHILD? **No.** Complete the application to apply for free or reduced-price meals. *Use one Free and Reduced-Price School Meals Application for all students in your household.* We cannot approve an application that is not complete, so be sure to fill out all required information. Return the completed application to your child's school.
2. WHO CAN GET FREE MEALS? All children in households receiving benefits from SNAP or TANF can get free meals regardless of your income. Also, your children can get free meals if your household's gross income is within the free limits on the Federal Income Eligibility Guidelines.
3. CAN FOSTER CHILDREN GET FREE MEALS? Yes, foster children that are under the legal responsibility of a foster care agency or court, are eligible for free meals. Any foster child in the household is eligible for free meals regardless of income.
4. CAN HOMELESS, RUNAWAY, AND MIGRANT CHILDREN GET FREE MEALS? Yes, children who meet the definition of homeless, runaway, or migrant qualify for free meals. If you haven't been told your children will get free meals, please call Leigh Michelle Nation (706) 812-7900 or E-Mail: NationDM@troup.org to see if they qualify.
5. WHO CAN GET REDUCED-PRICE MEALS? Your children can get low cost meals if your household income is within the reduced price limits on the Federal Eligibility Income Chart, shown on this application.
6. SHOULD I FILL OUT AN APPLICATION IF I RECEIVED A LETTER THIS SCHOOL YEAR SAYING MY CHILDREN ARE APPROVED FOR FREE MEALS? Please read the letter you got carefully and follow the instructions. Call the school's Cafeteria Manager if you have questions.
7. MY CHILD'S APPLICATION WAS APPROVED LAST YEAR. DO I NEED TO FILL OUT ANOTHER ONE? Yes. *Your child's application is only good for that school year and for the first few days of this school year. You must send in a new application unless the school told you that your child is eligible for the new school year.*
8. I GET WIC. CAN MY CHILD(REN) GET FREE MEALS? Children in households participating in WIC may be eligible for free or reduced-price meals. Please fill out an application.
9. WILL THE INFORMATION I GIVE BE CHECKED? Yes and we may also ask you to send written proof.
10. IF I DON'T QUALIFY NOW, MAY I APPLY LATER? Yes, you may apply at any time during the school year. For example, children with a parent or guardian who becomes unemployed may become eligible for free and reduced-price meals if the household income drops below the income limit.
11. WHAT IF I DISAGREE WITH THE SCHOOL'S DECISION ABOUT MY APPLICATION? You should talk to school officials. You also may ask for a hearing by calling or writing to: MR. JOHN RADCLIFFE, ASSISTANT SUPERINTENDENT, 100 N.DAVIS ROAD, LAGRANGE, GA 30241, 706-812-7900.
12. MAY I APPLY IF SOMEONE IN MY HOUSEHOLD IS NOT A U.S. CITIZEN? Yes. You or your child(ren) do not have to be U.S. citizens to qualify for free or reduced-price meals.
13. WHO SHOULD I INCLUDE AS MEMBERS OF MY HOUSEHOLD? You must include all people living in your household, related or not (such as grandparents, other relatives, or friends) who share income and expenses. You must include yourself and all children living with you. If you live with other people who are economically independent (for example, people who you do not support, who do not share income with you or your children, and who pay a pro-rated share of expenses), do not include them.
14. WHAT IF MY INCOME IS NOT ALWAYS THE SAME? List the amount that you normally receive. For example, if you normally make $1000 each month, but you missed some work last month and only made $900, put down that you made $1000 per month. If you normally get overtime, include it, but do not include it if you only work overtime sometimes. If you have lost a job or had your hours or wages reduced, use your current income.
15. WE ARE IN THE MILITARY. DO WE INCLUDE OUR HOUSING ALLOWANCE AS INCOME? If you get an off-base housing allowance, it must be included as income. However, if your housing is part of the Military Housing Privatization Initiative, do not include your housing allowance as income.
16. MY SPOUSE IS DEPLOYED TO A COMBAT ZONE. IS HER COMBAT PAY COUNTED AS INCOME? No, if the combat pay is received in addition to her basic pay because of her deployment and it wasn't received before she was deployed, combat pay is not counted as income. Contact your school for more information.
17. MY FAMILY NEEDS MORE HELP. ARE THERE OTHER PROGRAMS WE MIGHT APPLY FOR? To find out how to apply for SNAP or other assistance benefits, contact your local assistance office or call 1-800-869-1150. If you have other questions or need help, call 706-883-1588.
Si necesita ayuda, por favor llame al teléfono: 706-883-1588.
Si vous voudriez d'aide, contactez nous au numero 706-883-1588
Sincerely,

Alana C. Jones, Director School Food & Nutrition

Troup County School Nutrition Program

INSTRUCTIONS FOR APPLYING

A household member is any child or adult living with you.

Part 1: List all household members and the name of school for each child.

Part 2: List the case number for any household member (including adults) receiving SNAP or TANF benefits.

Part 3: Skip this part.

Part 4: Skip this part.

Part 5: Sign the form. The last four digits of a Social Security Number are **not** necessary.

Part 6: Answer this question if you choose to.

Part 1: List all household members and the name of school for each child.

Part 2: Skip this part.

Part 3: If any child you are applying for is homeless, migrant, or a runaway check the appropriate box and call Michelle Nation (706) 812-7900, or Email: NationDM@troup.org.

Part 4: Complete only if a child in your household isn't eligible under Part 3. See instructions for All Other Households.

Part 5: Sign the form. The last four digits of a Social Security Number are not necessary if you didn't need to fill in Part 4.

Part 6: Answer this question if you choose to.

If all children in the household are foster children:

Part 1: List all foster children and the school name for each child. Check the box indicating the child is a foster child.

Part 2: Skip this part.

Part 3: Skip this part.

Part 4: Skip this part.

Part 5: Sign the form. The last four digits of a Social Security Number are **not** necessary.

Part 6: Answer this question if you choose to.

If some of the children in the household are foster children:

Part 1: List all household members and the name of school for each child. For any person, including children, with no income, you must check the "No Income" box. Check the box if the child is a foster child.

Part 2: If the household does not have a case number, skip this part.

Part 3: If any child you are applying for is homeless, migrant, or a runaway check the appropriate box and call Michelle Nation (706) 812-7900, NationDM@troup.org. If not, skip this part.

Part 4: Follow these instructions to report total household income from this month or last month.

- Box 1–Name: List all household members with income.

  Box 2–Gross Income and How Often It Was Received: For each household member, list each type of income received for the month. You must tell us how often the money is received—weekly, every other week, twice a month or monthly. For earnings, be sure to list the **gross income**, not the take-home pay. Gross income is the amount earned *before* taxes and other deductions. You should be able to find it on your pay stub or your boss can tell you. For other income, list the amount each person got for the month from welfare, child support, alimony, pensions, retirement, Social Security, Supplemental Security Income (SSI), Veteran's benefits (VA benefits), and disability benefits. Under *All Other Income*, list Worker's Compensation, unemployment or strike benefits, regular contributions from people who do not live in your household, and any other income. Do not include income from SNAP, TANF, WIC, Federal education benefits and foster payments received by the family from the placing agency. For ONLY the self-employed, under *Earnings from Work*, report income after expenses. This is for your business, farm, or rental property. If you are in the Military Privatized Housing Initiative or get combat pay, do not include these allowances as income.

Part 5: Adult household member must sign the form and list the last four digits of their Social Security Number (or mark the box if s/he doesn't have one).

Part 6: Answer this question, if you choose.

ALL OTHER HOUSEHOLDS, INCLUDING WIC HOUSEHOLDS, FOLLOW THESE INSTRUCTIONS:

Part 1: List all household members and the name of school for each child. For any person, including children, with no income, you must check the "No Income" box.

Part 2: If the household does not have a case number, skip this part.

Part 3: If any child you are applying for is homeless, migrant, or a runaway check the appropriate box and call Michelle Nation (706) 812-7900, or E-Mail: NationDM@troup.org. If not, skip this part.

Part 4: Follow these instructions to report total household income from this month or last month.

- **Box 1—Name:** List all household members with income.
- **Box 2—Gross Income and How Often It Was Received:** For each household member, list each type of income received for the month. You must tell us how often the money is received—weekly, every other week, twice a month or monthly. For earnings, be sure to list the **gross income,** not the take-home pay. Gross income is the amount earned *before* taxes and other deductions. You should be able to find it on your pay stub or your boss can tell you. For other income, list the amount each person got for the month from welfare, child support, alimony, pensions, retirement, Social Security, Supplemental Security Income (SSI), Veteran's benefits (VA benefits), and disability benefits. Under *All Other Income,* list Worker's Compensation, unemployment or strike benefits, regular contributions from people who do not live in your household, and any other income. Do not include income from SNAP, TANF, WIC, Federal education benefits and foster payments received by the family from the placing agency. For ONLY the self-employed, under *Earnings from Work,* report income after expenses. This is for your business, farm, or rental property. Do not include income from SNAP, TANF, WIC or Federal education benefits. If you are in the Military Privatized Housing Initiative or get combat pay, do not include these allowances as income.

Part 5: Adult household member must sign the form and list the last four digits of their Social Security Number (or mark the box if s/he doesn't have one).

Part 6: Answer, this question if you choose.

Your children may qualify for free or reduced-price meals if your household income falls at or below the limits on this chart.

FEDERAL ELIGIBILITY INCOME CHART
For School Year 2011-2012

Household size	Yearly	Monthly	Weekly
1	20,147	1,679	388
2	27,214	2,268	524
3	34,281	2,857	660
4	41,348	3,446	796
5	48,415	4,035	932
6	55,482	4,624	1,067
7	62,549	5,213	1,203
8	69,616	5,802	1,339
Each additional person:	7,067	589	136

TROUP COUNTY SY 2011-2012 FREE AND REDUCED-PRICE
SCHOOL MEALS FAMILY APPLICATION

PART 1. ALL HOUSEHOLD MEMBERS

Names of all household members (First, Middle Initial, Last)	Name of school for each child or indicate "NA" if child is not in school	Check if a foster child (legal responsibility of welfare agency or court) * If all children listed below are foster children, skip to Part 5 to sign this form.	Check if NO income
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

PART 2. BENEFITS

IF ANY MEMBER OF YOUR HOUSEHOLD RECEIVES SNAP or TANF, PROVIDE THE NAME AND CASE NUMBER FOR THE PERSON WHO RECEIVES BENEFITS AND **SKIP TO PART 5.** IF NO ONE RECEIVES THESE BENEFITS, SKIP TO PART 3.
NAME:_____ CASE NUMBER:_____

PART 3. IF ANY CHILD YOU ARE APPLYING FOR IS HOMELESS, MIGRANT, OR A RUNAWAY CHECK THE APPROPRIATE BOX AND CALL MICHELLE NATION (706) 812-7900, OR EMAIL: NATIONDM@TROUP.ORG.
HOMELESS ☐   MIGRANT ☐   RUNAWAY ☐

PART 4. TOTAL HOUSEHOLD GROSS INCOME. You must tell us how much and how often.

1.NAME (List only household members with income)	2. GROSS INCOME AND HOW OFTEN IT WAS RECEIVED			
	Earnings From Work before deductions	Welfare, child support, alimony	Pensions, retirement, Social Security, SSI, VA benefits	All Other Income
(Example) Jane Smith	$199.99/weekly	$149.99/every other week	$99.99/monthly	$50.00/monthly
	$____/____	$____/____	$____/____	$____/____
	$____/____	$____/____	$____/____	$____/____
	$____/____	$____/____	$____/____	$____/____
	$____/____	$____/____	$____/____	$____/____
	$____/____	$____/____	$____/____	$____/____
	$____/____	$____/____	$____/____	$____/____

PART 5. SIGNATURE AND LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER (ADULT MUST SIGN)

An adult household member must sign the application. If Part 4 is completed, the adult signing the form also must list the last four digits of his or her Social Security Number or mark the "I do not have a Social Security Number" box. (See Privacy Act Statement on the back of this page.)
I certify (promise) that all information on this application is true and that all income is reported. I understand that the school will get Federal funds based on the information I give. I understand that school officials may verify (check) the information. I understand that if I purposely give false information, my children may lose meal benefits, and I may be prosecuted.

Sign here:_____ Print Name:_____ Date:_____ Phone Number:_____

Address:_____ City:_____ State:_____ Zip Code:_____

Last four digits of Social Security Number: ***-* *-__ __ __ __   ☐ I do not have a Social Security Number

PART 6. CHILDREN'S ETHNIC AND RACIAL IDENTITIES (OPTIONAL)

Choose one ethnicity:	Choose one or more (regardless of ethnicity):		
☐ Hispanic/Latino	☐ Asian	☐ American Indian or Alaska Native	☐ Black or African American
☐ Not Hispanic/Latino	☐ White	☐ Native Hawaiian or other Pacific Islander	

DO NOT FILL OUT THIS PART. THIS IS FOR SCHOOL USE ONLY.

Annual Income Conversion: Weekly x 52, Every 2 Weeks x 26, Twice A Month x 24, Monthly x 12

Total Income:_____ Per: ☐ Week, ☐ Every 2 Weeks, ☐ Twice A Month, ☐ Month, ☐ Year   Household size:_____
Categorical Eligibility:____ Date Withdrawn:_____ Eligibility: Free____ Reduced____ Denied____ Reason:_____
Temporary: Free___ Reduced___ Time Period:_____ (expires after_____ days)
Determining Official's Signature:_____ Date:_____
Confirming Official's Signature:_____ Date:_____
Verifying Official's Signature:_____ Date:_____

Revised April 2011

**SCHOOL
SYSTEM ZONES**

ZONE 1

ZONE 3

MIDDLE SCHOOL UNDER

ZONE 2
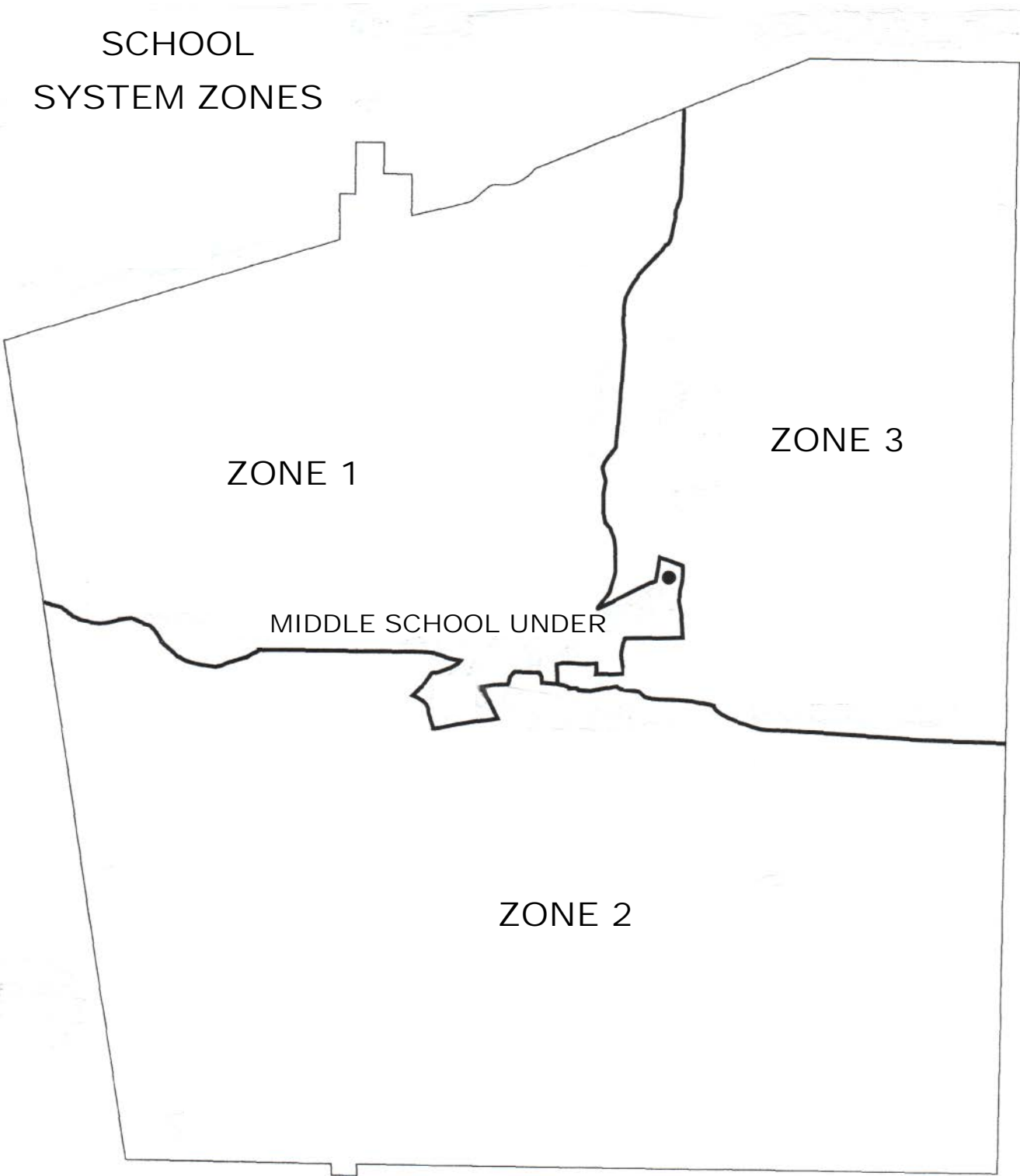
Appendix C: School System Hardship Process

A. <u>Hardship Committee</u>

The Hardship Committee shall hear appeals concerning student assignment and transfer

determinations. The Board believes that due process must be available to every family in

student assignment matters.

1. <u>Committee Membership</u>

a. The Hardship Committee shall be comprised of six (6) members consisting of the

Associate Superintendent, Elementary Curriculum Director, Secondary Curriculum

Director, Exceptional Education Director, Title I Director and Research, Assessment &

Accountability Coordinator, or their designees.

b. The Coordinator of the Office of Student Assignment shall serve as the nonvoting

chairperson of the Committee. The Coordinator's duties shall include:

(1) Training of committee members

(2) Scheduling of committee meetings as necessary

(3) Collection and presentation of cases to the Committee for review

(4) Provision of technical support to the Committee as necessary, and

(5) Preparing summaries of evidence presented and actions taken on appeals.

2. <u>Quorum and Voting Procedures.</u>

a. A quorum shall be present for decisions on all appeals of student assignments and denials

of transfer requests. Four (4) voting members shall constitute a quorum.

b. An affirmative decision to grant any appeal shall require a simple majority of those

voting.

c. If a member determines that he/she cannot vote objectively on any case for any reason, he/she shall abstain from voting. If such abstention causes the committee to fall below a quorum, the appeal shall be rescheduled for the next Committee meeting.

B. Hardship Approval

The Hardship Committee may, after careful consideration, grant an appeal based on one or more of the following:

1. Medical Hardship. The Hardship Committee may approve an appeal because of a medical hardship of the student. In addition to complying with the procedures described in Section III, C, the parent or guardian must have written documentation from the treating physician on the appropriate System form. The treating physician must state the medical reasons requiring the reassignment. A transfer granted on this basis is valid for one year only and requires reapplication if requested for a subsequent year.

2. Hardship for Employed Parents/Child Care. The Hardship Committee may approve an appeal if the District determines that the normal assignment of a student presents a compelling hardship involving before and after school supervision because a single or both parents are employed. Request for an appeal or transfer of this type shall be accompanied by a notarized affidavit setting forth the nature of the circumstances producing the hardship, and by such other documentation as may be needed to verify the hardship. A transfer granted on this basis is valid for <u>one year only</u> and requires reapplication if requested for a subsequent year.

3. Student Well-Being. The Hardship Committee may approve an appeal if the Hardship Committee determines it is necessary to alleviate either a severe discipline, emotional, or

environmental problem. Such determination will be based upon the presentation of professional evidence, which shall include a finding, request, or recommendation made by the Department of Family and Children Services of Troup County, by a court having jurisdiction over the involved student, or by a licensed mental health professional. A transfer granted on this basis is valid for <u>one year only</u> and requires reapplication if requested for a subsequent year.

4. <u>Educational Well-Being.</u> The Hardship Committee may approve an appeal if the Hardship Committee determines it is necessary to prevent serious injury to the student's educational well-being. Such determination shall be based upon a full examination of the student's entire record, and shall be accompanied by written findings detailing what such injury is, and how such injury will occur, what alternatives to transfer or the requested assignment have been considered, and why no alternative to transfer or the requested assignment will alleviate or prevent such injury. Request for an appeal on this basis shall be in the form of a notarized affidavit setting forth the nature of the circumstances that, in the absence of transfer, will cause serious injury to the student's educational well-being, and such other information as will substantiate the required findings.

A transfer granted on this basis is valid for one year only and requires reapplication if requested for a subsequent year.

5. <u>Curriculum Offering.</u> The Hardship Committee may approve a request by a parent/guardian for a high school student who is able to secure a program offering or an essential subject only by transferring to another school. Transfers or assignments of this

type will be terminated upon completion of the prescribed program offering or subject or upon the student failing to enroll or re-enroll in such program.