2007

Addressing the learning needs of struggling adolescent readers: The impact of a reading intervention program on students in a middle school setting

John Anthony Caggiano
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ADDRESSING THE LEARNING NEEDS OF STRUGGLING ADOLESCENT READERS: THE IMPACT OF A READING INTERVENTION PROGRAM ON STUDENTS IN A MIDDLE SCHOOL SETTING

A Dissertation

Presented to

The Faculty of the School of Education

The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by

John Anthony Caggiano
March 2007
ADDRESSING THE LEARNING NEEDS OF STRUGGLING ADOLESCENT READERS: THE IMPACT OF A READING INTERVENTION PROGRAM ON STUDENTS IN A MIDDLE SCHOOL SETTING

by

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DEDICATION

This work is dedicated to several people in my life who have helped me to understand the value of education and the satisfaction that can come from following one’s dreams. I would like to thank my parents, Jean and Anthony Caggiano, for setting high expectations throughout my childhood and for modeling that learning is a lifelong endeavor. I would like to thank my wife Stephanie for her continued support and encouragement throughout the dissertation process and my career in education to date.
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ADDRESSING THE LEARNING NEEDS OF STRUGGLING ADOLESCENT READERS: THE IMPACT OF A READING INTERVENTION PROGRAM ON STUDENTS IN A MIDDLE SCHOOL SETTING

ABSTRACT

The present study aimed to build on existing research surrounding struggling adolescent readers. The purpose of the study was to determine the impact of the reading program READ 180™ by Scholastic, Inc., on struggling adolescent readers in a middle school setting and also to examine whether this intervention has promise for closing the achievement gap between African-American and white students.

The study was conducted using a nonequivalent control-group design. Archival data from the 2005-2006 school year was analyzed for 120 students in grades 6, 7 and 8 from ABC Middle School. The experimental group was comprised of 60 students, 20 per grade level, and the control group was comprised of 60 students, 20 per grade level. Students in the experimental group received additional instruction in English through participation in the READ 180™ program. This study examined a modified implementation model of the READ 180™ program: Students participated in this program every other day for 90 minutes, instead of the daily class sessions recommended by Scholastic, Inc.

Results of the study indicated that the modified implementation model of the READ 180™ program yielded significant results on a measure of growth in reading comprehension (Scholastic Reading Inventory) for Grade 6 students who participated in the program. The findings revealed no significant differences for students in grades 7 and 8 on this dependent measure. Results also indicated that there were no significant
differences in performance between the groups of students in grades 6, 7 and 8 on the 2006 Virginia Standards of Learning Assessments in reading and mathematics when compared to students who did not participate in the intervention.
ADDRESSING THE LEARNING NEEDS OF STRUGGLING ADOLESCENT READERS: THE IMPACT OF A READING INTERVENTION PROGRAM ON STUDENTS IN A MIDDLE SCHOOL SETTING
CHAPTER I: INTRODUCTION

The current emphasis on accountability in K-12 public education has resulted in additional pressures and recommendations for public educators (Brewer, 2001; Cooley & Shen, 2003; DiPaola, Tschannen-Moran, & Walther-Thomas, 2004; King, 2002; Tirozzi, 2001). When the reauthorized Elementary and Secondary Education Act (ESEA) was signed into law as the No Child Left Behind Act in January 2002, the revised legislation mandated higher expectations for school districts to ensure proficient levels of student achievement (O’Donnell & White, 2005). For school administrators, the related mandates and regulations called for a renewed focus on instructional leadership, as the expectations regarding achievement for all students were raised to significantly higher levels (McLeod, D’Amico, & Protheroe, 2003).

While a number of school principals have embraced the role of instructional leader, many building administrators, particularly at the secondary level, are finding that significant deficiencies in students’ literacy skills are leading to poor student performance on standards-based assessments (Cooley & Shen, 2003). In an era where principals and teachers are being held accountable for student achievement results on state-mandated assessments, it is becoming more evident that concerns regarding the literacy needs of adolescent students are impacting student pass rates on more than just the English portion of these assessments. For example, reading deficits are also cited as a cause for some students’ inability to pass tests in such core areas as science, history and mathematics (Rasinski & Padak, 2005). In a public school environment of high-stakes testing, where high school graduation can be dependent upon the successful completion of statewide assessments, addressing the learning needs of today’s struggling adolescent readers is an
area that is beginning to draw more attention from educational leaders (National Institute of Child Health & Human Development [NICHHD], 2002; Rand Reading Study Group [Rand], 2002; Salinger, 2003).

A Growing Trend

The issue of struggling adolescent readers does not begin in middle school. Unfortunately, each year more students are leaving elementary schools without the ability to read at basic levels of proficiency (National Center for Educational Statistics [NCES], 2001). While significant advances have been made in understanding the skills primary-grade children must acquire in order to develop beginning reading skills, the fact remains that many students reach upper elementary grades and middle school without having obtained the necessary skills and strategies to become successful independent readers (Roe, 2004). Research indicates that a large percentage of students who leave the elementary setting lacking a strong foundation in literacy only continue to fall further behind their peers in reading at the secondary level (Lewkowicz, 2000; Lyon, et al., 2001; NCES). For example, the Connecticut Longitudinal Study found that more than 70% of students identified as having reading deficits in Grade 3 were identified as reading disabled in Grade 12 (Lyon et al.). In addition, the issue surrounding struggling adolescent readers does not appear to be confined to low-wealth or low-performing school districts: Up to 20% of secondary students can experience difficulties with reading skills in high-achieving school districts (Showers, Joyce, Scanlon & Schnaubelt, 1998).

The International Reading Association (IRA) is often credited for bringing long-overdue attention to the needs of struggling adolescent readers. In a published position statement on the topic, the IRA highlighted the neglect of adolescent literacy by schools,
policymakers, and the public, and called for widespread efforts to support continued development of adolescents as readers and writers (Moore, Bean, Birdyshaw, & Ryucik, 1999). The Commission of Adolescent Literacy of the IRA declared

adolescents entering the adult world in the 21st century will read and write more than at any other time in human history. They will need advanced levels of literacy to perform their jobs, run their households, act as citizens, and conduct their personal lives. They will need literacy to cope with the flood of information they will find everywhere they turn. They will need literacy to feed their imaginations so they can create the world of the future. In a complex and sometimes even dangerous world, their ability to read will be crucial. Continual instruction beyond the early grades is needed. (p. 3)

As the literacy demands of adolescents have increased from what was expected in the past and during students’ elementary school years, an increasing number of middle school students are having difficulty reading due to deficits in decoding, fluency, and comprehension (Rasinski & Padak, 2005). Compounding the problem is the issue that when students do arrive at the middle school setting with reading deficits, many middle school teachers are not teaching students the alphabetic principles of how to read. For example, struggling readers often begin school at the secondary level with deficits in phonological skills and fluency. While many middle school teachers provide instruction in how to use reading to learn subject matter in a given discipline, teachers at this level typically do not spend a great deal of time reviewing such fundamentals as phonological awareness. It is generally understood, or at least assumed, that students in the middle grades are reading to learn as opposed to learning to read (Roe, 2004).
In many instances, students who still experience difficulty with reading by the time they enter the middle grades are considered nonreaders. Unfortunately for students who struggle with reading, the achievement gap often continues to widen in secondary school, where students with deficits avoid the practice, while students who enjoy reading read more. As a result of this occurrence, poor readers are exposed to fewer words and have less general word knowledge, develop poorer self-images as learners, and have less motivation to learn as they become older (Apel & Swank, 1999).

An example of this gap in achievement between readers who struggle and developmental readers was highlighted by the National Assessment of Educational Progress’ findings in 2000 (NCES, 2001). The report emphasized that, while stronger readers are making progress, poorer readers are actually getting weaker. In order to reverse this trend and gap in achievement in reading between struggling adolescent readers and developmental readers, educators need to be equipped with the tools, strategies, and knowledge to attack the problem (Ivey, 2002).

While there is a large body of research at the elementary level that addresses the importance of incorporating such skills as phonemic awareness, phonics, fluency, vocabulary, and text comprehension in reading instruction, few studies have incorporated the most effective strategies for addressing the reading deficits of the middle school-aged child (McRay, Vaughn, & Neal, 2001; Shaywitz, 1998). The National Reading Panel (NRP, 2000), following a review of more than 100,000 studies on reading instruction, also noted the lack of thorough research surrounding the topic of struggling adolescent readers. In addition, the National Institutes of Health (NIH, 2003) categorized the issue of
adolescent literacy as "an understudied area" and declared the need to allocate a sizeable amount of federal dollars to address the issue (p.4).

It is apparent that identifying an efficient and effective strategy to address the population of struggling adolescent readers should be a high priority for the research community. While there are a number of programs in existence designed to address the reading deficits of adolescents, there remains a lack of evidence surrounding the efficacy of these programs, and a limited amount of information regarding the superiority of one program over another (Rand, 2002). One recommendation from the IRA is that school districts focus on using evidence-based reading practices when implementing reading programs (International Reading Association [IRA], 2002).

Statement of the Problem

The purpose of this study was to analyze the impact of the reading program READ 180™ on struggling adolescent readers in grades 6, 7 and 8 at ABC Middle School. The reading program was implemented at ABC Middle School during the 2003-2004 school year as a means of targeting students with reading deficits and as a strategy for reducing the identified gap in reading achievement in the school between African-American students and white students. Specifically, the study investigated achievement gains for students who participated in READ 180™ as compared to a control group of students with similar reading levels who did not participate in the reading program during the 2005-2006 school year. In addition to comparing gains in reading achievement scores for the experimental and control groups, scale scores from the 2006 administration of the Virginia Standards of Learning assessments in the content areas of reading and mathematics were contrasted. This study also analyzed whether African-American
students participating in READ 180™ demonstrated gains in reading achievement as compared to African-American students with similar ability levels who did not participate in the program. In addition, the findings of this study were considered with regards to instructional leadership in this era of accountability. Results will aid in the decision-making of the school district’s leadership team regarding this program as a viable option to be implemented in other secondary schools in the district.

Research Questions

1. What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?

2. Is there a statistically significant difference (p < .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

3. Is there a statistically significant difference (p < .05) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

4. Is there a statistically significant difference (p < .05) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?
5. Is there a statistically significant difference (p < .05) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

Significance of the Study

Presently, there is not a large body of evidence that highlights programs specifically designed to address the needs of struggling adolescent readers or programs which focus on using evidence-based reading practices (NICHHD, 2002; NIH, 2003; Phelps, 2005). In spite of the fact that there have been a number of reasons identified why students experience difficulty becoming successful readers, there exists an immediate need to find ways to address the deficits of this group of students.

Instructional Leadership

While secondary principals currently face a long list of challenges (i.e., creating a safe learning environment, ensuring that curriculum offerings are aligned with assessments of state standards, etc.), high on this list is the challenge of how best to help struggling adolescent students learn to read and deal with the increasingly difficult reading materials presented in classrooms. Because the primary responsibility of today’s principal is to facilitate effective teaching and learning, with an overall objective of enhancing student achievement, it is paramount that principals play an active role in identifying effective strategies and/or programs to reach this select group of students (Boscardin, 2005; McLeod, D'Amico, & Protheroe, 2003).
For many principals in this age of accountability, student achievement is measured by progress toward meeting specific benchmarks on end-of-year statewide assessments that are designed to measure students' mastery of state standards in core subject areas (i.e., English, math, science, and history). As principals work toward improving student achievement in an effort to meet both state and federal criteria, it is becoming more evident that deficiencies in literacy skills, particularly at the secondary level, are proving to be a barrier for a large percentage of students whose districts' goals include proficient scores for all students on all statewide assessments (Rasinski & Padak, 2005). As a result, it will be critical for principals to have firsthand knowledge of research-based strategies in reading and to be informed of programs that have demonstrated their effectiveness in addressing this growing population of students. In addition, it will be vital for this group of educational leaders to be prepared to support reading initiatives in the schools in which they work (Ivey, 2002).

*The Absence of Thorough Research Related to Struggling Adolescent Readers*

Due in part to the additional pressures placed on public educators in this era of accountability, the challenge of adolescent literacy has begun to draw attention on a national scale. For example, Dr. Carol D'Amico (2002) of the United States Department of Education, presented the following statistics while discussing this challenge: (a) forty to sixty percent of freshmen require remedial courses in reading and math when they attend community colleges; (b) reading and math achievement declines between fourth and eighth grade and ninth and twelfth grade; (c) the top 10% of 16 to 18 year olds in the United States cannot compete with the top 10% of 16 to 18 year olds in other industrial
nations; and (d) of the 25% who drop out of high school, many do so because they cannot read well enough to do the coursework.

On January 8, 2002, President Bush signed into law the No Child Left Behind Act of 2001 (No Child, 2001). In order to hope to fulfill the promise of education, schools must work for all children. Currently, it appears that many struggling adolescent readers are losing ground to their developmental reader peers (NCES, 2001). While a percentage of these students might begin to close the gap in achievement due to differentiated instruction in a special education setting, many regular education students find themselves in a difficult situation upon arriving in a secondary school. In this setting, the focus often is no longer on learning to read, it is on reading to learn.

Findings from the NRP (2000) indicate that there is a lack of thorough research surrounding the topic of struggling adolescent readers. While many experts agree on the importance of incorporating such literacy skills as phonemic awareness, phonics, fluency, vocabulary and text comprehension in a reading program, few studies integrating these strategies have been conducted which focus on the middle school-aged child (McRay, Vaughn, & Neal, 2001; Shaywitz, 1998). The research literature surrounding the program READ 180™, however, indicates that this reading intervention program does appear to offer some promise of addressing the learning needs adolescent readers (Denman, 2004; Scholastic, 2006; Witkowski, 2004).

According to the IRA (2002), evidence-based teaching practices will result in positive gains in the reading skills of students in all grades. By examining and analyzing the impact of the reading program READ 180™ on struggling adolescent readers, this study provides information on whether this particular evidence-based program has a
positive impact on the reading achievement levels of this select group of students. As noted earlier, the data from this study could be used to inform future decisions of instructional leaders regarding meeting the needs of struggling adolescent readers in schools with similar demographics. In addition, it is important to mention that the results from this study were based on a modified implementation of the READ 180™ instructional model. This is significant in that positive gains in student achievement for those students who participated in READ 180™ could denote that an amended program model might afford schools the opportunity to serve a greater number of students throughout the course of a school year than the program was originally designed to accommodate. In contrast, lack of gains could be attributed to a low level of fidelity surrounding program implementation.

Definitions of Related Terms

_Achievement gap._ The term achievement gap refers to “the observed disparity on a number of educational measures between the performance of groups of students, especially groups defined by gender, race/ethnicity, and socioeconomic status” (Wikipedia, n.d.).

_Assistive technology._ “Devices or services that restore, maintain, or replace lost bodily functions through the use of technology” are referred to as assistive technology (Turnbull, Turnbull, Shank, & Leal, 1999, p. 502). While assistive technologies are not instructional methods in the traditional sense, they serve as valuable instructional resources for students with a wide range of disabilities.
Decoding. The term decoding is defined as converting “printed words into spoken language, either orally or subvocally,” or “identifying a word’s pronunciation and meaning” (Harris & Sipay, 1990, p. 432). The process of decoding involves using a variety of skills to estimate the spoken form of a printed word.

Phoneme. A phoneme is the smallest unit of a sound in our language that makes a difference to its meaning (Torgesen & Matthes, 2000). For example, the word *bat* has three phonemes, /b/-/a/-/t/. Changing the first phoneme to /c/ produces the word *cat*.

Phonological awareness. This term is most commonly defined as “one’s sensitivity to, or explicit awareness of, the phonological structure of words in one’s language” (Torgesen & Matthes, 2000, p. 90). Learning to read requires that children become consciously aware of phonemes as individual segments in words.

Proficient readers. The term represents students who read on or above grade level and often possess and use a large repertoire of reading strategies (Robb, 2000).

READ 180™. READ 180™ is a reading intervention program developed by the Scholastic Publishing Company to address the needs of underachieving readers in Grade 4 and above (Scholastic, 2006).¹

Reading comprehension. This term refers to the “process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (Rand, 2002, p. 11).

Reading fluency. Fluent readers are able to read smoothly, easily and readily. Inadequate fluency is marked by such behaviors as hesitations, word-by-word reading,

¹ Note. Details regarding READ 180™ are provided in Chapter III.
repetitions, and inadequate use of voice (e.g., lack of expressiveness) (Harris & Sipay, 1990).

**Struggling readers.** The term refers to students who read below grade level. These students often lack strategies that engage them with print and enable them to solve problems that texts can present for students. For example, these students often lack the ability to make predictions or personal connections (Robb, 2000).

**Word recognition.** The term is defined as the “ability to associate a printed word with its spoken counterpart either instantly or through some mediated process” (Harris & Sipay, 1990, p. 432). Understanding the meaning of the word would not be included in this definition.

**Limitations of the Study**

Threats to internal validity are often controlled through the random assignment of subjects, and with the use of a pretest and a control group (Gay & Airasian, 2000). This study involved an analysis of archival data for test scores. While the data included pretest scores for all participants, threats to internal validity were present due to a lack of randomization regarding the study’s subjects. For example, participants from the experimental and control groups were matched on the following criteria: (a) the student’s pretest score on an assessment which measured reading comprehension, (b) gender, (c) ethnicity, and (d) grade level. It is important to note that the School Learning Plan for ABC Middle School contained an objective that specifically addressed the achievement levels of African-American students in reading for grades 6, 7 and 8. Furthermore, an action step for this particular objective placed a priority on scheduling African-Americans, when all else was equal, for the READ 180™ program. As a result of this
scheduling practice, there also existed concerns related to the differential selection of the participants, and the threat that the two groups were different before the study began (Gay & Airasian).

The ability to generalize the results of the study to other populations was also limited due to the threats to the external validity. Threats to the external validity included specificity of variables and participant effects (Gay & Airasian, 2000).

Specificity of Variables

This study was limited by (a) the specific subject selection, (b) the possible cost, and (c) treatment fidelity.

Specific subject selection. The subjects targeted for this study were students who scored in a range not greater than two years below grade level on an assessment used to measure students' reading comprehension levels. Additionally, as noted earlier, African-American students from this select group were given priority regarding scheduling. Closing the gap in reading achievement between minority and non-minority students was an objective addressed within the 2005-2006 ABC Middle School Learning Plan.

Possible cost. Another threat to the external validity of the study was the possible cost of the intervention. In order to serve 60 students, a one-time fee of approximately $35,000 would be the primary cost associated with implementing the program (Scholastic, 2006). While this fee would include all supplemental materials for students and the instructor, it would not include the computer hardware needed to run the program's software. While the program could be run sufficiently by using five desktop computers, one computer workstation for each student in a program session would be ideal.
Treatment fidelity. Treatment fidelity served as a threat to the external validity. While the intervention program READ 180™ was designed for use with students on a daily basis for a period of 90 minutes, subjects in this study were exposed to the treatment for 90 minutes every other day. Because students at ABC Middle School were enrolled in the program in lieu of their PE or elective class, students attended class sessions via a block schedule. Thus, a student attended PE or her elective class on one day, and attended READ 180™ on the next day.

Participant Effects

The issue of participant effects (Gay & Airasian, 2000) could have influenced the performance of students who received the intervention. For example, the Hawthorne effect refers to the increased performance on dependent variables due to the psychological stimulus participants can receive simply by being a part of a study or intervention (Clark, 2006).

The novelty effect could have also potentially served as a variable that might have impacted the performance of subjects in the treatment group. Occurring perhaps as a result of the subject’s motivation to succeed because the intervention was new, students participating in READ 180™ could have been impacted due simply to their excitement of being a part of a program that was relatively new. The subjects in the control group, on the other hand, did not experience any new innovative circumstances during the study.
Major Assumptions

Listed below are the major assumptions underlying this study.

1. As the instructional leader in a school, principals have primary responsibility for a school’s instructional program.

2. A large percentage of students reach upper elementary grades and middle school without having obtained the necessary skills and strategies to become successful independent readers.

3. Adolescents experiencing difficulties with reading also struggle to be successful academically in the primary content areas outside of English.

4. The gap in reading achievement between struggling adolescent readers and developmental readers is widening.

5. A school-wide focus on literacy at the middle school level is effective to closing the gap between struggling adolescent readers and development readers.

6. The variable of additional time allotted toward instruction in reading during the school day is integral to student learning in the case of the struggling adolescent reader.

7. The gap between minority-majority achievement remains substantial by the end of middle school.

8. Students in all grades can benefit from evidence-based teaching practices.
CHAPTER II: REVIEW OF THE LITERATURE

Secondary educators are faced with the challenge of improving the literacy skills of adolescents who failed to obtain these foundational proficiencies during their elementary school years. Each year, students enter the middle grades with deficits in such critical skill areas as decoding, comprehension, and fluency. Compounding the problem for struggling readers at the secondary level is the current emphasis across the country being placed on high-stakes testing. Due to the large amounts of subject matter that must be taught and mastered in each core curricular area prior to testing, the primary goal of general education at this level is no longer the acquisition of literary skills: Acquisition of subject matter has become the principal focus (Hardiman, 2003).

If adolescents with deficiencies in literacy skills are to become stronger readers, secondary educators must also realize that reading development is a continuum that begins in the preschool years and then extends into adolescence and adulthood (Witkowski, 2004). While most children appear to demonstrate mastery of basic reading and writing skills by the time they are in the fourth or fifth grade, there still remains a great deal to be learned by secondary students about the array of literacy skills needed to be successful at the next level (Moje, Young, Readence, & Moore, 2000). For example, even stronger adolescent readers will need to learn how to interact with and comprehend the more difficult text selections and literacy demands that they will encounter during their middle and high school years.

Recent reports indicate that the proportion of students entering middle and secondary programs who are deemed to be proficient readers is alarmingly low (NCES, 2006). In addition, the data indicate that adolescent students in the United States have
made little progress in reading achievement over the last 15 years. For example, the National Assessment of Educational Progress (NAEP) has assessed the reading abilities of students in grades 4, 8, and 12 in both public and private schools since 1992. Between 1992 and 2005, the national average reading scores for students in grades 4 and 8 varied little, although both were two points higher in 2005 than in 1992. Reported on a scale of 0 to 500, the average score of fourth graders increased from 217 in 1992 to 219 in 2005, while the average score of eighth graders increased from 260 to 262. The percentage of fourth graders at or above the rating of proficient, which indicates solid academic achievement, increased between 1992 and 2002 from 29 to 31 percent and has remained steady since. Thirty-one percent of eighth graders performed at or above the level of proficient in 2005. In addition, while the percentage of eighth graders at or above basic increased in 4 of the 38 states and jurisdictions that participated in the assessment in both years, a total of 11 states participating experienced a decrease. The percentage of Grade 8 students at or above proficient in Virginia for this timeframe increased slightly from 33% to 38% (NCES).

Fortunately, educators are becoming more aggressive in their efforts to address the literacy needs of secondary students whose skill sets have not enabled them to meet the challenging literacy demands placed on secondary level students. For example, the research base surrounding adolescent literacy, while not as sound as the early literacy research base, is substantial and growing (National Governors Association [NGA], 2005). In addition, the amount of federal funding which is being allocated to address the issue of adolescent literacy has increased over the last five years.
Increasing the percentage of adolescents who will experience success as readers at the secondary level will require, among other things, ongoing support, differentiated instruction, and an allotment of time above and beyond the traditional 45- to 50-minute class period (Ivey, 2002). In a recent publication by the NIH (2003), a review on adolescent literacy highlighted this need for further action:

We know that children who have not developed foundational reading abilities by approximately nine years of age are highly likely to struggle with reading throughout their educational tenure, if not the rest of their lives, and may never read efficiently enough to acquire information or to enjoy the process. Thus, most of the middle school and high school students who are poor or failing readers could be “left behind” as they continue through school and move into the workplace. It is time to focus in both research and educational practice on the “after nine” group of struggling readers. (p. 2)

This section will (a) provide an overview of the topic of adolescent literacy, (b) examine the literature surrounding best practices in adolescent literacy, and (d) review efficacy studies on computer-assisted instruction in reading.

Adolescent Literacy

Adolescent literacy refers to “the set of skills and abilities that students need in grades four through 12 to read, write, and think about the text materials they encounter” (NGA, 2005, p. 6). It is important for adolescents to have strong literacy skills so that they can comprehend academic content, communicate effectively, participate in cultural communities, and negotiate the world (NGA). In addition to being developmental in
nature and a lifelong process, becoming literate in the 21st century includes being able to interact with traditional forms of written material and multimedia texts.

The manner in which students interact with text begins to change once students enter the upper grades of their elementary experience. For example, students typically make the transition from learning to read to reading to learn in the fourth grade. Upon entering the fourth grade, students can experience difficulties with reading for a variety of reasons. For some students, the struggle actually begins before entering kindergarten, as a lack of phonemic awareness contributes to a lack of understanding that sounds heard in spoken language are formed to make words. Students that struggle with reading prior to the fourth grade sometimes also experience difficulties with phonics, as they are unable to fully grasp the relationship between letters and spoken sounds. A lack of background knowledge, limited vocabulary, lack of motivation, and poor reading strategies are also factors that have been identified as reasons why students can struggle with reading prior to reaching the middle school grades (Allington, 2001; Rand, 2002).

Struggling adolescent readers normally fall into one of three groups. Readers who experience difficulties with fluency and comprehension comprise the largest group of struggling adolescent readers (NGA, 2005). Although these students usually do not have difficulties reading such everyday texts as newspapers or magazines, they often cannot understand more advanced texts. While many students in this group will score in the proficient range on assessments of state standards in literacy, some of the students in this group are not prepared to handle the increased literacy demands of today's universities, as well as the demands of many workplaces.
Adolescents who experience even greater difficulty with fluency and comprehension comprise the second group of struggling adolescent readers (NGA, 2005). Regardless of what this group of students reads, consistent problems arise. In addition, a large percentage of students in this group often do not meet minimum state standards on state-wide administered assessments, as reading deficiencies for these students make it difficult for them to comprehend texts written at the basic level. For example, while students in this group can read an article in a magazine, they often lack the skills necessary to comprehend a chapter book. These students frequently drop out of school or find themselves graduating from high school lacking the skills necessary to secure employment which will afford them the opportunity to make a sufficient living.

Less than 10% of all students comprise the smallest group of adolescents who struggle with reading (Bully & Valencia, 2003). This group of students often experiences such difficulties with decoding that they are unable to read the majority of the words on a page. Typically, the challenges faced by this group of students results from significant learning disabilities, inadequate decoding instruction in the primary grades, or recent moves to reading in English from another language. Students in this group are often found eligible to receive special education services to address significant academic deficits.

Of the adolescent readers who struggle, English Language Learners (ELL) often face additional challenges (Strickland & Alvermann, 2004). For example, reading instruction for ELL students can be even more challenging because this group of students is often learning the language in which the instruction is being given. It will be important for educators to be able to effectively address the needs of this growing population of
students, keeping in mind that not all ELL students will begin school in the primary grades. For instance, demographical trend data in the United States indicate that, due to the rapid growth at the upper-grade levels of foreign-born immigrant children, this student population now represents a larger share of the high school population (5.7%) than they do of the primary school population (3.5%) (Van Hook & Fix, 2000).

Among struggling adolescent readers, economically disadvantaged students also face additional challenges (Strickland & Alvermann, 2004). The characteristics surrounding high-poverty schools often contribute to the likelihood that students in these academic settings will receive inadequate instruction in both the primary and secondary grades. For example, high-poverty schools are frequently staffed with less experienced teachers, who are less qualified, and more than likely to leave the school after a short period of time (Darling-Hammond, 2000a; NGA, 2005). In addition, economically disadvantaged students are less likely to be exposed to experiences, both in and out of school, which increase the likelihood of them becoming successful readers. For example, enhanced vocabulary and background knowledge obtained through varied experiences, which have both been linked to fostering better reading comprehension and writing skills, are often lacking for this group of students (NRP, 2000).

An analysis of the achievement data surrounding struggling adolescent readers also reveals that minority students are at a greater risk to experience weaknesses in adolescent literacy skills (McCombs, Kirby & Barney, 2005). For instance, approximately just half of African-American and Hispanic ninth graders complete high school in four years (Orfield, Losen & Wald, 2004). In addition, urban settings and school districts where minorities are the majority account for the highest concentration of
the lowest high school graduation rates. Recent statistics from the NAEP indicate that the state pass rates for reading assessments for African-American and Hispanic students across the United States are between 10 percentage points and 65 percentage points below those of white students (McCombs, Kirby & Barney). For example, in 2005, for students in fourth grade and eighth grade, white students scored higher, on average, than African-American and Hispanic students (McCollin & O’Shea, 2006). In addition, the gap in reading achievement between minority and majority students has roughly remained the same since 1992.

**Literacy and African-American Students**

Statistics indicate that the need for interventions to improve the literacy skills of students from culturally and linguistically diverse groups is chronic and strong (McCollin & O’Shea, 2006). Although the gap between minority-majority achievement has narrowed over the past 30 years, the achievement differences are still substantial by the end of middle school (Allington, 2001). As the knowledge base surrounding adolescent literacy continues to grow, and as the issue continues to draw more attention from policymakers and educators, some fear that the current era of accountability will actually negatively impact minority students in terms of literacy skills (Tatum, 2000). For example, as a result of the current emphasis being placed on assessment results which are linked to state standards, some educators feel that the drive to attain minimum standards will not be enough to adequately address the achievement gap that currently exists (Hillard, 1995). Those concerned with this possibility believe that the emphasis being placed on preparing students for statewide assessments is forcing educators to adopt a
less comprehensive approach to teaching literacy. Darling-Hammond and Falk (1997) noted the following:

Depending on how standards are shaped and used, either they could support more ambitious teaching and greater levels of success for all students, or they could serve to create higher rates of failure for those who are already least well-served by the educational system. (p. 191)

Tatum (2000) cites an example in Chicago as a case in point of “the proliferation of standards and the high rates of retention” that resulted from students not meeting identified standards (p. 52). Several years ago Chicago, one of the largest urban school districts in the United States, created alternative high schools to accommodate students who repeatedly failed to meet standards. Often referred to by members of the community as warehouses for underachieving students of color, these schools were plagued by many of the same characteristics that are often found in high-poverty schools (i.e., less experienced and less qualified teachers). In addition, many citizens in the city viewed this practice to be reactionary in nature, perpetuating the issue of inadequate instruction in literacy for large percentages of the city’s struggling adolescent readers.

The term warehouse could also be used to describe another issue regarding the literacy needs of African-American students: the overidentification of minority students in special education. As noted by McCollin and O’Shea (2006), “the past 30 years of well-documented research findings on the recursive dilemma of minority student overrepresentation in special education revealed that little has changed” (p. 93). The fact remains that today minority students are still being placed in special education programs at an astonishingly disproportionate rate. For example, an analysis of findings by the
National Research Council (2002) indicated that the proportion of minority students in special education programs has risen 35% since 2000. Due to the fact that more than half of all students receiving special education services are classified with learning disabilities, and more than 90% of these students struggle with reading, the importance of improving literacy skills for this group of students has now become the focus of several federal initiatives to improve education (McCollin & O'Shea).

Students from culturally and linguistically diverse backgrounds are sometimes hindered by both societal factors and school-based practices that can create the reading discrepancies found between majority students and their non-majority peers (McCollin and O’Shea, 2006). For instance, one of the primary reasons why adolescents struggle to become proficient readers concerns the issue of fluency (Hardiman, 2003; Lamont, 2006; Thomas, 2005). Not being able to decode words impacts a student’s rate of reading, which in turn impacts the student’s level of comprehension. A lack of access to literature outside the classroom, in addition to limited reading resources in the home, can significantly impact a student’s motivation and desire to read. The lack of reading practice over time can certainly contribute to a lack of fluency among adolescent readers.

Epstein (2000) conducted a study that demonstrated the common influences of culture and literacy and highlighted how school-based practices can also lead to reading discrepancies between majority and minority students. In his study, Epstein asked 10 high-achieving students who were in the same 11th-grade history class to choose significant historical actors and events from sets of pictures. Five of the students were white, and five of the students were African-American. Students were asked to explain the contradictory tension in United States history between racial oppression and
individual rights. The white participants viewed whites as the major historical subjects, emphasized democratic rule and individual rights, and attributed the denial of rights to such issues as slavery and segregation. The African-American students, on the other hand, observed a country where racial domination and struggle were apparent, and cited white people or racism as the reasons for oppression. The fact that these 10 students had been sitting in the same classroom, listening to the same teacher who provided an unbiased and introspective picture of United States History, highlights how comprehension can be influenced by cultural and social experiences.

The issue of how to increase the literacy achievement of African-Americans is embedded in social, cultural, economic, and historical dynamics (Tatum, 2000). For example, Gay (2000) stated that a lack of cultural congruence between home and school can lead to lowered expectations for students in addition to a lack of meaningful participation in school. In an effort to bridge this divide, research suggests that educators make efforts to incorporate a culturally relevant approach to teaching literacy (Sanacore, 2004). For example, several research studies have concluded that incorporating a culturally relevant approach to teaching literacy can lead to gains in student achievement (Educational Research Service, 2001; Gay, 2000; Office of Educational Research and Improvement, 1997). Ladson-Billings (1995), who also supports the strategy of exposing students to culturally responsive pedagogy, stated the following:

1. Students must experience academic success, develop and maintain cultural competence, and develop a critical consciousness to challenge the status quo.

2. Teachers should attend to students’ academic needs, not merely make them feel good.
3. Students' culture should be made a vehicle for learning.

4. Students need help to develop a broader sociopolitical consciousness that allows them to critique the cultural norms, values, traditions, and institutions that produce and maintain social inequities.

Incorporating a culturally relevant framework in reading instruction, setting high expectations for student achievement, emphasizing best practices in reading research, and providing students with quality teachers will aid educators tremendously in addressing the literacy needs of minority and majority students of all ages. Appendix A provides a list of resources for culturally responsive instruction.

Targeting the Literacy Needs of Struggling Adolescent Readers

Weak adolescent literacy skills are not only a problem of minorities. The average percentage of all students who in recent years have met reading proficiency standards in grades four and eight on the NAEP is less than 50% in every state (NGA, 2005). Nationwide, over 8 million students in the 4th through 12th grades are experiencing difficulties with reading (NCES, 2006).

Unfortunately, the research regarding students who struggle to read and write beyond the third grade reveals that there is no magic bullet or one-size-fits-all solution (Allington, 2001). While school districts throughout the country have made strides in the area of early literacy achievement, effective instruction beyond the primary grades is necessary if students are to be successful. This is true even for those students who enter fourth grade with strong foundational literacy skills. For example, students will need to be able to draw upon more advanced reading strategies in order to comprehend complex texts that cover specialized subject matter.
Historically, direct literacy instruction has been a component of a school’s English curriculum up to the third grade (National Association of Secondary School Principals [NASSP], 2005). However, there exists a need to continue to emphasize reading skills for all students beyond the third grade. A continued emphasis on reading skills in middle school, for example, not only assists students in reading narrative texts, but the focus can also aid students in learning specific strategies to obtain meaning from expository and descriptive texts (Robb, 2000). The result of a sustained focus on reading strategies can actually assist both struggling and proficient adolescent readers in their efforts to read increasingly difficult text at the secondary level and to comprehend more abstract ideas. Direct reading instruction and intervention among struggling adolescent readers should be taking place at the secondary level (NGA, 2005; Rand, 2002).

Findings from the RAND Reading Study Group clearly support the need for continued literacy instruction at the secondary level. The RAND (2002) report highlighted the following issues related to adolescent literacy:

1. Comprehension is not increasing, but high school graduates are expected to read complex, technical material in order to be successful in the workplace.
2. Secondary students in the United States are scoring lower than students in other comparable nations.
3. There continues to be a gap in literacy performance between socioeconomic groups, ethnic groups, and students with limited English proficiency.
4. Secondary teachers are ill-prepared to teach literacy strategies that are necessary for students’ comprehension of content-specific text.
5. There is little empirical data to support some of the programs that are being implemented within many of the secondary schools.

Due to the large percentage of struggling adolescent readers which have been identified across the country, these students are in dire need of intensive instruction in reading (NGA, 2005; NASSP, 2005). This group of students needs to know how to interact with various texts and to be able to construct meaning from the texts they encounter on a daily basis. Unfortunately, many educators believe that students who struggle with reading, and are in older grades, will not benefit from focusing on such specific reading strategies as decoding or fluency (Hardiman, 2003). In addition, it is understood that many teachers at the secondary level, particularly those teaching outside the content area of language arts, have never received training in methods to incorporate such strategies (Allington, 2001). For example, secondary teachers are rarely trained to integrate phonics-based decoding instruction into a reading program (McCray, Vaughn, & Neal, 2001). Also, secondary teachers can often ignore the real deficit(s) of struggling readers and exacerbate the problem(s) through such actions as providing notes in class or by giving students the facts they will need to study for the test. Secondary educators should be encouraged to address the root of the problem: struggling adolescent readers do not read well enough to comprehend and derive meaning from many of the texts they are exposed to at the secondary level (Allington).

While the factors which prevent students from being better readers vary, the literature surrounding struggling adolescent readers clearly indicates the significance of the variable time: The amount of time allotted before, during, and/or after the school day by teachers and administrators to expose students to text and proven reading strategies is
a critical component to a comprehensive approach to supporting literacy (Allington, 2001; NGA, 2005; NRP, 2002; Roe, 2004). It is important, for example, that schools work to build adequate time into a school’s master schedule so that struggling readers are provided sufficient time during the school day to interact with a high volume of text. In learning to read effectively, it can be said that simply practicing reading is a powerful contributor to the development of accurate, fluent, high-comprehension reading (Allington). For example, surveys that were conducted as a part of the NAEP suggested that the simplest of all solutions for fostering improved reading is to challenge and encourage children to read (NGA).

Studies have consistently shown that there exists a strong relationship between volume of reading and reading achievement (Allington, 2001). For instance, correlational data from studies conducted by the NAEP suggest that volume may be critically important in developing literacy proficiencies in adolescent students. While merely setting aside time for students to read is insufficient, it is important that educational leaders take into consideration this key variable when contemplating such issues as constructing master schedules, writing curriculum, configuring team teaching assignments, implementing before and after school remediation programs, and developing curriculum pacing guides. Allington noted:

Time spent reading is important. The research does not provide clear evidence on whether one type of reading is better than another. In other words, increasing the volume of oral or silent or choral or paired reading or almost any combination of these has been shown to enhance achievement. (p. 35)
One strategy for increasing the volume of reading among students is to reduce the class size. A benefit to this practice, particularly in a remedial setting, is that it affords the classroom teacher more contact time with individual students (Finn, Pannozzo, & Achilles, 2003). While the level of impact this strategy has on student outcomes is often debated, convincing experimental research exists in support of this practice (Englehart, 2006; Nye, Hedges, & Konstantopolous, 2000). Proponents of this strategy often cite several reasons why small class size is thought to have a positive impact on student outcomes. For example, Berliner and Biddle (2002) offer two theories in support of smaller class size that relate directly to sound remedial reading practices. First, the researchers contend that small class size enables the teacher to improve interactions with students and facilitates the process of differentiating instruction at the individual student level. Second, small class size helps to create a learning environment where time on task is high, as behavior problems are less frequent and students are more likely to remain actively engaged.

Whether it is accomplished through a reduction in class size in an effort to facilitate the frequent use of guided reading groups, or via additional time built into the school day to support a period of silent sustained reading, ensuring that struggling adolescent readers are provided ample time to practice reading also enhances students’ reading fluency (Rasinski & Padak, 2005). Once thought to be an area of emphasis primarily in the elementary grades, the issue of fluency is an area of reading that is beginning to garner more interest among experts in the field of adolescent literacy. While students’ reading difficulties may be due to insufficiencies in vocabulary and/or comprehension strategies, reading problems at the secondary level are often related to
students' inabilities to have mastered such reading competencies as word decoding and reading fluency during the earlier stages in reading development. For the secondary student who demonstrates deficits in reading fluency, decoding words often presents problems with text comprehension. Because these students frequently expend great amounts of energy attempting to decode words accurately, valuable cognitive resources that should be devoted to comprehension are exhausted (Pinnell et al., 1995).

The literacy needs, such as reading fluency, faced by adolescent readers over the last two decades have proven that the lasting impact of deficient reading skills can be severe. Findings released during an Alliance for Excellent Education High School Summit revealed the need for implementing a secondary literacy program for students in schools across the nation (NASSP, 2005). For example, the following statistics were shared during the summit: (a) There are 6 million students in grades six through 12 at risk of not graduating from high school or graduating unprepared for success in college or a career; (b) The combined literacy score of 15-year-olds in the United States ranks 15th among developed nations; (c) Approximately 25% of all high school students read below basic levels or three to four years below basic grade levels; and (d) The graduation rate in urban schools is approximately 50%.

Recently, the National Governors Association (NGA) convened to examine the issue of adolescent literacy. It quickly became apparent to members of the association that few states have developed comprehensive statewide plans to address adolescent literacy and some of the statistics noted above. Upon acknowledging that within states some districts are paying more attention than others to the literacy needs of struggling adolescent readers, and that some of these districts are seeing gains in student
achievement as a result of their efforts, the NGA noted that state leaders would be wise to develop policies and programs that build on the lessons gleaned from such promising efforts (NGA, 2005). For example, the state of Florida has been commended in recent years for its efforts to call attention to the needs of adolescent students. In 2001 Governor Jeb Bush incorporated reading as a fundamental part of the state’s education agenda. In 2004 the Florida legislature approved making reading funds a permanent part of the public school funding formula in an effort to extend reading support services to secondary schools throughout the state. Data indicate that literacy rates across the state have risen since. The most recent data available show that between 2001 and 2005, the percentage of third grade students reading at grade level or better increased from 57% to 67%.

After a thorough review of the research on struggling adolescent readers by the Adolescent Literacy Advisory Panel of the NGA (2005), the association suggested that the states’ governors pursue five strategies to improve adolescent literacy achievement:

1. Build support for a state focus on adolescent literacy.
2. Raise literacy expectations across grades and curricula.
3. Build educators’ capacity to provide adolescent literacy instruction.
4. Encourage and support school and district literacy plans.
5. Measure progress in adolescent literacy at the school, district, and state levels.

The last two of these recommendations are primarily relevant to this study.

In an effort to encourage and support the implementation of school and district literacy plans throughout the nation’s schools, the NGA recommends that governors work with state education agencies to provide guidance to school districts on the
development of their own literacy plans. For example, the state of Kentucky has been assisting its schools by distributing a template for literacy plans and offering professional development training at the district level. The panel felt that in order for the plans to be coordinated and effective they "must be tied to literacy performance data, linked to state standards, and aligned with curricula, assessments, and professional development activities" (NGA, 2005, p. 16).

The literacy plans could also be an extension of school learning plans, if there exists an explicit focus on literacy within the plan. According to the NGA, the plans should be based on real-time school data and draw upon research-based practices which offer promise for teachers in the content areas of reading and writing. In addition, the plans should include details on how to identify and remediate struggling readers, as well as address such key components as use of time and facilities. For example, when students are reading at more than two years behind grade level, it becomes difficult to close achievement gaps in reading during a 45-minute instructional block for language arts. An effective literacy program often incorporates an extended period for literacy-related instruction (Robb, 2000).

Regardless of whether states mandate literacy plans, the NGA feels that states should be required to address students who perform below minimum expectations on state reading assessments. The association recommends that these students are targeted for diagnostic reading assessment and provided interventions designed to meet their needs at the individual student level. While state reading assessments can be used to help identify this group of students, the screening requirement would provide additional information regarding a student’s deficits and enable the school to design a remediation
plan tailored to the student's designated areas of weakness. Florida, Maine and Rhode Island currently have programs in place that have set requirements to ensure that struggling readers are identified and provided intense remediation in literacy skills (NGA, 2005). For example, the Middle Grades Reform Act in Florida requires that all middle school reading and language arts programs in use by 2008-2009 be proven through research and develop specific literacy plans to address the improvement of reading among same-grade cohorts if schools have greater than 24% of their students reading below grade level.

Another strategy recommended by the NGA to address struggling readers is to measure progress in adolescent literacy at the school, district, and state levels. In its analysis, the NGA found that states are at many different places when it comes to their definition of literacy proficiency. While some states are in line with national expectations, other states' assessments are not nearly as rigorous. The NGA believes that, just as state standards are examined, state assessments should be analyzed to reflect how well they mirror real-world literacy demands as well as the formats included in respected national tests. For example, a comparison of student achievement on NAEP to student achievement on state literacy tests could indicate how well a state's assessments measure up to national benchmarks (NGA, 2005).

States will also benefit from measuring student progress at the district and individual school levels. For instance, information regarding specific programs implemented within schools to address struggling adolescent readers could serve as valuable information to schools throughout the state with similar demographics who are seeking interventions. The ability to track such programs at the state level and to make
available the measurement information to school districts would enable states to better assess the promise of various initiatives. In addition, this process could also facilitate discussions of programs and best practices regarding struggling adolescent readers among school districts, schools, and individual teachers.

*The Role of the Teacher In Middle School Literacy*

Secondary teachers are under increasing pressure to prepare students for statewide assessments. As states have added new grade level and subject area assessments in recent years to comply with NCLB, the number of secondary teachers who are feeling the impact of large numbers of students with reading deficits is growing (Key, 2005). As a result, many secondary educators are now examining ways teachers in all content areas can address the literacy needs of struggling adolescent readers (College Reading Association, 2002).

In previous years, if a content teacher outside the area of language arts were asked to address students' reading deficiencies, or to incorporate specific reading strategies into her lessons, a standard response might have been, "Why should I have to teach reading when my primary responsibility is to deliver the content in my area?" Today, however, language arts teachers are beginning to see a change in this philosophy among their colleagues, as teachers of other core content areas are beginning to realize the importance a strong foundation in literacy plays in the student's overall academic success. In addition, proficient readers are not only more likely to pass the state assessment in reading, but these same students are more apt to successfully pass tests in the areas of mathematics, science and social studies (Cooley & Shen, 2003).
In response to the current emphasis on preparing students for statewide assessments, many middle schools now operate instructional models which are departmentalized in nature. For example, in an effort to have faculty to become highly adept in a particular content area, many middle schools are assigning teachers to teach one subject in one grade. Regardless of this fact, it is important for secondary schools to encourage dialogue between language arts teachers and other core content area teachers in an effort to share effective instructional strategies and to individualize instruction for students who demonstrate deficiencies in literacy skills (Allington, 2001).

As an increasing number of secondary schools begins to develop school-wide literacy plans, some schools are taking measures to provide staff development opportunities for all faculty members in sound instructional strategies. While the inservices are being designed to meet the needs of struggling adolescent readers, students from all teachers' classrooms can benefit from best practices in reading. It is important that content teachers in addition to language arts teachers have a thorough understanding of how students learn and what strategies are most effective for teaching this group of students (Key, 2005). It is also important that teachers model effective strategies in reading and writing for students over a period of time across classrooms and grade levels (Denman, 2004). In addition, all teachers should be able to communicate to students what reading strategies are, why the strategies are important, and when and where to draw upon various strategies (Rand, 2002).

It is also imperative that teachers within schools dialogue with one another about strategies that can be implemented to address literacy skills and the students they work with during these critical years. For example, it would be beneficial for all content
teachers to understand that many literacy skills are spiraling in nature, where one skill builds off of a previous skill and where those skills are later applied to enhance additional skills. A science teacher could learn from a colleague in English, for instance, that a continued focus on vocabulary instruction could lead to improved knowledge of vocabulary, which could lead to increased rates of fluency, which could lead to improved rates of comprehension (Vacca, 2002). Fostering such relationships over time would have positive implications for students in both of these teachers' classrooms. In addition, by conversing with one another on a regular basis, teachers would be able to provide valuable feedback to one another regarding the progress, or lack of, for individual students. For example, by sharing students’ reading achievement levels from pretest measures at the beginning of the year, language arts teachers could assist content teachers looking to differentiate instruction for students (Barton, 1997). Also, a reading teacher or a reading specialist could dialogue with a student’s language arts teacher in an effort to best meet the student’s deficit areas and to monitor his progress.

All teachers should also be encouraged to engage in conversations with their students about reading (Baker, 2002; Moje, 2002; Worthman, 2002). The International Reading Association supports this belief, as the organization encourages educators to dialogue with students, particularly reluctant readers, about why students might not enjoy reading or what types of print might peak their interests (Brinda, 2004). For example, middle school students often desire choice in what they read. Providing students in a middle school with the opportunity to have input concerning what authors and selections are purchased each year to add to a school’s library collection would be one way for students to have a voice and a choice regarding available literature. In addition, it is
important for teachers to serve as positive reading role models for students by talking to
students about the books they themselves are reading, showing excitement about reading,
and making books available in their classrooms (Humphrey, Lipsitz, McGovern &
Wasser, 1997).

The Role of the Principal In Middle School Literacy

The current emphasis on accountability in K-12 public education has not only
resulted in additional pressures and recommendations for teachers, it has also redefined
the role of the building principal (Brewer, 2001; Cooley & Shen, 2003; DiPaola,
Tschannen-Moran, & Walther-Thomas, 2004; King, 2002; Tirozzi, 2001). While the
concept of accountability has long been a hallmark of education, principal accountability
has historically encompassed a more general approach of maintaining a safe setting for
children, fostering strong relationships with teachers, and exhibiting sound budgeting
practices (Cooley & Shen). The emphasis today, however, has shifted from holding
building administrators accountable for how funds and other resources are used to
accountability for student achievement outcomes (Elmore, Abelman, & Fuhrman, 1996).
For example, when the reauthorized Elementary and Secondary Education Act (ESEA)
was signed into law as the No Child Left Behind Act in January 2002, the revised
legislation resulted in higher expectations for school districts to ensure proficient levels
of student achievement (O’Donnell & White, 2005). For principals, the related mandates
and regulations called for a renewed focus on instructional leadership, as the expectations
regarding achievement for all students were raised to significantly higher levels
(McLeod, D'Amico, & Protheroe, 2003).
While school principals in the 21st century are expected to fill a multitude of roles, the primary responsibility of today's principal is to facilitate effective teaching and learning with an overall objective of enhancing student achievement (Booth & Rowsell, 2002; Boscardin, 2005; McLeod, D'Amico, & Protheroe, 2003). Research supports the notion that, over a period of time, instructional leadership on the part of the principal has been identified as a contributing factor to higher student achievement (Guskey, 2003; Hallinger & Heck, 2000; Waters, Marzano, & McNulty, 2005). In an attempt to become more proficient in the area of instructional leadership, principals are now using student achievement data on a more frequent basis to make decisions regarding instruction, developing staff development programs with a greater focus on effective instructional strategies, and rethinking traditional approaches to course offerings (O'Donnell & White, 2005).

Despite such efforts to positively impact student achievement, many principals, particularly at the secondary level, are finding that significant deficiencies in students' literacy skills are resulting in poor student performance on mandated statewide assessments (Cooley & Shen, 2003). In an era where principals are being held accountable for student achievement results on state-mandated assessments, it is becoming more evident that concerns regarding the literacy needs of adolescent students are impacting student pass rates on more than just the English portion of these assessments.

Thus, how can secondary school principals create a culture where literacy skills are considered to be the cornerstone of a school's learning plan and, in turn, positively impact student achievement in all subject areas? If principals are going to create and
maintain a school-wide reading culture, Blokker, Simpson, and Whittier (2002) recommend several steps. First, it is important for principals to examine their own level of commitment to the belief that each child in the school can read and write at grade level expectations. The authors suggest that one way to demonstrate this commitment would be to promote literacy in conversations with students, staff, and community members, and in publications within and outside of the school. In addition, it is important that principals educate themselves about reading by studying professional resources on reading issues, spend time in classrooms observing teachers skilled in teaching reading, and attend staff development inservices on reading instruction.

The second step in creating and maintaining a reading culture involves the principal taking action. In addition to being committed, a principal must work alongside the staff to determine students' reading levels and to identify and develop strategies that will translate into reading growth. For example, examining reading assessment data for each grade level, principals should look to determine patterns of strength as well as areas for improvement. Principals should also meet with grade level teams of teachers and reading specialists in an effort to analyze the data and compile lists of students for purposes of differentiating instruction (Marshall, 2006). For instance, students could be classified by (a) those reading on or above grade level, and making satisfactory progress in all core areas; (b) those who are reading and comprehending at or above grade level, but making unsatisfactory progress in one or more core areas; (c) those who are reading and comprehending no more than two levels below grade; and (d) those who are reading and comprehending more than two levels below. In addition, principals should work to find ways within the school’s master schedule or program offerings to increase the
amount of time devoted to literacy during the school day. For example, before and after-school programs could be offered and remediation periods could be incorporated during the school day to provide students with deficits in reading time above and beyond their core classes in language arts.

The third step in creating and maintaining a reading culture recommended by Blokker, Simpson, and Whittier (2002) calls for the principal to follow up on a consistent basis. One example of this would be for principals to increase both their visibility in the classrooms and their discussions with teachers regarding literacy and classroom instruction. The authors recommend that principals schedule at least one hour every day for 10- to 15-minute classroom visitations. Prior to the observations, principals should have communicated to teachers that the purpose for the visits will be to see students demonstrating understanding of both the reading process and what they read. Following the observations, principals are encouraged to hold brief discussions with teachers about observations of student performance and the teachers’ use of instructional strategies. In addition, an intent of the observations should be to note patterns of effective and or less effective instructional practices that can then be shared at grade level team meetings or staff development activities.

A three-year study conducted by the principal of Hoover High School in San Diego, California, and his colleagues illustrates the potential benefits of implementing a school-wide literacy program in an attempt to establish a positive reading culture. Prior to the implementation of a school-wide literacy program, achievement scores at Hoover High School were the lowest in the county and among the lowest in the state. The teacher turnover rate was high and moral was low. The demographics of the school were typical
when compared to many urban high schools (Fisher, 2001). Of a large school with a population of 2,200 students, 46% were English Language Learners, 100% qualified for free and/or reduced lunch, and 96% were members of minority groups (Fisher, Frey, & Williams, 2003). A breakdown of the demographics revealed that 54% were Latino, 21% were African-American, 20% were Asian, and 4% were white.

Under Hoover’s leadership, the school formed a committee to address literacy skills. The committee identified seven literacy instructional strategies which were then adopted by the faculty and staff. The seven strategies, which were implemented in all subject areas throughout the school, were (a) read-aloud, (b) K-W-L charts, (c) graphic organizers, (d) vocabulary instruction, (e) writing to learn, (f) structured note-taking, and (g) reciprocal teaching.

The committee developed a three-year strategic plan that included, among other things, ongoing professional development, opportunities for peer observations and for teachers to dialogue on a frequent basis about reading and writing. The findings of the study indicated that student achievement was influenced by school structures. For example, the implementation of an additional 20 minutes for a period of silent-sustained reading was found to have played a role in increasing students’ reading scores. By communicating the importance of literacy, Hoover High School was able to meet all of the state’s accountability targets in the school year 1999-2000 and the Standford 9 reading scores for Hoover’s ninth grade students exceeded district growth between 1998 and 2001.

Public school principals face a long list of challenges: creating safe learning environments, retaining and recruiting highly qualified staff, addressing concerns
presented by aging facilities, etc. High on this list is the challenge regarding the emerging role of the principal for instructional leadership (Cooley & Shen, 2003; O’Donnell & White, 2005). If principals are to create and maintain an environment of literacy at the secondary school level, they must foster a transformation that will positively impact the school’s entire instructional program (Dufour, 2002). While today’s principals are expected to fulfill a large number of roles, the primary responsibility in this era of high-stakes testing is to enhance student achievement.

Best Practices in Adolescent Literacy

A plethora of evidence exists which demonstrates that many adolescent students do not read well (Allington, 2001; Hardiman, 2003; NGA, 2005; Rand, 2002; Rasinski & Padak, 2005). For example, data from the NAEP to results from state proficiency tests reveal that many adolescents do not fully comprehend what they read, and this often results in poor performance in subject areas beyond language arts. In addition, while trend data indicate that elementary educators in the United States appear to be doing an adequate job of teaching young children to read as measured by international comparisons, the same cannot be said when comparing the level of student performance in the middle and high school years (Supporting Young Adolescents, 2002). Thus, it is important for stakeholders to become knowledgeable of what the research has found concerning best practices in adolescent literacy.

In recent years, the International Reading Association (IRA) has been credited by many for facilitating efforts to bring attention to the literacy needs of the struggling adolescent reader. For example, the IRA’s Commission on Adolescent Literacy (CAL) completed a position paper in 1999 that highlighted best practices for programs
developed to promote literary growth for adolescents. The CAL (Moore et al., 1999) paper supported the notion, and reiterated the IRA’s stance, that measures must be taken to address the needs of this targeted population:

Adolescents are being shortchanged. No one is giving adolescent literacy much press. It is certainly not a hot topic in educational policy or a priority in schools. In the United States, most Title I budgets are allocated for early intervention – little is left over for the struggling adolescent reader. Even if all children do learn to read by Grade 3, the literacy needs of the adolescent reader are far different from those of primary grade children. (p. 1)

The CAL study recommended seven principles as a foundation for best practices in adolescent literacy:

1. Adolescents deserve access to a wide variety of reading material that they can and want to read.
2. Adolescents deserve instruction that builds both the skill and desire to read increasingly complex materials.
3. Adolescents deserve assessment that shows them their strengths as well as their needs and that guides their teachers to design instruction that will best help them grow as readers.
4. Adolescents deserve expert teachers who model and provide explicit instruction in reading comprehension and study strategies across the curriculum.
5. Adolescents deserve reading specialists who assist individual students having difficulty learning how to read.
6. Adolescents deserve teachers who understand the complexities of individual adolescent readers, respect their differences, and respond to their characteristics.

7. Adolescents deserve homes, communities, and a nation that will support their efforts to achieve advanced levels of literacy and provide the support necessary for them to succeed.

The first four of these principles are particularly relevant to this study. The first of these principles addresses the *access for adolescents to a wide variety of reading material* that students can read and choose to read. Struggling adolescent readers benefit when schools invest in varied and interesting reading materials (Ivey, 2002). If students are to learn to read thoughtfully across discipline areas, students need access to a wealth of materials related to curriculum topics. Such materials should encompass a range of difficulty levels and formats to meet both students’ comfort levels in reading and their personal preferences. Materials should also include genres of texts that students might ordinarily read only outside of school. In addition, schools should explore and collect varied reading materials that can be connected to each curriculum standard. For example, a study of World War II in a seventh grade classroom might provide students access to hundreds of interesting and readable texts, ranging from historical fiction, photographic essays, and oral histories to poetry, songs, and newspaper articles. Literacy research cited in the CAL (Moore et al., 1999) position paper supported four additional reasons why adolescent students should be provided access to inside and outside-of-school reading materials they can and want to read:
1. *Time spent reading is related to reading success.* Reading regularly for a short period of time each day is a small investment for a large return. When students devote some time every day reading, their word knowledge, fluency, and comprehension tend to increase.

2. *Time spent reading is associated with attitudes toward additional reading.* Students who make a habit of reading in the present have a tendency to seek out new materials in the future. These students are laying the foundation for becoming lifelong readers.

3. *Time spent reading is tied to knowledge of the world.* A combination of textbooks, magazines, paperbacks and web related text allows readers to expand their thinking and to make connections between literacy and real world events.

4. *Reading is a worthwhile experience.* Readers can find comfort and enjoyment in print, nourishing adolescents’ emotions and intellects.

The second principle recommended by the CAL (Moore, et al., 1999) is *instruction that builds both the skill and desire to read increasingly complex materials.* Unfortunately, there is often a mismatch between instruction and students’ needs in schools (Ivey, 2002). For example, typical reading requirements for adolescent students rarely take into consideration the developmental and personal differences between students. In addition, students are expected to read increasingly complex materials without instruction on reading strategies. As a result, struggling readers at the secondary level often lack the desire to become better readers. There is a need for adolescents to be able to increase their skill base of reading comprehension and study strategies such as the
following: (a) questioning themselves about what they read; (b) synthesizing information from various sources; (c) identifying, understanding, and remembering key vocabulary; (d) recognizing how a text is organized and using that organization as a tool for learning; (e) searching the Internet for information; and (f) evaluating authors’ ideas and perspectives.

The third recommended principle focuses on the area of assessment, and how it can be utilized to show strengths and guide teachers in the design of instruction. Using assessment data to make instructional decisions, however, can be a difficult task for many teachers. Data, such as pretest scores on a given assessment, are often used in education to place students in programs or to evaluate a particular program. Data are not used as frequently by teachers to profile a student’s strengths and weaknesses in an effort to tailor instruction for the learner at the individual level. Using data to make instructional decisions at the individual student level will bring about greater gains in developing literacy skills (Allington, 2001). Addressing this issue as it relates to students with disabilities, an IRA (2000) resolution stated:

The International Reading Association believes that students in special education deserve reading assessments that provide sound information to the teacher, pupil, and family and that can be used to guide and improve instruction and learning. Assessments used for this purpose should include a variety of measures that accurately reveal a student’s strengths and weaknesses with the multiple processes of reading. (p. 1)
Struggling adolescent readers also deserve assessments at the classroom level that create a link between what students already know and the curriculum standards which they are exposed to and expected to master in the classroom. For example, from the onset of a lesson, students should be provided with a clear understanding of the expected standards. By the time the student has progressed to the assessment phase of the lesson or unit (i.e., culminating writing activity, oral response, short answer response, etc.), the student should be able make a connection between the standards studied and how the particular assignment(s) enabled the student to connect his or her learning with the world beyond the classroom.

The fourth principle focuses on the need for expert teachers who are able to provide explicit instruction in reading comprehension and in all content areas. The research on expert teachers “has produced an image of decision makers effectively orchestrating classroom life” (Moore, et al., 1999, p. 7). By addressing meaningful topics, teaching specific strategies, then releasing responsibility for the strategies to students over a period of time, expert teachers are able to aid students to get to the next level of strategy development. In addition, while one cannot expect each classroom teacher to be an expert on every relevant educational topic, an expectation should be to see the knowledge base in middle grades literacy education translated into practice in teachers’ classrooms. Are teachers implementing the available research on how to teach comprehension and vocabulary strategies that are known to be effective in accelerating students’ subject matter learning? Do teachers view the research on computer-based reading programs as being relevant to their curriculum? Do teachers know how to adapt these strategies so that they are responsive to all students’ social and intellectual growth?
Answers to these questions have implications for researchers, policymakers, and school administrators seeking to implement best practices in the classroom for struggling adolescent readers (Alvermann, 2000). Unfortunately, observation of secondary school practices frequently results in the realization that the seven principles developed by the CAL to target the needs of today’s struggling adolescent readers are absent from most students’ school experiences (Witkowski, 2004).

In a comprehensive report, the National Reading Panel (NRP) also determined that the lack of sound educational practices surrounding literacy skills in secondary schools should be considered an area of concern for our nation’s learners (NRP, 2000). The NRP was created by the National Institute of Child Health and Human Development (NICHD) in 1997 at the request of Congress. Congress charged the Director of the NICHD with the task of convening a national panel whose primary goals would be to evaluate current reading research and advise Congress and policymakers about the fundamental components of a reading program.

The NRP conducted a meta-analysis of the research by utilizing “comprehensive, formal, evidence-based analyses of the experimental and quasi-experimental research literature relevant to a set of selected topics judged to be of central importance in teaching children to read” (NRP, 2000, p. 1). While it was not possible within the timeframe provided for the panel to critically examine the 100,000 research studies on reading which had been published since 1966, topics were prioritized based on the group’s overall charge to determine the effectiveness of reading instructional approaches and methods. The final report consisted of over 600 pages and was used as the basis for the legislation of the No Child Left Behind Act passed in January 2002 (Yatvin, Weaver
& Garan, 2003). In its findings, the NRP concluded that reading programs should emphasize the five major components of reading acquisition: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary instruction, and (e) text comprehension. While phonemic awareness and phonics are foundational components of reading that are emphasized heavily at the elementary level, fluency, vocabulary instruction, and text comprehension are mechanisms that should be emphasized by schools in addressing the deficits of the struggling adolescent reader at the secondary level (Salingser, 2003).

Fluency

Fluent readers read texts accurately and quickly (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Fluent readers can also focus their cognitive energies on comprehending what they read, not on decoding individual words. Regardless of reading silently or orally, fluent readers group words into meaningful units and are able to make connections among the ideas in what they read (Salinger, 2003). Comprehension can be seriously impeded for students that struggle with fluency. For example, Rasinski and Padak (2005) conducted a study on reading fluency that focused on ninth grade students from a moderately sized urban school district. Findings indicated that students who read at an excessively slow rate, demonstrated comprehension levels much lower than students who did not struggle with fluency when reading the reading passages. The researchers found that “comprehension often suffered as students diverted their cognitive resources away from comprehension to word decoding” (p. 36).

Research on eye movements during reading has also helped to highlight differences between fluent readers and disfluent readers. For example, contrary to what most people believe, proficient readers do not scan text and predict words. Instead,
skilled readers quickly fixate on every word and letter in the text, processing the
information in a timely manner (Rayner, 1998). In addition, as proficient readers
strengthen their skills in the area of fluency, these readers begin to fixate more on content
words and less on function words such as the, of, to, and, etc. (Hardiman, 2003). This
increase in eye movement proficiency enables the fluent fourth grader to read about 125
words per minute (Curtis, 1990) and the proficient adult reader to read approximately 300
words per minute (Moats, 2001). Struggling adolescent readers, on the other hand, have
been found to read on average approximately 40 words per minute (Mercer et al., 2000).

While students who read well are often said to be fluent readers, poor readers are
often characterized as lacking fluency (Allington, 2001). Students who read more
frequently also appear to understand that good readers should be reading to the prosody
of speech patterns (Lamont, 2006). Poor readers, on the other hand, often spend greater
amounts of time sounding out words as opposed to making sentences sound like spoken
language. Opitz and Rasinski (1998) noted that instructing students on how to look for
written cues such as commas, quotations, and bold text assists students in learning how to
read with more prosody.

Reading practice is typically recognized as an important contributor to fluency
(NRP, 2000). The NRP found that two instructional approaches, each of which has
several variations, have generally been used to teach reading fluency. The first strategy,
guided repeated oral reading, involves students reading passages orally with regular and
specific feedback from the teacher.

The panel’s initial series of electronic searches identified 364 studies that were
potentially relevant to the effects of guided oral reading instructional practices (NRP,
2000). A total of 16 studies met the research methodology criteria set forth by the panel and were included in the meta-analysis. Results of the meta-analysis led the panel to conclude that guided repeated oral reading, often referred to as repeated reading because students read text several times until they have reached a targeted proficiency, had a significant and positive impact on word recognition, comprehension, and fluency when students received guidance from teachers, peers, or parents. The results were applicable to both good readers as well as those with reading deficits. Techniques for repeated readings include (a) teacher modeling by reading the text, then guiding students to read independently or as a group; (b) individual students reading orally with a partner; (c) students listening to a tape or compact disc of a story; (d) individual students reading to a partner or a computer in timed reading segments where rate and accuracy are charted; and (e) individual students reading to an adult volunteer or paraprofessional (Hardiman, 2003).

The second instructional strategy that the NRP found to be effective in teaching reading fluency was independent silent reading. According to the NRP (2000), “there has been widespread agreement in the literature that encouraging students to engage in wide, independent, silent reading increases reading achievement” (p. 12). The panel found hundreds of correlational studies which found that the strongest readers read the most and the weakest readers read the least. The studies suggest that the more students read, the stronger their fluency, vocabulary, and comprehension. The panel did caution, however, that correlation does not necessarily mean causation. It is possible that stronger readers simply choose to read more. Due to the fact that the NRP only identified 14 studies which met their rigorous research criteria, a meta-analysis could not be conducted. The 14
studies were examined on an individual basis in an effort to identify trends and findings in the data.

The findings regarding the use of independent silent reading when minimal guidance or feedback is provided to students were not as decisive as they were for repeated readings. While encouraging students to read more is supported by experts in the area of struggling adolescent readers, there is currently not sufficient evidence available from studies of high methodological quality to support the notion that the strategy can reliably increase how much students read or that programs that emphasize this practice will result in improved reading skills. The panel did note, however, that its findings should not “negate the positive influence that independent silent reading may have on reading fluency, nor negate the possibility that wide independent reading significantly influences vocabulary development and reading comprehension” (NRP, 2000, p. 13). In addition, the panel did conclude that the data do imply that independent silent reading is not an effective instructional practice when used as the sole source of reading instruction to develop fluency and other reading skills.

**Vocabulary Instruction**

Educators must emphasize the importance of building students’ reading, writing, speaking, and listening vocabularies, while sparking an interest in words, their meanings, and their power (Hardiman, 2003). Vocabulary is an essential ingredient in oral reading instruction (Allington, 2001). Some students who encounter an unfamiliar word in the text can decode the word to speech. If the word in question is already a part of the reader’s oral vocabulary, the student will more than likely be able to understand the meaning of the word. If the student does not understand the word in print, the reader will
have to determine the meaning in another way, such as using context clues in the passage. Thus, the greater the student's vocabulary, the greater the likelihood the student will be able to comprehend the text.

The findings of the NRP (2000) support the belief that vocabulary instruction does lead to improved comprehension. Fifty studies, reduced from 20,000 research citations, and representing 21 different methods were reviewed in detail. It was found that a systematic approach to vocabulary instruction does lead to improved reading comprehension, with computer-assisted instruction producing better results than traditional methods of instruction in several of the studies. The panel also recommended the use of the following strategies for increasing students' knowledge of vocabulary: (a) introducing vocabulary in text selections prior to reading the text, (b) having the student to encounter words in various contexts, (c) teaching vocabulary both directly and indirectly, and (d) the use of repetition. While the panel concluded that a great deal is known about the importance of vocabulary in improving reading achievement, they also cautioned that the research provides little insight into the best instructional methods or combinations of methods teachers should be using to teach vocabulary.

Researchers such as Biemiller (2000) contend that emphasis on vocabulary instruction is the missing link in reading programs across the country. Biemiller asserts that while many of our nation's students have learned to decode unfamiliar words, the skill is virtually worthless if the words are not a part of the reader's vocabulary or if the reader is unable to use such strategies as utilizing context clues to determine a word's meaning. Phonics skills do not necessarily transfer to gains in reading comprehension. Hirsch (2001) goes as far as to theorize that the gap in reading achievement between high
and low income students is primarily due to the underdeveloped vocabularies of disadvantaged students. For example, while Hirsch acknowledges that programs such as Direct Instruction and Success for All have increased disadvantaged students' skills in the areas of decoding and fluency, the researcher argues that vocabulary and comprehension skills for this group of students still lag behind their more affluent peers.

Text Comprehension

Enhancing students' skills in the decoding of words, fluency, and vocabulary leads students to the essential purpose of reading: text comprehension. Harris and Hodges (1995) define comprehension as "intentional thinking during which meaning is constructed through interactions between text and reader" (p. 207). The data suggest that students' comprehension of text is increased when readers are able to actively relate the ideas presented in print to their own knowledge and experiences and construct mental representations in memory (NRP, 2000). Thus, one means of improving students' comprehension levels would be through direct instruction of vocabulary. Stronger oral and print vocabularies can translate into greater background knowledge, which can lead to enhanced text comprehension (Hardiman, 2003).

While readers can acquire some reading comprehension strategies informally, an instructional framework has emerged among researchers for teaching reading comprehension. Salembier (1999), who refers to this framework as strategies instruction, defined the practice as "a dynamic process in which the reader works actively to construct meaning" (p. 23). The rationale behind the teaching of specific reading strategies is that comprehension can be improved by instructing students on how and when to utilize specific strategies and reason strategically when faced with difficulties.
regarding reading comprehension. In a study conducted by Dole, Brown, and Trathen (1996), basal readers were used with treatment and control groups to study the effects of strategy instruction on fifth and sixth grade students of average ability. The treatment groups received instruction in multiple comprehension strategies. The researchers determined that students who received strategies instruction were able to transfer their reading skills to content texts more frequently than the control group and that students in the control group comprehended text at significantly higher rates. Similar research has identified the most successful interventions for reading strategies as (a) integrating prior knowledge on the part of the reader; (b) questioning techniques before, during, and after reading; (c) constructing mental and graphic images representing meanings of text; (d) summarizing text; and (e) analyzing components and structure of the story (Hardiman, 2003).

The literature search by the NRP (2000) identified 481 studies that addressed issues and topics related to text comprehension since 1970. Of these studies, 205 met the NRP’s research criteria. While members of the panel identified 16 categories of text comprehension instruction, seven types of methods were found to have a reliable scientific basis for concluding these types of instruction could improve reading comprehension for struggling readers. It should be noted that the panel does not expect teachers to incorporate all seven methods during the course of a lesson. Certain lessons will lend themselves to one or more of the various types of methods, and particular students might benefit more from one approach than another. In addition, while a number of these types of instruction are beneficial when used alone, many are more effective when used as a part of a multiple strategy method. The following types of methods
identified by the NRP (2000) were found to improve students' comprehension in the context of specific academic areas, such as social studies:

1. Comprehension monitoring, where students are trained how to be aware of their knowledge of the material while engaged in reading;
2. Cooperative learning, where students are learning reading strategies together;
3. Use of graphic and semantic organizers, where students construct various graphics such as diagrams, webs, maps, charts, or maps in an effort to assist with reading comprehension;
4. Question answering, where students answer questions presented by the teacher and receive immediate feedback from the teacher;
5. Question generation, where students generate questions as they read throughout the story;
6. Story structure; where students learn to organize stories into categories such as events, setting, and outcomes which will then assist readers with the recall of story content in order to answer comprehension questions;
7. Summarization, where students are instructed to identify main ideas of text segments.

Making literacy a high priority means that useful processes for reading and comprehending content materials must be incorporated into courses across the curriculum throughout the middle school and high school years (Key, 2005). A weakness in reading comprehension, as opposed to an absolute inability to read, is the primary reason why large percentages of students in middle and high schools do not experience higher levels of success in reading (Allen, 2000). As noted earlier, in addition to not being able to draw
upon various reading comprehension strategies, many struggling adolescent readers lack skills in the area of fluency or are limited in their background knowledge or vocabulary. The fact that many adolescents do not spend as much time reading due to a minimal interest in reading material is also a reason why comprehension skills might be weaker for this aged child (Allington, 2001; NRP, 2000).

The RAND Reading Study Group (2002) report, which was prepared for the U.S. Department of Education’s Office of Educational Research and Improvement, revealed findings similar to the NRP’s in regards to important considerations for reading comprehension instruction. The report summarized the following information in its discussion of strategies to address deficits in reading comprehension:

1. An emphasis on reading fluency during a child’s primary years provides a strong foundation for gains in reading comprehension.
2. Students receiving instruction in meta-cognitive strategies have demonstrated improvements in reading comprehension. Direct instruction in setting a purpose for reading, monitoring one’s own level of comprehension, summarizing, questioning, and using graphic organizers can assist struggling readers in their efforts to comprehend text.
3. When students are able to see for themselves the benefits reading strategies can have regarding text comprehension, the strategies then become more purposeful and essential to reading.
4. Providing students with choices in reading, setting high expectations for learners, and instituting collaborative learning environments increases students’ motivation to read and levels of text comprehension.
5. Despite incorporating sound strategies designed to enhance reading comprehension, the standard classroom in both primary and upper elementary grades do not devote a sufficient amount of time and attention to improving reading comprehension.

Efficacy Studies on Computer Assisted Instruction in Reading

National Reading Panel Report

The report of the NRP (2000) supported the use of computers for reading instruction. In its report, the NRP analyzed 21 studies relating to the topic of computer-based instruction and reading achievement. The number of studies reviewed by the NRP was small due to the stringent research criteria and the fact that computer-based instruction in literacy is a relatively new field where the number of published studies is lacking. The findings of the meta-analysis, however, did suggest that it is possible to use computer technology for reading instruction; all of the studies reported positive results.

Three promising trends also emerged as a result of meta-analysis:

1. The ability of today's computers to incorporate speech to computer-presented text is promising and enhances the versatility of technology in reading instruction.

2. The use of text that is now able to link supporting information and audiovisuals, known as hypertext, may enhance conventional methods of reading instruction.

3. Because reading instruction is known to be most effective when integrated with writing instruction, the use of word processing components of technology programs may be beneficial.
The panel also noted that the effect of speech recognition programs and the use of multimedia presentations as they relate to computer technology and reading instruction were absent from the research. While a small number of studies investigating these issues can be found in literature reviews that incorporate studies using qualitative methodologies, the knowledge base on computer technology and literacy instruction is very limited (Alvermann, 2000).

Although significant advancements in technology have been made, many policymakers and educators have been hesitant to embrace the integration of technology into the classroom. Many educators in the middle grades, for example, have been reluctant to trust technology as a viable means for delivering literacy instruction in an effective manner. The mindset that technology is not a feasible tool for instruction, however, is beginning to change due to the emphasis placed on technology in the No Child Left Behind Act (2001). As a direct result of this legislation, a number of computer software publishers accelerated their efforts to update and design a variety of intervention programs. This response by major computer software publishers has created a renewed level of interest among district level and school administrators as an increased number of enhanced programs are now entering the marketplace (Jones, Staats, Bowling, & Bickel, 2004).

Until recently, computer-based technologies were not considered capable of delivering reading instruction in an effective manner. For example, there were no computer software programs capable of comprehending oral reading or judging its accuracy. Computers were also unable to accept free-form responses and, as a result, were forced to rely primarily on multiple-choice formats (NRP, 2000). Developments in
hardware and software have led to computers with advanced speech recognition
capabilities and multimedia presentation functions. In addition, advancements in web-
based programs have further increased interest in technology as a teaching tool.

As noted in the report of the NRP, computer technology is different from the
other areas analyzed by the NRP. According to the NRP, computer technology "cannot
be studied independently of instructional content and is not an instructional method in
itself" (NRP, 2000, p. 17). As a result, computer technology must be examined for its
ability to deliver instruction, for example, in vocabulary or phonemic awareness, and for
its ability to assess students in such areas as fluency and reading comprehension.

**READ 180™ from Scholastic, Inc.**

During the school year 1998-1999, Scholastic, Inc. entered into an agreement with
the Council of Great City Schools. The joint venture involved the implementation of
READ 180™ in seven of the largest urban school districts in the country. For example,
the Boston Public Schools, the Dallas Independent School District, the Houston
Independent School District, and the Columbus, Ohio Public Schools were included in
the partnership. Interactive, Inc. was contracted to conduct an independent validation
study in these seven districts, assessing the effectiveness of READ 180™ on struggling
readers in grades 6, 7, and 8. The study, published in January 2002, addressed the
following questions (Interactive, 2002):

1. What impact does READ 180™ have on student reading achievement and
   reading proficiency?

2. How faithfully did teachers implement READ 180™ and what factors mediate
   the level of implementation?
3. How is fidelity of implementation related to various student outcomes? Does more faithful implementation of READ 180™ result in greater student outcomes?

During the research process, Interactive, Inc. faced a number of validity concerns. For example, significant problems were encountered with program implementation. While some schools received support at the district level, other schools were forced to implement the program without much guidance. Upon realizing that issues of fidelity were severely threatening validity, Interactive, Inc. placed the classrooms into one of three categories: (a) Standard Implementation Model (completely and consistently followed the READ 180™ instructional model), (b) Modified Implementation Model (deviated in some significant way from the READ 180™ instructional model), and (c) No Implementation Model (not implementing READ 180™) (Interactive, 2002). Initially, 26 classrooms in the study were targeted to receive the treatment (READ 180™). Due to varying levels of program implementation, 13 out of 26 classrooms (50%) were classified as Standard, 11 (42%) were Modified, and two of the classrooms did not implement the program at all.

The study was originally designed to have seven districts with two middle schools in each district utilizing READ 180™ for 120 of their lowest achieving students in grades 6, 7, and 8. Across seven school districts, this would have created a sample size of 1,680 students. However, such factors as schedule changes, student mobility, testing complications, and parent requests caused the treatment group to be reduced from 1,680 to 1,182 students. The control group decreased from 1,680 to 888. Nonetheless, in cases
where comparisons could be made with some degree of confidence, findings were in favor of the treatment groups.

In reference to the first question posed by the study, what impact does READ 180™ have on student reading achievement and reading proficiency, the findings were favorable for two of the levels of implementation. For example, in all treatment classes with Moderate or Standard implementation, the difference in growth scores was significant or considerably significant for the treatment groups (Interactive, 2002).

The second question, how faithfully did teachers implement READ 180™ and what factors mediate the level of implementation, was significantly impacted by the amount of support provided or not at the building and district levels. Of the 26 classrooms, 50% fell into the Standard Model, 42% were representative of the Modified Model, and 7% were not implemented at all. Professional development, sustained support, technical support, and leadership were all factors which impacted implementation.

The last question, how is fidelity of implementation related to various student outcomes, also yielded results in favor of the treatment groups for those students who participated in classrooms with moderate to high levels of fidelity. In addition, while it is clear that study results do indicate that implementation of READ 180™ with Modified and Standard Models does lead to positive student outcomes for struggling adolescent readers, findings were not clear on whether Modified Models lead to greater gains than Standard Models.

A second validation study of READ 180™ (Scholastic, 2002) was conducted by the Des Moines Independent Community School District from 2000 to 2002. This two-
year evaluation focused solely on students with disabilities in grades six through eight in a total of 12 middle schools. Each school in the study was able to fully implement the program with high levels of fidelity, and in most cases instructional assistants were also assigned to each 90-minute class along with the special education teacher. Additional staff members, such as technology support, were also available to assist the special education teachers.

School psychologists in the Des Moines Independent Community School District collected pre- and posttest data on students using the Stanford Diagnostic Reading Test (SDRT), lexile levels, fluency probes, and a reading attitude survey (Scholastic, 2002). Reported findings by the school district indicated that significant gains were made in reading scores on all levels. For example, the mean lexile gain for the first year was 139 lexiles and the fluency gain was 15 words per minute. In addition, due to gains in reading fluency and comprehension, 18% of the students were dismissed from special reading classes as a result of the intervention for one year.

Students in the treatment group participating in the study for a second year demonstrated even greater gains (Scholastic, 2002). For example, the 108 students who participated in READ 180™ for two consecutive years demonstrated a mean lexile gain of 294 points. An expected gain would range from 180 to 280 lexile points. In addition, these students demonstrated a fluency gain of 31 words per minute over the two-year period. The study also indicated that greater gains in all areas were made during the first year and that program fidelity was believed to contribute greatly to student success.

In a study conducted by Witkowski (2004), sixty-three high school level, learning disabled/language impaired students were identified as reading at least two years below
grade level. In an effort to address the needs of struggling adolescent readers in this Midwest suburban high school, two reading programs were initiated: (a) the computer-based program READ 180™ and (b) a content area reading program called Reading in the Content Area of World or U.S. History. A third program, English Support, was developed to assist students with the reading and writing demands of the regular education English classes. Based on credit needs and scheduling demands, students were assigned to one of these three programs. The study was a nonequivalent, control-group design developed to examine the efficacy of these three different approaches for struggling adolescent readers.

Students were tested in the fall of the year on two separate measures. The Gates MacGinitie Reading Tests were administered to test reading comprehension levels, and the BJP Middle/Secondary Reading Attitude Survey was administered to assess students' attitudes towards reading. Following seven months of participation in one of the three programs, students were retested using the same measures.

A repeated measures analysis of variance was used to compare pre- and posttest mean scores. Findings indicated that the Reading in the Content Area Program produced significantly better gains in reading comprehension than did READ 180™ or the English Support Programs. Witkowski (2004) also reported that there were no significant changes in reading attitudes across time in any of the three groups. Witkowski did note possible reasons why students in the Content Area Program fared better than READ 180™ participants. First, the Content Area Program allots considerably more time to building background knowledge and does so in more of an interactive manner than the video clips watched by students on the computer in READ 180™. Secondly, perhaps the greater
emphasis placed on writing in the Content Area Program enabled students to make more connections to text and to strengthen their vocabularies at a faster rate.

Denman (2004) conducted an independent evaluation of the computer-based program READ 180™. Through the use of surveys, focus groups, student interviews, classroom observations, and pre- and posttests, attitudes toward reading and achievement in reading were measured for experimental and control groups. The Scholastic Reading Inventory, the Gates MacGinitie Reading Tests, and the STAR Reading assessment were utilized to assess levels of reading proficiency.

Denman (2004) found that students who participated in READ 180™ for one school year developed more positive attitudes toward reading and increased achievement levels one year or more (on average) using the three testing measures noted above. In general, students in the experimental group outperformed the control group. For example, students in the experimental group demonstrated greater gains in mean scores on the STAR as compared to students in the control group. The STAR was first administered to students in September, at which time students in the experimental group (N=44) posted a mean grade equivalency (GE) of 3.3, while students in the control group (N=41) posted a mean GE of 2.1. The difference in scores was due to the placement of students with disabilities on an inclusion team. When midyear assessments were administered in February, mean GE scores for experimental and control groups were 3.8 and 2.3 respectively. Denman also noted that, due to complications with the software at times, the experimental group did not actually receive six months of proper implementation. Due to scheduling demands in the computer labs, only the experimental group was able to complete the third STAR assessment (mean GE 4.4).
Denman’s (2004) data for normal curve equivalents and grade equivalents support the notion that READ 180™ could be a beneficial computer-based program used to improve the literacy skills of struggling adolescent readers. In addition, students who participated in READ 180™ developed more positive attitudes towards reading as evidenced by data from the surveys, student focus groups, and student interviews.

Denman’s research also identified low motivation, low confidence, and varied learning preferences as the three major obstacles that struggling readers face. The protocol of the READ 180™ program, particularly the technology component of the program, directly and indirectly address these issues through a variety of embedded routines and practices.

As the READ 180™ program has increased in popularity across the United States, a number of unpublished studies on a smaller scale have begun to surface and are available for review on the Scholastic web site. Table 1 summarizes several of these studies and their results after one or more years of implementation in programs since 2001 (Scholastic, 2006). All of these studies represent middle school settings with either diverse student populations or low-income families. It is important to note, however, that information pertaining to Lexile² growth was not available for control group participants in the following studies.

² Note. Details regarding Lexiles will be provided in Chapter III.
<table>
<thead>
<tr>
<th>Middle School/Population</th>
<th>City, State</th>
<th>Avg. Increase in Lexile/time period</th>
<th>% gains in Lexile scores &gt; 200 points</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Holmes</strong></td>
<td>Alexandria, VA</td>
<td>188 points in one year</td>
<td>50%</td>
<td>15 students – 82% of all students improved Lexile scores</td>
</tr>
<tr>
<td>African-American 22%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian-American 17%</td>
<td></td>
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<tr>
<td>Hispanic 24%</td>
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</tr>
<tr>
<td>White 38%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free or reduced 41%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Washington</strong></td>
<td>Kenosha, WI</td>
<td>142 points in one year</td>
<td>27%</td>
<td>26 students – 81% of all students improved Lexile scores</td>
</tr>
<tr>
<td>African-American 18%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Asian-American 1%</td>
<td></td>
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<tr>
<td>Hispanic 25%</td>
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<tr>
<td>White 56%</td>
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<tr>
<td>Free or reduced 27%</td>
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<tr>
<td><strong>South Ocean</strong></td>
<td>Patchogue, NY</td>
<td>88 points in one year</td>
<td>40%</td>
<td>25 students – 80% of all students improved Lexile scores</td>
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<tr>
<td>African-American 4%</td>
<td></td>
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<tr>
<td>Asian-American 2%</td>
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<tr>
<td>Hispanic 15%</td>
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<tr>
<td>White 79%</td>
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<tr>
<td>Free or reduced 26%</td>
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<tr>
<td><strong>Carmen Ace</strong></td>
<td>Bloomfield, CT</td>
<td>375 points in one year</td>
<td>80%</td>
<td>33 students – 94% of all students improved Lexile scores</td>
</tr>
<tr>
<td>African-American 86%</td>
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<tr>
<td>Asian-American 1%</td>
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<tr>
<td>Hispanic 5%</td>
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<tr>
<td>White 8%</td>
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<tr>
<td>Free or reduced 26%</td>
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<tr>
<td><strong>Rogers</strong></td>
<td>Boston, MA</td>
<td>107 points in one year</td>
<td>63%</td>
<td>24 students – 92% of all students improved Lexile scores</td>
</tr>
<tr>
<td>African-American 63%</td>
<td></td>
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<tr>
<td>Asian-American 1%</td>
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<tr>
<td>Hispanic 11%</td>
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<tr>
<td>White 11%</td>
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</tr>
<tr>
<td>Free or reduced 77%</td>
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</table>
Summary

Secondary educators are faced with the difficult task of improving the literacy skills of struggling adolescent readers who arrive at the middle school level lacking the skills necessary to be successful in an environment that primarily focuses on the learning of content material. It is imperative that educators at the secondary level working with this group of students have a knowledge base of the best practices in literacy as well as the literacy needs that accompany this aged child. For example, while content teachers outside the area of language arts do not need to be experts regarding the topic of struggling adolescent readers, these teachers should be able to demonstrate an understanding of the needs of these students and effective strategies which have been identified in the research to improve students’ reading comprehension.

It is also vital that secondary principals, whose impact on student achievement has been documented, provide an environment that encourages and promotes professional development in literacy instruction so that (a) secondary teachers do incorporate reading strategies in content areas, (b) a culture of literacy can be established through the implementation of school wide literacy practices, and (c) a belief system that supports the importance of literacy is adopted by all stakeholders (Key, 2005). As the expectations regarding achievement for all students have been raised to significantly higher levels, a renewed focus on instructional leadership for principals is paramount. The primary responsibility of today’s principal is to facilitate teaching and learning with an overall objective of enhancing student achievement (Booth & Roswell, 2002).

National testing data indicate that the proportion of students entering middle and secondary programs who read below a level of proficiency is disturbingly high (NCES,
The data also indicate that students in the United States have made little progress in reading achievement over the last 15 years. For example, the percentage of Grade 8 students in Virginia reading at or above the proficient level between 1992 and 2002 increased slightly from 33% to 38%. Thus, not only will it be important for educators to monitor student achievement through periodic assessments, it will also be crucial to disaggregate assessment data so that remediation and instruction efforts can take place on the individual student level.

Assessment data should also be used to monitor the reading progress of subgroup populations outlined in NCLB and to identify and implement effective research-based strategies in an effort to close the achievement gap. For example, schools should not only be able to inform stakeholders of how well such subgroup populations as economically disadvantaged students, students with disabilities, and minority students are performing on state assessments in the area of reading, it is essential that schools also identify and incorporate proven strategies into school learning plans to address these subgroups. For instance, incorporating a culturally relevant framework in reading instruction is one strategy researchers recommended for use with African-American students (Gay, 2000; Ladson-Billings, 1995; Tatum, 2000).

The research regarding populations of all students who struggle to read and write beyond the third grade reveals that there is no magic bullet or one-size-fits-all solution (Allington, 2001). It is important to note that reading development should be viewed as a continuum, creating an environment in secondary schools were specific, research-based strategies are incorporated into teachers’ daily lessons (Witkowski, 2004). For example, research has identified that direct instruction in vocabulary, placing an emphasis on
fluency, and teaching students specific strategies for reading comprehension and when to use them can be effective means to improving the reading abilities of adolescents (NGA, 2005; NRP, 2000; Rand, 2002). In addition, one cannot discount the importance of the variable time plays, as it is a critical component to a comprehensive approach to supporting literacy (Rasinski & Padak, 2005; Roe, 2004). Fortunately, the research base surrounding adolescent literacy is growing, and the amount of federal funding which is being allocated to research the issue is increasing (NGA, 2005).

The report of the NRP (2000) also supported the use of computers for reading instruction. While many policymakers and educators have been hesitant to embrace the integration of technology into the classroom, significant advancements in both hardware and software appear to be strengthening the capabilities of software offerings and increasing the number of educational programs on the market designed specifically to address students’ reading deficiencies. Once such program, which is growing in popularity throughout the United States, is READ 180™ by Scholastic, Inc.

Improving the literacy skills of adolescents who failed to obtain these foundational proficiencies during the elementary school years is possible, as is the probability of increasing the literacy skills of adolescents already reading on grade level. As declared by the IRA (Moore et al., 1999), there is a need for widespread efforts to support continued development of adolescents as readers and writers. There is no question that the skills adolescents entering the adult world in the 21st century will need to succeed will demand proficiencies in literacy.

Chapter III will present the methods and procedures that were used to address the five research questions outlined in Chapter I. This section will also describe the sample
used in the study, the setting, and a description of the READ 180™ program. A discussion of measures will be presented, including information pertaining to independent and dependent variables.
CHAPTER III: METHODOLOGY

The major purpose of this study was to evaluate the impact of the reading intervention program READ 180™ on struggling adolescent readers in grades 6, 7 and 8 at ABC Middle School. A nonequivalent control-group design was employed. Paired sample t tests were used to determine if there were any significant differences between the groups at the outset of this study. A mixed-design analysis of variance (ANOVA) was performed to compare group means regarding growth in reading proficiency. In addition, 2X3 factorial ANOVAs were used to determine whether there were statistically significant differences between groups on the remaining dependent variables (Gall, Gall, & Borg, 2003). The research methodology addressed in this chapter will be divided into the following sections that present a discussion of (a) the research questions, (b) the setting, (c) the sample, (d) generalizability of the study, (e) the design of the study, (f) the variables of interest, (g) the instrumentation, (h) data collection procedures, (i) data analysis procedures, and (j) ethical safeguards.

Research Questions

The research questions are as follows:

1. What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?

2. Is there a statistically significant difference (p < .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?
3. Is there a statistically significant difference (p < .05) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

4. Is there a statistically significant difference (p < .05) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

5. Is there a statistically significant difference (p < .05) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

Setting

The site for the study was an urban middle school located in southeastern Virginia. During the 2005-2006 school year, ABC Middle School served approximately 1,175 students from a mixed socioeconomic area and a diverse population. The student population at ABC Middle School for 2005-2006 was 50% Caucasian, 43% African American, 2% Asian, and 2% Hispanic. In addition, the school had a 45% free and reduced meal rate, 13% special education population, and a student attendance rate of 95%. Based on 2004-2005 data regarding state accreditation standings and Adequate Yearly Progress (AYP), ABC Middle School was a fully accredited school that had earned AYP status each year since the 2002-2003 school year.
Sample

The participants targeted for this study were students in grades 6, 7 and 8 at ABC Middle School who demonstrated deficits in reading skills. The sample consisted of 120 students. The experimental group and the control were each comprised of 60 students.

The control group consisted of 60 students, 20 students per grade level, not enrolled in the reading intervention program READ 180™. In addition to being matched by grade level, gender and ethnicity, students in this group were identified by matching pretest scores with READ 180™ participants on an assessment of reading comprehension administered at the beginning of the school year. Students in the control group did not receive any remediation efforts to address reading deficiencies during the school day aside from the regular instruction and assistance students were provided within their language arts classrooms. In addition to the 55 minutes a day of instruction in language arts, students in the control group participated in a 20-minute period of silent sustained reading each school day.

The experimental group was comprised of 60 students, 20 students per grade level, enrolled in the reading intervention program READ 180™. Participants in this group were selected using pretest scores on an assessment of reading comprehension administered at the beginning of the school year and by teacher recommendations. In addition to the 75 minutes a day of language arts related instruction students in the control group were exposed to (55 minutes of instruction in the language arts classroom and 20 minutes of silent sustained reading), students in the experimental group received 90 minutes of supplementary assistance every other school day in language arts through
this reading intervention program. The following is a description of the READ 180™ program.

**READ 180™**

READ 180™ is a reading intervention program developed by the Scholastic Publishing Company to address the needs of underachieving readers in Grade 4 and above (Scholastic, 1999). The software component of the program was developed by Dr. Ted Hasselbring and the Cognition and Technology Group at Vanderbilt University in 1985. Known as the Peabody Literacy Lab, this interactive software system was researched for several years in both classroom and clinical settings during the late 1980’s. In the mid-1990’s, the Peabody Literacy Lab became one of two components involved in a massive undertaking to address the needs of underachieving readers in Orange County, Florida. The second component of this project was a literacy-workshop model developed by Dr. Jane Allen, Associate Professor of Education at the University of Central Florida (Witkowski, 2004). The Orange County Literacy Project, which was heavily based in sound literacy practices, became the foundation for the instructional model used in READ 180™ (Scholastic). Since its inception in 1994, “more than 10,000 students overall have participated in the Orange County program, gaining on average one to two years’ growth in their reading grade level each year” (Daly, 2003, p. 2).

Scholastic Publishing Company first expressed an interest in the two components used in the Orange County Literacy Project after becoming aware of the extraordinary results witnessed in Orange County. The company then pursued an arrangement with Orange County and Vanderbilt University to further develop the two components of the project and publish the protocols into a format that could be sold. The end result was the
READ 180™ program which incorporates an updated software component from Vanderbilt University, replicates all the best literacy practices from the Orange County Literacy Project, and adopts the Lexile leveling system developed by Dr. Jack Stenner of Metametrics (Denman, 2004). The Lexile Framework for Reading provides a measurement that matches literature to the reader and is predictive of comprehension success.³

The instructional model for READ 180™ is comprised of a 90-minute time block, divided into several rotations. Typically, each class period begins with a 20-minute whole group activity, such as a read aloud, vocabulary lesson, team-building exercise, or an additional activity planned by the teacher which focuses on one or more specific skill areas.

Following the whole group activity, the class is divided into three smaller groups of four or five students. During this period of time, students rotate among three 20-minute stations. The first rotation is the workshop, where students receive direct instruction by a teacher in a small group setting. Guided reading activities often take place in this station. A second station is the computer. This rotation requires students to work independently, interacting with the program’s software. The database on the computer tracks each students’ progress and provides differentiated instruction based on students’ responses as they work their way through the three zones (spelling, word, and reading). Upon successful completion of the three instructional zones, a formative evaluation is administered which provides feedback to the instructor on the level of success for each student in each zone. After demonstrating effectiveness in the success zone, students

³ Note. Details regarding Lexiles will be provided within the Instrumentation section of Chapter III.
move into another segment on the topic CD. The third station is the independent area
where students read silently, listen to books-on-tape, or respond in writing to something
they have recently read. This workstation is often about student choice. The final piece of
the instructional model involves the class coming back together as a whole group for a
closing session.

The program provides a total of nine topic CDs with four segments on each CD.
Each segment begins with a digital video clip on a high-interest topic the students will
encounter within the text they will read and the vocabulary they will study. The preview
of information through the use of the video clip is an effective means for providing
background knowledge and for setting a purpose for reading. The lack of ability to create
mental models of what students are reading is one reason why students experience
difficulty with reading comprehension (Allington, 2001). The video clips run from 60-90
seconds in length.

Generalizability

The generalizability of this study is limited by the characteristics of the sample
population. While findings could be generalized through logical inference to a larger
population having similar characteristics (i.e., students in grades 6, 7 and 8 at ABC
Middle School who demonstrate deficiencies in reading), concerns regarding external
validity do exist. For example, the sample was nonrandom in nature and drawn from an
accessible population rather than the target population. As a result, generalizing the
results to the target population is risky. In addition, this study incorporated a novel
experimental treatment, where positive results could have been produced simply because
the subjects responded to the uniqueness of the intervention program as opposed to the actual treatment (Gall, Gall, & Borg, 2003).

**Design**

This study employed a nonequivalent control-group design that examined the growth that took place in the participants’ reading comprehension during the course of one school year, as well as their performance on year-end tests of achievement in language arts and mathematics. In this quasi-experimental design, six intact classes of students participating in the reading intervention program READ 180™ were compared to an equal number of students not participating in the program on various dependent variables. Table 2 summarizes the descriptive statistics used to analyze the data collected.

**Table 2**

*Summary of Descriptive Statistics Used to Analyze Data Collected*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Analysis</th>
<th>Instrumentation</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?</td>
<td>Mixed-Design ANOVA</td>
<td>Scholastic Reading Inventory (SRI)</td>
<td>Fall 2005, Spring 2006</td>
</tr>
<tr>
<td>Q2. Is there a statistically significant difference (p &lt; .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?</td>
<td>2X3 Factorial ANOVA</td>
<td>Virginia Standards of Learning (SOL) Assessment in Reading</td>
<td>Spring 2006</td>
</tr>
</tbody>
</table>
Table 2 (continued)

Summary of Descriptive Statistics Used to Analyze Data Collected

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Analysis</th>
<th>Instrumentation</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3. Is there a statistically significant difference (p &lt; .05) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?</td>
<td>2X3 Factorial ANOVA</td>
<td>Virginia Standards of Learning (SOL) Assessment in Mathematics</td>
<td>Spring 2006</td>
</tr>
<tr>
<td>Q4. Is there a statistically significant difference (p &lt; .05) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?</td>
<td>2X3 Factorial ANOVA</td>
<td>Virginia Standards of Learning (SOL) Assessment in Reading</td>
<td>Spring 2006</td>
</tr>
<tr>
<td>Q5. Is there a statistically significant difference (p &lt; .05) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?</td>
<td>2X3 Factorial ANOVA</td>
<td>Virginia Standards of Learning (SOL) Assessment in Mathematics</td>
<td>Spring 2006</td>
</tr>
</tbody>
</table>

Note. The mixed design ANOVA for research question one was conducted three times to examine the impact at each grade level (i.e., grades 6, 7, and 8).
Variables of Interest

Independent Variable

The independent variable was the reading intervention program READ 180™. Participants in the experimental group participated in READ 180™ via 90-minute periods using a block schedule. For example, utilizing a block schedule with a Day 1 and a Day 2, the student would have attended physical education class on Day 1 and READ 180™ on Day 2. In addition, all participants in both the experimental group and the control group attended classes in language arts and participated in silent sustained reading on a daily basis.

Dependent Variables

The dependent variable for the first research question (What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?) was the posttest scores on the SRI from the 2005-2006 school year. The participants’ scale scores on the 2005-2006 administration of the Virginia SOL in reading served as the dependent variables for research question two (Is there a statistically significant difference (p < .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?) and research question four (Is there a statistically significant difference (p < .05) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?). The dependent variable for the third research question (Is there a
statistically significant difference (p < .05) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?) and the fifth research question (Is there a statistically significant difference (p < .05) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?) was the participants’ scale scores on the 2005-2006 Virginia SOL assessment in the subject area of mathematics.

Instrumentation

Scholastic Reading Inventory (SRI)

Participants in both the experimental and the control groups were assessed twice during the 2005-2006 school year on the SRI; once in the fall and once in the spring. While the SRI is an assessment tool that is included in the READ 180™ package, it was not developed for use with this particular reading program. The SRI is an evaluation instrument that can and is used independently from READ 180™ (Denman, 2004).

The SRI is available in print and through an interactive program, and it is designed for use in classrooms or in computer labs (Scholastic, 1999). For the purposes of this study, participants utilized the interactive program. With this version of the SRI, participants took the computer-adaptive reading comprehension assessment, which consisted of answering comprehension questions from a bank of over 3,000 questions. The items were based solely on nonfiction and fictional reading passages from children’s literature, as well as excerpts from periodicals, newspapers, magazines, and young adult and classic literature (Thomas, 2005). Results from the SRI are reported in both norm-
referenced and criterion-referenced terms, indicating students’ reading comprehension levels through percentile ranks, grade equivalency scores, normal curve equivalent scores, and Lexile scores.

The Lexile Framework for Reading is an educational tool that measures both a reader’s ability and a text’s level of difficulty with the same scale; the Lexile scale (Scholastic, 2002). The Lexile scale is a developmental scale for reading ranging from 200L for beginning readers to above 1700L for advanced readers (Appendix B). The Lexile Framework also incorporates a Lexile measure. This feature of the framework allows educators to predict the level of comprehension a reader will experience with a particular text. For example, if a student has a Lexile score of 600 (600L) and he chooses a book that has been identified as having a 600L (a difference of 0L), the Lexile Framework for Reading would suggest that the student should be able to read the text with a comprehension level of 75%. The rate of projected comprehension adjusts as students select texts that have been labeled with a Lexile score that is higher or lower than the student’s identified Lexile score. For instance, if the same student (600L) chooses a text with an 850L, the difference of -250L would suggest that, while the text might be sufficient for guided reading purposes, the text would not be suitable for a silent sustained reading activity because the projected level of comprehension would fall to 50%. The Lexile Framework for Reading can assist in developing students to become stronger independent readers (Denman, 2004). Stenner (2001) states:
There are many purposes for reading, and forecasted comprehension rates should vary accordingly, but leaving comprehension rate to vary uncontrolled from child to child, context to context, and reading purpose to reading purpose is one reason why many children choose not to read. Just because the marketing sweet spot for Harry Potter is 10-year-olds does not mean that the book is a “fourth grade” book. It is a 910L book with broad appeal across the age span. (p. 42)

The Lexile system was developed by MetaMetrics, Inc., in 1984 by Dr. A. Jackson Stenner (Scholastic, 2002). The National Institute of Child Health and Human Development (NICHD) provided funding for MetaMetric’s work regarding this initiative through a grant designed to support research on reading and psychometric theory. Scholastic, Inc., first began collaborating with MetaMetrics in 1998.

*Virginia Standards of Learning (SOL) Assessments*

Participants in both the experimental and the control groups were assessed during the spring of the 2005-2006 school year with the Virginia SOL assessments in the areas of reading and mathematics. Created in 1995 by the Board of Education of the Commonwealth of Virginia, the SOL set reasonable targets for what teachers in the state are expected to teach and what students are expected to learn (Virginia Standards of Learning Technical Report [VASOLTR], 2005). The SOL assessments in reading and mathematics are criterion-referenced tests that are composed of multiple-choice items. The assessments are designed to test all of the SOL content except where noted on the assessment blueprints established by the Board. While earlier SOL tests administered by the state were cumulative in nature (i.e., students in middle schools would not test in the
area of mathematics until Grade 8), current requirements in Virginia's middle schools

call for testing at each grade level (i.e., grades 6, 7, and 8) for both of these content areas.

In Virginia's SOL, there are three performance categories, labeled, Did Not Pass,
Proficient, and Advanced. Student scores for each content area are reported in the form of
scale scores. For example, based on an ability scale corresponding to standards-
referenced criteria, a scale score of 400 was linked to the cut point between Below
Proficient and Proficient, and a scale score of 500 was linked with the cut scores between
Proficient and Advanced. A scale score of 600 was set to correspond to a perfect raw
score.

Regardless of what form of a particular SOL assessment a student takes, or the
administration year of a particular SOL assessment, a student would require the same
level of ability to obtain a scale score of 400 for proficiency, and a scale score of 500 for
advanced (VASOLTR, 2005). In addition, while the scale scores cannot be compared
across different SOL assessment content areas, the scores can be used for comparisons
within an SOL assessment. The most recent cut scores established by the Board of
Education for the content areas of reading and mathematics are depicted using raw
numbers in Appendix C.
Data Collection Procedures

The SRI was administered to all students in grades 6, 7 and 8 at ABC Middle School during the first two weeks of the 2005-2006 school year. Results from these assessments, as well as teacher recommendations and a child’s overall scholastic record, were used to determine student placement for the 60 slots available for participation in READ 180™. Working closely with guidance counselors at each grade level, the school’s reading specialist selected 20 students from each grade level as program participants. The classes for READ 180™, which operated on a block schedule, were comprised of 10 students per class, and instruction began during the third week of school. Thus, the school’s reading specialist, the person responsible for teaching the reading intervention, saw a total of 30 students each day (i.e., 10 students per grade level for each class). With students attending the READ 180™ class in lieu of their physical education or elective class, this enabled the reading specialist to see all 60 participants in the program over the course of two school days. Students in the READ 180™ classes comprised the experimental group. A group of 60 students (20 per grade level) who did not participate in any special intervention, and matched using pretest scores on the SRI, was chosen for comparison purposes and comprised the control group.

Participants received instruction in language arts for the entire school year. The control group received instruction in language arts for approximately 55 minutes each school day through their English teachers. In addition to the daily 55 minutes of regular classroom instruction in language arts, students in the experimental group received 90 minutes of instruction every other school day while participating in READ 180™. Table 2 highlights when data was collected for each dependent variable.
Data Analysis

Quantitative strategies, primarily descriptive statistics, were used to analyze the data collected to determine if any significant differences existed between the two groups on any of the measures. Baseline data were collected at the outset of the study, as pretest means on the Scholastic Reading Inventory (SRI) were compared using paired samples t tests to determine if there were any significant differences between the groups for each of the three grade levels. A mixed-design analysis of variance (ANOVA) was conducted to compare group means regarding growth in reading proficiency on the SRI. In addition, 2X3 factorial ANOVAs were used to determine whether there were statistically significant differences in math and reading achievement scores for students who participated in the READ 180™ program compared to those who did not. An alpha level of .05 was used to determine statistical significance for research questions one through five, and the SPSS computer program was utilized to analyze the data.

Data for question one (What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?) was analyzed using a mixed-design ANOVA for the dependent variable (SRI). The independent variable was the reading intervention program READ 180™. A significance level of .05 was established for testing the differences between pre- and posttests on the SRI.

To answer question two (Is there a statistically significant difference (p < .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?) the data was analyzed using a 2X3 factorial ANOVA. The dependent

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variable analyzed for this question was the Virginia SOL assessment in reading. The independent variable was the reading intervention program READ 180™. A significance level of .05 was established for testing the differences between the control group and the experimental group on the dependent variable.

Data for question three *(Is there a statistically significant difference \( p < .05 \) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?)* was analyzed using a 2X3 ANOVA. The dependent variable analyzed for this question was the Virginia SOL assessment in mathematics. The independent variable was the reading intervention program READ 180™. A significance level of .05 was established for testing the differences between the groups of participants on the dependent variable.

To answer question four *(Is there a statistically significant difference \( p < .05 \) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?),* the data was analyzed using a 2X3 ANOVA. The dependent variable analyzed for this question was the Virginia SOL assessment in reading. The independent variable was the reading intervention program READ 180™. A significance level of .05 was established for testing the differences between the control group and the experimental group on the dependent variable.

Data for question five *(Is there a statistically significant difference \( p < .05 \) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who*
do not participate in the program in grades 6, 7, and 8?) was analyzed using a 2X3 ANOVA. The dependent variable analyzed for this question was the Virginia SOL assessment in mathematics. The independent variable was the reading intervention program READ 180™. A significance level of .05 was established for testing the differences between the groups of participants on the dependent variable.

Ethical Safeguards

This study was conducted in a manner that protected the anonymity of each participant in the study. The study was found to comply with appropriate ethical standards and was exempted from the need for formal review by the College of William and Mary Protection of Human Subjects Committee (Phone 757-221-3966) on February 2, 2007.
CHAPTER IV: ANALYSIS OF RESULTS

The purpose of this study was to analyze the impact of the reading program READ 180™ on struggling adolescent readers in grades 6, 7 and 8 in an urban middle school located in southeastern Virginia. A nonequivalent control-group design was used to examine gains in reading achievement on the Scholastic Reading Inventory (SRI), as well as contrast participants' scale scores from the 2006 administration of the Virginia Standards of Learning (SOL) assessments in the content areas of reading and mathematics. This study sought to answer five research questions.

1. What is the mean growth in reading proficiency experienced by students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program?

2. Is there a statistically significant difference (p < .05) in reading achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

3. Is there a statistically significant difference (p < .05) in math achievement scores for students who participate in the READ 180™ program as compared to students of similar ability levels who do not participate in the program in grades 6, 7, and 8?
4. Is there a statistically significant difference (p < .05) in reading achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

5. Is there a statistically significant difference (p < .05) in math achievement scores for African-American students who participate in the READ 180™ program as compared to African-American students of similar ability levels who do not participate in the program in grades 6, 7, and 8?

The general question of the study was as follows: Does participating in the READ 180™ program at ABC Middle School for a total of 90 minutes every other school day for one school year positively impact students' academic achievement as indicated by performance on identified achievement tests? To investigate this question, the academic performance of 120 middle school students with deficiencies in reading was analyzed. This study used a mixed-design analysis of variance (ANOVA) and 2X3 factorial ANOVAs to determine whether the differences between the scores of the experimental group and the control group on the dependent variables were statistically significant (Gall, Gall, & Borg, 2003).

This chapter presents the results of the statistical analyses of the data from this study. The chapter will begin with a description of the sample. Next, the results of the data analyses are discussed, and the research questions are examined in light of the statistical results.
Description of the Sample

ABC Middle School served a mixed socioeconomic area and a diverse population of 1,175 students during the 2005-2006 school year (50% Caucasian, 43% African-American, 2% Asian, and 2% Hispanic). Approximately 45% of the students in this urban school received a free or reduced meal rate during the 2005-2006 school year, and 13% of the students were identified as disabled. There were a total of 120 students involved in this study. The experimental group and the control group were each comprised of 60 students. Table 3 provides a description of the subjects in regard to gender and ethnicity for each grade level.

Table 3

<table>
<thead>
<tr>
<th>Gender and Ethnicity</th>
<th>Gr 6 f</th>
<th>Gr 6 %</th>
<th>Gr 7 f</th>
<th>Gr 7 %</th>
<th>Gr 8 f</th>
<th>Gr 8 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American Female</td>
<td>22</td>
<td>55</td>
<td>20</td>
<td>50</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>African-American Male</td>
<td>10</td>
<td>25</td>
<td>20</td>
<td>50</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>White Female</td>
<td>4</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>White Male</td>
<td>4</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
<td>40</td>
<td>100</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note. Subjects in the control group were matched with subjects in the experimental group in regard to gender, ethnicity, grade level and SRI pretest scores. Dividing each number per grade for gender and ethnicity by two details the exact number of subjects in the control group and the experimental group for each grade level by gender and ethnicity.*
The control group consisted of 60 students, 20 students per grade level, not enrolled in the reading intervention program READ 180™. Students in this group were identified by matching Scholastic Reading Inventory (SRI) pretest scores from a September 2005 administration of the SRI to pretest scores from students in the experimental group who completed the assessment during the same timeframe. In addition, participants in the control group were matched to participants in the experimental group using the criteria of gender, ethnicity, and grade level.

The experimental group was comprised of 60 students, 20 students per grade level. Participants in this group were enrolled in the READ 180™ reading intervention program for one school year. Participants in the experimental group were selected using SRI pretest scores from September 2005 and by teacher recommendations. In addition, based on objectives noted in the school’s 2004-2006 School Learning Plan to decrease an identified gap in reading achievement between African-American students and white students, African-American students comprised a larger percentage of students for each class section of READ 180™. For example, the percentages of African-American participants enrolled in READ 180™ during the 2005-2006 school year were 80% for Grade 6, 100% for Grade 7, and 85% for Grade 8.
Equivalence of the Intervention Groups

Statistical analyses were conducted to ensure the two groups were initially equivalent. As noted in the description of the sample, in addition to being matched using the criteria of gender, ethnicity, and grade level, participants in the control group were selected using pretest scores from the SRI administered in September 2005. In order to calculate the means of the pretest scores for the two groups, paired-samples $t$ tests were used for each grade level. The pretest scores of the groups were compared using the $t$ tests to determine if any differences between the groups existed. Table 4 includes the means and standard deviations of the SRI for both groups by grade level. Table 5 includes the means and standard deviations of the paired differences.

Prior to analyzing posttest scores on the SRI and scale scores on the Virginia SOL assessments, it was necessary to determine that participants were reading on the same levels at the beginning of the 2005-2006 school year. The findings in Table 4 and Table 5 confirm that there were no significant differences between the two groups' reading comprehension levels as of September 2005. For example, Table 4 indicates that there was little variation between mean scores on the SRI pretest among participants in the experimental and control groups for grades 6, 7 and 8. While the mean Lexile scores (Table 4) for participants in the control groups were slightly higher for each grade level on the pretest, it is important to note that scores on the Lexile Framework span a wide scale, ranging anywhere from 100L to greater than 1700L. Thus, the differences in pretest means on the SRI for students in grades 6 ($N = 40, M = -.85, SD = 10.35$), 7 ($N = 40, M = -3.45, SD = 10.78$) and 8 ($N = 40, M = -2.50, SD = 8.74$) were minimal and insignificant ($p > .05$). Table 5 also indicates that the means of the paired differences were
insignificant for the experimental and control groups in grades 6, \( p = .72 \ (72 > .05) \), 7, \( p = .17 \ (17 > .05) \), and 8, \( p = .22 \ (22 > .05) \).

Table 4

*Means and Standard Deviations for Scholastic Reading Inventory (SRI) Pretest*

<table>
<thead>
<tr>
<th>Group</th>
<th>( N )</th>
<th>( M )</th>
<th>( SD )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>721.05</td>
<td>57.23</td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>721.90</td>
<td>59.90</td>
</tr>
<tr>
<td>Grade 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>751.95</td>
<td>57.06</td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>755.40</td>
<td>57.17</td>
</tr>
<tr>
<td>Grade 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>20</td>
<td>814.75</td>
<td>64.04</td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>817.25</td>
<td>62.15</td>
</tr>
</tbody>
</table>

Table 5

*Means and Standard Deviations of the Paired Differences (SRI Pretest)*

<table>
<thead>
<tr>
<th>Group</th>
<th>( M )</th>
<th>( SD )</th>
<th>( t )</th>
<th>( df )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td>-.85</td>
<td>10.35</td>
<td>-.38</td>
<td>19</td>
<td>.72</td>
</tr>
<tr>
<td>Grade 7</td>
<td>-3.45</td>
<td>10.78</td>
<td>-1.43</td>
<td>19</td>
<td>.17</td>
</tr>
<tr>
<td>Grade 8</td>
<td>-2.50</td>
<td>8.74</td>
<td>-1.28</td>
<td>19</td>
<td>.22</td>
</tr>
</tbody>
</table>

*Note. *\( n = 40 \) for each group.*
Findings for Research Questions

The results of the statistical analyses intended to answer each research question are discussed in this section. The results will be presented by individually addressing each of the five research questions in this study.

Growth in Reading Proficiency on the Scholastic Reading Inventory (SRI)

The first research question examined the mean growth in reading proficiency by students who participated in the READ 180™ program as compared to students of similar ability levels who did not participate in the program. A mixed-design ANOVA was used to analyze the data for the dependent variable (SRI). Three separate analyses were conducted so that the data could be analyzed by grade level. Table 6 includes the means and standard deviations of the SRI posttest for both groups by grade level.

The means in Table 6 indicate growth in reading comprehension by participants in the experimental and control groups for each of the three grade levels on the SRI posttest. This mean growth in participants' Lexile\textsuperscript{4} scores for the 2005-2006 school year is also depicted graphically in Figure 1, Figure 2 and Figure 3. While mean Lexile scores increased for each group, the data in Table 6 do not indicate that all students who participated in READ 180™ demonstrated greater gains on the SRI when compared to students of similar ability levels who did not receive a reading intervention during the school year. For example, Grade 7 participants in the control group had a higher posttest SRI mean (\(N = 20, M = 904.55, SD = 129.19\)) when compared to the posttest SRI mean of Grade 7 participants in the experimental group (\(N = 20, M = 880.80, SD = 170.72\)). For

\textsuperscript{4} Note. The Lexile scale is a developmental scale for reading ranging from 100L for beginning readers to above 1700L for advanced text. While the standard deviation results located in this chapter may appear large, it is important to note the span of range associated with Lexiles is expansive. The Lexile scale is explained in detail in Chapter III.
participants in Grade 6 and Grade 8, comparison of posttest means indicated that students in the experimental groups for these two grade levels demonstrated greater growth in reading comprehension, as measured by the SRI, when compared to posttest means of participants who received no reading intervention above and beyond the regular classroom setting. In addition, the standard deviation of 74.12 for Grade 6 participants in the experimental group represented the least amount of fluctuation for posttest scores among all participants. For example, the range in Lexile scores for this group was from 691L to 987L, while the range for Grade 6 participants in the control group was from 580L to 1011L.

The data in Table 6 also indicate that, regardless of whether students participated in READ 180™, the mean scores for all participants in grades 6 and 7 increased to the point where students were reading on grade level by year's end (Appendix B). This was not the case at the outset of the school year for any of the participants for these two grade levels, as all four groups had pretest Lexile means (Table 4) that were considered to be below grade level. The data for Grade 8 show that, while both groups began the school year reading below grade level, only students who participated in READ 180™ demonstrated sufficient growth in Lexile scores to the point where students were reading on grade level by year's end. For example, the mean of 926.4 for Grade 8 participants in the experimental group was within the proficiency Lexile range for Grade 8 (900L to 1150L).
Table 6

*Means and Standard Deviations for Scholastic Reading Inventory (SRI) Posttest*

<table>
<thead>
<tr>
<th>Group</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Grade 6</td>
<td>20</td>
<td>881.65</td>
<td>74.12</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>804.45</td>
<td>126.10</td>
</tr>
<tr>
<td>Grade 7</td>
<td>20</td>
<td>880.80</td>
<td>107.72</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>904.55</td>
<td>129.19</td>
</tr>
<tr>
<td>Grade 8</td>
<td>20</td>
<td>926.40</td>
<td>168.50</td>
</tr>
<tr>
<td>Experimental</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>20</td>
<td>867.75</td>
<td>169.33</td>
</tr>
</tbody>
</table>

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Figure 1. Grade 6 pretest SRI vs. posttest SRI mean Lexile scores

Figure 2. Grade 7 pretest SRI vs. posttest SRI mean Lexile scores

Figure 3. Grade 8 pretest SRI vs. posttest SRI mean Lexile scores
Table 7 presents the means and the standard deviations of the differences between pretest and posttest Lexile scores on the SRI at each grade level for the experimental and control groups, as well as totals of both groups for each grade level. As can be seen in Table 7, participants in the experimental group in grades 6 and 8 demonstrated greater and more meaningful gains as measured by posttest scores on the SRI when compared to scores for students in the control groups. For example, an increase of 100 Lexile points in a school year is often equated with a year’s growth in reading in terms of grade level equivalency scores (Scholastic, 2002). Mean scores on the SRI posttest for students receiving instruction in READ 180™ increased on average by 161 Lexile points in Grade 6 and by 112 Lexile points in Grade 8, as compared to mean increases of 83 points (Grade 6) and 50 points (Grade 8) for participants in the control groups for these two grade levels. Thus, the data suggest that, for ABC Middle School students in grades 6 and 8 participating in READ 180™ during the 2005-2006 school year, the reading intervention program did have a positive impact on students’ reading comprehension levels when compared to students of similar ability levels who did not participate in the program. The same, however, cannot be said when analyzing the results of participants in Grade 7. While all participants in Grade 7 demonstrated mean increases on the SRI posttest greater than 100 Lexile points (129L experimental vs. 149L control), students not enrolled in READ 180™ showed greater gains in reading achievement by year’s end. Therefore, the findings for this grade level indicated that, although participants in the experimental group demonstrated growth in excess of one year on the Lexile range, so too did students who had no reading instruction above and beyond the regular classroom setting.
An analysis of variance of these results for each grade level is presented in Table 8. The results reveal that, of the three grade levels, only in Grade 6 did the READ 180™ program make a significant difference in gains in reading proficiency (SRI) for participants, $F(1, 38) = 6.39, p = .016$. Although Grade 8 students who participated in READ 180™ did demonstrate greater mean gains on the SRI as compared to participants in the control group, the ANOVA summary table for these data (Table 8) indicate that there were no statistically significant differences in gains on the SRI for this group of students, $p = .189, (.189 > .05)$. In addition, there were no statistically significant differences in gains on the SRI for students in Grade 7, $p = .599, (.599 > .05)$, enrolled in the READ 180™ program during the 2005-2006 school year when compared to participants in the control group for this grade level. Thus, while the analyses indicated that students in grades 6, 7 and 8 demonstrated growth in reading proficiency for both groups, the intervention only produced significant reading gains for Grade 6 participants.

Table 7

Means and Standard Deviations of the Differences Between Pretest and Posttest SRI Scores by Grade Level

<table>
<thead>
<tr>
<th>Grade level</th>
<th>Intervention $M$</th>
<th>Intervention $SD$</th>
<th>Control $M$</th>
<th>Control $SD$</th>
<th>Total $M$</th>
<th>Total $SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 6</td>
<td>160.6</td>
<td>87.2</td>
<td>82.6</td>
<td>107.1</td>
<td>121.6</td>
<td>104.2</td>
</tr>
<tr>
<td>Grade 7</td>
<td>128.9</td>
<td>113.0</td>
<td>149.2</td>
<td>128.9</td>
<td>139.0</td>
<td>120.1</td>
</tr>
<tr>
<td>Grade 8</td>
<td>111.7</td>
<td>148.0</td>
<td>49.5</td>
<td>164.3</td>
<td>78.6</td>
<td>157.9</td>
</tr>
</tbody>
</table>

Note. $^a n = 20$ for each group.
Table 8

*Analysis of Variance for Gains on Scholastic Reading Inventory (SRI)*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Between subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READ 180™</td>
<td>60918.0</td>
<td>1</td>
<td>60918.0</td>
<td>6.387</td>
<td>.016*</td>
</tr>
<tr>
<td>Error</td>
<td>362437.8</td>
<td>38</td>
<td>9537.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>423355.8</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READ 180™</td>
<td>4120.9</td>
<td>1</td>
<td>4120.9</td>
<td>.280</td>
<td>.599</td>
</tr>
<tr>
<td>Error</td>
<td>558307.1</td>
<td>38</td>
<td>14692.3</td>
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<td></td>
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<tr>
<td>Total</td>
<td>562428.0</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READ 180™</td>
<td>43758.2</td>
<td>1</td>
<td>43758.2</td>
<td>1.79</td>
<td>.189</td>
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<tr>
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<td>928693.6</td>
<td>38</td>
<td>24439.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>972451.8</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.
Participants' Results on the 2006 Virginia Standards of Learning Assessment in Reading

The second research question examined whether the participants in the READ 180™ program performed significantly better on the 2006 Virginia Standards of Learning (SOL) assessment in reading as compared to students of similar ability levels who did not participate in the program. A 2X3 factorial ANOVA was used to determine whether statistical differences existed between the experimental and control groups for each of the three grade levels. Table 9 presents the means and the standard deviations for the SOL reading assessment by grade level for the experimental and control groups.

As can be seen in Table 9, participants in the experimental group (N = 20, M = 456.9, SD = 50.8) for Grade 6 scored higher on the SOL reading assessment on average when compared to participants in the control group (N = 20, M = 426.2, SD = 47.8) for this grade level. The means in Table 9 are reported in scale scores. Used by the Virginia Department of Education as a way to determine student mastery of state standards on state tests, a scale score of 400 is associated with a passing or proficient score on an SOL assessment, while a scale score of 500 is considered to be an advanced passing score (VASOLTR, 2005). The scale score of 600 indicates a perfect score on an assessment. Thus, both groups of Grade 6 participants faired well, on average, on the 2006 SOL reading assessment. While both group means for Grade 6 participants were in the proficient range on this assessment, students in the experimental group outperformed their grade level peers. In addition, Grade 6 students participating in the READ 180™ program had the highest overall mean when compared amongst all groups and all grade levels on this assessment.
For participants in grade 7 and 8, the results in Table 9 reveal that students in the control groups had higher means on the SOL reading assessment on average when compared to students who participated in the READ 180™ program for both grade levels. While participants’ scores on average in the experimental groups for grades 7 and 8 were both within the passing proficient range on this assessment, the READ 180™ program did not appear to make a difference for program participants in these grade levels on this assessment. In addition, it is important to note that the difference in the total means between the experimental group \((N = 60, M = 424.6, SD = 52.1)\) and the control group \((N = 60, M = 423.9, SD = 42.7)\), while varying by less than one point, masks the grade level differences noted above. For example, the rather large mean for Grade 6 participants in the intervention group on the SOL reading assessment positively skewed the total mean for READ 180™ participants. In turn, this created a scenario where it appeared that overall performance for students participating in the reading intervention program on this assessment was greater than the overall performance for participants in the control groups. As noted above, however, this was not the case when each grade level was examined individually.

An analysis of variance of these results is presented in Table 10. The results reveal the main effect of grade to be statistically significant, \(F(2, 114) = 5.345, p = .006\). Table 10 also shows the interaction effect to be statistically significant, \(F(2, 114) = 3.291, p = .041\). The significant interaction in this case implies that the effect of the READ 180™ program is dependent upon the grade level. Thus, as seen in Table 9, Grade 6 participants in the intervention group performed better on the SOL reading assessment than Grade 6 students who did not participate in this program. The findings indicate that
scores on the SOL reading assessment were actually lower for READ 180™ participants in grades 7 and 8 when compared to participants in the control groups for these two grade levels. The ANOVA summary table for these data (Table 10) indicates that there was no statistically significant treatment group effect, \( p = .928, (.928 > .05) \). Based on these results, it appears that the treatment only had positive results on the SOL reading assessment for students in Grade 6.

Table 9

*Means and Standard Deviations of 2006 Virginia Standards of Learning Assessment Reading Scores*

<table>
<thead>
<tr>
<th>Grade level</th>
<th>Intervention</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N )</td>
<td>( M )</td>
<td>( SD )</td>
</tr>
<tr>
<td>Grade 6</td>
<td>20</td>
<td>456.9</td>
<td>50.8</td>
</tr>
<tr>
<td>Grade 7</td>
<td>20</td>
<td>415.3</td>
<td>47.6</td>
</tr>
<tr>
<td>Grade 8</td>
<td>20</td>
<td>401.8</td>
<td>41.2</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>424.6</td>
<td>52.1</td>
</tr>
</tbody>
</table>
Table 10  
*Analysis of Variance Summary Table of 2006 Virginia Standards of Learning Assessment Reading Scores by Grade Level and Intervention Group*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Grade</td>
<td>21787.0</td>
<td>2</td>
<td>10893.5</td>
<td>5.345</td>
<td>.006*</td>
</tr>
<tr>
<td>(B) Intervention Group</td>
<td>16.9</td>
<td>1</td>
<td>16.9</td>
<td>.008</td>
<td>.928</td>
</tr>
<tr>
<td>A X B</td>
<td>13413.4</td>
<td>2</td>
<td>6706.7</td>
<td>3.291</td>
<td>.041*</td>
</tr>
<tr>
<td>Error</td>
<td>232350.8</td>
<td>114</td>
<td>2038.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>267568.0</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

Participants’ Results on the 2006 Virginia Standards of Learning Assessment in Mathematics

The third research question examined whether the participants in the READ 180™ program performed significantly better on the 2006 Virginia Standards of Learning (SOL) assessment in mathematics as compared to students of similar ability levels who did not participate in the program. A 2X3 factorial ANOVA was used to determine whether statistical differences existed between the experimental and control groups for each of the three grade levels. Table 11 presents the means and the standard deviations for the SOL mathematics assessment by grade level for the experimental and control groups. As can be seen in Table 11, participants in the experimental group for Grade 6 scored slightly higher on the SOL assessment in mathematics on average as compared to participants in the control group, while participants in grades 7 and 8 in the control group scored higher on average when compared to participants in the experimental group.
While no math was taught in the READ 180™ program, results from this assessment were analyzed to ascertain whether the added emphasis on language arts for program participants positively impacted students’ mathematics scores: Deficits in the areas of vocabulary and reading comprehension can impact a student’s performance on a test of mathematics (Allington, 2001).

An analysis of variance of the results for question three is presented in Table 12. The ANOVA in Table 12 shows the main effect of grade to be statistically significant, $F(2, 114) = 13.246, p = .000$. The ANOVA summary table for these data (Table 12) indicates that there was no statistically significant treatment group effect, $p = .490$, (.490 > .05), or interaction effects, $p = .442$, (.442 > .05). Based on the findings of the analyses for question three, participating in the READ 180™ program did not positively impact participants’ overall performances on the 2006 SOL mathematics assessment.

Table 11

*Means and Standard Deviations of 2006 Virginia Standards of Learning Assessment Mathematics Scores*

<table>
<thead>
<tr>
<th>Group</th>
<th>Intervention</th>
<th></th>
<th></th>
<th></th>
<th>Control</th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$N$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$N$</td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 6</td>
<td>20</td>
<td>379.3</td>
<td>59.0</td>
<td>20</td>
<td>370.1</td>
<td>56.5</td>
<td>40</td>
<td>374.7</td>
<td>57.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td>20</td>
<td>354.4</td>
<td>54.4</td>
<td>20</td>
<td>376.7</td>
<td>40.9</td>
<td>40</td>
<td>365.5</td>
<td>48.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td>20</td>
<td>420.6</td>
<td>60.2</td>
<td>20</td>
<td>428.3</td>
<td>57.2</td>
<td>40</td>
<td>424.4</td>
<td>58.1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>384.7</td>
<td>63.2</td>
<td>60</td>
<td>391.7</td>
<td>57.5</td>
<td>120</td>
<td>388.2</td>
<td>60.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 12

*Analysis of Variance Summary Table of 2006 Virginia Standards of Learning Assessment Mathematics Scores by Grade Level and Intervention Group*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Grade</td>
<td>80346.2</td>
<td>2</td>
<td>40173.1</td>
<td>13.246</td>
<td>.000*</td>
</tr>
<tr>
<td>(B) Intervention Group</td>
<td>1456.0</td>
<td>1</td>
<td>1456.0</td>
<td>.480</td>
<td>.490</td>
</tr>
<tr>
<td>A X B</td>
<td>4986.2</td>
<td>2</td>
<td>2493.1</td>
<td>.822</td>
<td>.442</td>
</tr>
<tr>
<td>Error</td>
<td>345745.9</td>
<td>114</td>
<td>3032.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>432534.4</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

*African-American Participants’ Results on the 2006 Virginia Standards of Learning Assessment in Reading*

The fourth research question examined whether African-American participants in the READ 180™ program performed significantly better on the 2006 Virginia Standards of Learning (SOL) assessment in reading as compared to African-American students of similar ability levels who did not participate in the program. A 2X3 factorial ANOVA was used to determine whether statistical differences existed between the experimental and control groups for each of the three grade levels. Table 13 presents the means and the standard deviations for the SOL reading assessment by grade level for the experimental and control groups. As can be seen in Table 13, participants in the experimental group for Grade 6 scored higher on this SOL assessment on average as compared to participants in the control group. The data also indicate that participants in the experimental groups for grades 7 and 8 scored lower on the SOL reading assessment on average as compared to...
participants in the control group for these two grade levels. An analysis of variance of these results is presented in Table 14. The ANOVA in Table 14 shows the main effect of grade to be statistically significant, \( F(2, 100) = 3.832, p = .025 \). The ANOVA summary table for these data (Table 14) indicates that there was no statistically significant treatment group effect, \( p = .779, (.779 > .05) \), or interaction effects, \( p = .100, (.100 > .05) \).

Table 3 highlights the percentages of African-American students enrolled in the READ 180™ program during the 2005-2006 school year (Grade 6, 80%; Grade 7, 100%; Grade 8, 85%). As discussed in Chapter I, ABC Middle School incorporated the READ 180™ program into the school’s learning plan in an effort to reduce the identified gap in reading achievement between African-American and white students. Findings for question four indicate that participation in the READ 180™ program did not significantly impact African-American participants’ performances on the 2006 SOL reading assessment.

Table 13

| Means and Standard Deviations of 2006 Virginia Standards of Learning Assessment Reading Scores for African-American Participants |

<table>
<thead>
<tr>
<th>Group</th>
<th>Intervention</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade level</td>
<td>( N )</td>
<td>( M )</td>
<td>( SD )</td>
</tr>
<tr>
<td>Grade 6</td>
<td>16</td>
<td>451.9</td>
<td>50.7</td>
</tr>
<tr>
<td>Grade 7</td>
<td>20</td>
<td>415.3</td>
<td>47.6</td>
</tr>
<tr>
<td>Grade 8</td>
<td>17</td>
<td>398.1</td>
<td>45.6</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>420.8</td>
<td>51.9</td>
</tr>
</tbody>
</table>

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Table 14

Analysis of Variance Summary Table of 2006 Virginia Standards of Learning Assessment
Reading Scores for African-American Participants by Grade Level and Intervention
Group

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Grade</td>
<td>16421.4</td>
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<td>8210.7</td>
<td>3.832</td>
<td>.025*</td>
</tr>
<tr>
<td>(B) Intervention Group</td>
<td>169.1</td>
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<td>169.1</td>
<td>.079</td>
<td>.779</td>
</tr>
<tr>
<td>A X B</td>
<td>10100.1</td>
<td>2</td>
<td>5050.0</td>
<td>2.357</td>
<td>.100</td>
</tr>
<tr>
<td>Error</td>
<td>214263.7</td>
<td>100</td>
<td>2142.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>241158.7</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

African-American Participants' Results on the 2006 Virginia Standards of Learning
Assessment in Mathematics

The fifth research question examined whether African-American participants in
the READ 180™ program performed significantly better on the 2006 Virginia Standards
of Learning (SOL) assessment in mathematics as compared to African-American students
of similar ability levels who did not participate in the program. A 2X3 factorial ANOVA
was used to determine whether statistical differences existed between the experimental
and control groups for each of the three grade levels. Table 15 presents the means and the
standard deviations for the SOL reading assessment by grade level for the experimental
and control groups. As can be seen in Table 15, participants in the experimental group for
Grade 6 scored slightly higher on the SOL assessment in mathematics on average as
compared to participants in the control group, while participants in grades 7 and 8 in the
control group scored higher on average when compared to participants in the experimental groups. An analysis of variance of these results is presented in Table 16. The ANOVA in Table 16 shows the main effect of grade to be statistically significant, $F(2, 100) = 10.784, p = .000$. The ANOVA summary table for these data (Table 16) indicates that there was no statistically significant treatment group effect, $p = .549$, ($.549 > .05$), or interaction effects, $p = .398$, ($.398 > .05$). Thus, findings for question five indicate that participation in the READ 180™ program did not significantly impact African-American participants’ performances on the 2006 SOL mathematics assessment.

Table 15

*Means and Standard Deviations of 2006 Virginia Standards of Learning Assessment Mathematics Scores for African-American Students*

<table>
<thead>
<tr>
<th>Group</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
<td>M</td>
<td>SD</td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 6</td>
<td>16</td>
<td>379.1</td>
<td>60.2</td>
<td>16</td>
<td>367.3</td>
<td>41.1</td>
<td>32</td>
<td>373.2</td>
</tr>
<tr>
<td>Grade 7</td>
<td>20</td>
<td>354.4</td>
<td>54.4</td>
<td>20</td>
<td>376.7</td>
<td>40.9</td>
<td>40</td>
<td>365.5</td>
</tr>
<tr>
<td>Grade 8</td>
<td>17</td>
<td>415.6</td>
<td>58.8</td>
<td>17</td>
<td>423.8</td>
<td>60.0</td>
<td>34</td>
<td>419.7</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>381.5</td>
<td>67.1</td>
<td>53</td>
<td>388.9</td>
<td>53.0</td>
<td>106</td>
<td>385.2</td>
</tr>
</tbody>
</table>
Table 16

*Analysis of Variance Summary Table of 2006 Virginia Standards of Learning Assessment Mathematics Scores for African-American Participants by Grade Level and Intervention Group*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) Grade</td>
<td>60515.1</td>
<td>2</td>
<td>30257.8</td>
<td>10.784</td>
<td>.000*</td>
</tr>
<tr>
<td>(B) Intervention Group</td>
<td>1015.3</td>
<td>1</td>
<td>1015.3</td>
<td>.362</td>
<td>.549</td>
</tr>
<tr>
<td>A X B</td>
<td>5212.2</td>
<td>2</td>
<td>2606.1</td>
<td>.929</td>
<td>.398</td>
</tr>
<tr>
<td>Error</td>
<td>280582.7</td>
<td>100</td>
<td>2805.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>347789.4</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.
CHAPTER V: SUMMARY, DISCUSSION, AND RECOMMENDATIONS

A concise summary of the research findings along with a discussion of how these findings relate to other work in the area of struggling adolescent readers are presented in this chapter. In addition, the implications of the research findings in light of instructional leadership are discussed and ideas pertaining to future research are recommended.

Summary of Findings

The present study aimed to build on existing research surrounding struggling adolescent readers. While previous research has indicated that there is a large body of research at the elementary level that addresses the topic of student literacy, few studies have incorporated the most effective strategies for addressing the reading deficits of the middle school-aged child (McRay, Vaughn, & Neal, 2001; Shaywitz, 1998; Witkowski, 2004). The purpose of this study was to determine the impact of the reading program READ 180™ on struggling adolescent readers in a middle school setting. The objectives of the study were as follows:

1. To determine if middle school students' participation in the READ 180™ program on a block schedule (i.e., every other school day) for one school year would significantly improve participants' growth in reading comprehension when compared to students of similar ability levels who did not participate in the program.

2. To determine if participation in the READ 180™ program on a block schedule for one school year would significantly impact middle school students' achievement scores on the Virginia Standards of Learning (SOL)
assessments in the areas of reading and mathematics when compared to students of similar ability levels who did not participate in the program.

3. To determine if participation in the READ 180™ program on a block schedule for one school year would significantly impact African-American participants’ achievement scores on the Virginia Standards of Learning (SOL) assessments in the areas of reading and mathematics when compared to African-American students of similar ability levels who did not participate in the program.

The study was conducted using a nonequivalent control-group design. Archival data from the 2005-2006 school year was analyzed for 120 students in grades 6, 7 and 8 from ABC Middle School. The experimental group was comprised of 60 students, 20 per grade level, and the control group was comprised of 60 students, 20 per grade level. While all participants received instruction in language arts on a daily basis from their assigned English teachers, students in the experimental group received an additional 90 minutes of instruction in the language arts content area every other school day through participation in the READ 180™ program. Data for the five research questions were examined using descriptive statistics. The findings of the study are summarized as follows:
1. An analysis of students’ pre- and posttest performances on a test of reading achievement (Scholastic Reading Inventory) indicated that, on average, students in both groups for all three grade levels (grades 6, 7 and 8) demonstrated gains in reading comprehension during the 2005-2006 school year. Mean scores for participants in the experimental groups for grades 6 and 8 were higher when compared to scores from participants in the control groups for these two grade levels. In addition, results revealed that the READ 180™ program did make a significant difference in reading proficiency gains for Grade 6 participants.

2. A comparison of participants’ results on the 2006 administration of the Virginia SOL assessment in reading revealed that only in Grade 6 were mean scores higher for participants in the experimental group. Findings indicated, however, that there was no statistically significant treatment group effect for any of the three grade levels.

3. An analysis of participants’ results on the 2006 administration of the Virginia SOL assessment in mathematics revealed that only in Grade 6 were mean scores higher for participants in the experimental group. Findings indicated, however, that there was no statistically significant treatment group effect for any of the three grade levels.

4. Findings for question four indicated that participation in READ 180™ did not significantly impact African-American participants’ performance on the 2006 SOL reading assessment.
5. Findings for question five indicated that participation in READ 180™ did not significantly impact African-American participants’ performance on the 2006 SOL mathematics assessment.

Discussion of Findings

In this section, the results of the study are compared and contrasted with findings of prior research in the area of struggling adolescent readers. In addition, the implications of the research findings in light of instructional leadership are discussed.

A Modified Implementation Model of the READ 180™ Program

Presently, there is not a large body of evidence that highlights programs designed specifically to address the needs of struggling adolescent readers or programs which focus on using evidence-based reading practices (NICHD, 2002; NIH, 2003; Phelps, 2005). There is, however, ample research that indicates a large percentage of students continue to leave the elementary setting lacking a strong foundation in literacy and that these students continue to fall further behind their peers in reading at the secondary level (Lewkowicz, 2000; Lyon, et al., 2001; NCES, 2006). The present study examined one school’s efforts to address this dilemma in an era of high-stakes testing.

First implemented at ABC Middle School during the 2003-2004 school year, the READ 180™ program was earmarked to address the school’s population of students reading below grade level and as a means of reducing the identified gap in reading achievement between African-American and white students. With a limited number of student slots available, the school has been able to serve 60 students in the program each year. A decision was made during the first year of implementation to serve 20 students per grade level. In an effort to keep the student-to-teacher ratios low for the one
designated instructor, class sizes were capped at 10 students. In addition, students attended the READ 180™ program in lieu of a physical education or elective class. Thus, because ABC Middle School ran a block schedule for physical education and elective classes, students attended the program every other school day, receiving 90 minutes of instruction on these days above and beyond their daily 55-minute block in the language arts classroom.

The READ 180™ program was designed by Scholastic, Inc. to be used on a daily basis with students. In an effort to address struggling readers at each grade level, however, ABC Middle School opted to implement a modified implementation of the program by scheduling class sessions every other school day. With only one instructor designated to teach the program, this strategy enabled the school to serve twice as many students in the program while maintaining low student-to-teacher ratios. This is noteworthy in that any significant findings regarding gains in achievement for program participants when compared to students in the control groups would denote that a modified implementation was successful and could possibly be replicated in other middle schools throughout the school district with similar demographics. Such a finding could lead to significant savings regarding implementation costs for other schools. In addition, insignificant findings regarding achievement scores would not necessarily indicate that the READ 180™ program was not designed to meet the needs of students at ABC Middle School. For example, insignificant findings could be attributed in part to a low level of fidelity regarding the implementation of the intervention or because school-wide efforts to address deficiencies in students' literacy skills were having a positive impact on student achievement throughout the school.
While studies examining the effectiveness of READ 180™ are available dating back to 2002, the majority of research surrounding the program does not speak to varying levels of program fidelity. One of the more extensive research studies on the READ 180™ program, however, specifically examined how fidelity of implementation related to various student outcomes (Interactive, 2002). While this study did not specifically address models where class time in the program was reduced by 50% over the course of two weeks, which was the case at ABC Middle School, findings indicated that modified implementation models did lead to positive student outcomes for struggling adolescent readers.

*Gains for Participants on the Scholastic Reading Inventory (SRI)*

The second largest group of struggling adolescent readers is comprised of students who experience difficulties with fluency and comprehension (NGA, 2005). Regardless of what this group of students reads, consistent problems arise. In addition, a large percentage of students in this group often do not meet minimum state standards on state-wide administered assessments, as reading deficiencies for these students make it difficult for them to comprehend texts written at the basic level. The students targeted for this study fell into this group of learners.

When administered in a pre- and posttest setting, the SRI can serve as an effective tool for measuring growth in reading comprehension. While offered in print, participants in this study completed the computer-adaptive reading comprehension assessment, which consisted of answering comprehension questions from a bank of over 3,000 questions. A mixed-design ANOVA (described in Chapter IV) was used to analyze participants' pre- and posttest scores on the SRI.
It is important to note that, on average, participants’ scores for both groups in grades 6 and 7 demonstrated growth in reading comprehension levels to the point where an analysis of Lexile scores revealed that students were reading on grade level by year’s end. For example, the chart of proficiency Lexile ranges in Appendix B denotes that a Lexile range in the 700s implies that students in grades 6 or 7 were reading below grade level at the time of the pretest. On average, mean SRI pretest scores for Grade 6 and Grade 7 participants in the experimental and control groups indicated that all groups of students in these two grade levels began the school year reading on a fifth grade level, with SRI mean scores ranging from 721L to 755L (Table 4). Thus, at the outset of the study, students in Grade 6 were reading approximately one year below grade level, while students in Grade 7 were reading approximately two years below grade level. By June of 2006, mean posttest scores (Table 6) for both groups in both grades 6 and 7 indicated that participants demonstrated growth in reading comprehension levels equivalent to at least one year’s growth in terms of Lexile scores: Grade 6 participants’ Lexile scores increased on average by one year’s growth, where participants in Grade 7 realized two year’s growth in Lexile scores on average. The data for Grade 8 participants revealed that, while students began the school year reading on a 6th-grade level, with Lexile scores ranging from 815L to 817L, only students in the experimental group demonstrated growth on the SRI posttest to the point where students were reading on grade level by year’s end: Lexile means increased from 815L to 926L for Grade 8 students in the experimental group, while Lexile means increased from 817L to 867L for students in the control group.
In analyzing the growth shown by participants on the SRI in both groups for all grades, one cannot discount the school-wide emphasis placed on literacy skills by ABC Middle School during the 2005-2006 school year. For example, historically, direct literacy instruction has been a component of a school's English curriculum up to the third grade (NASSP, 2005). Recognizing the need to continue to emphasize reading skills for all students beyond the elementary grades, ABC Middle School targeted literacy as a goal area in its 2004-2006 School Learning Plan. As a result, even content teachers outside the area of language arts participated in staff development activities designed to foster a culture of literacy. In addition, a school-wide literacy committee was formed so that all staff members would be encouraged to address the root of the problem with this group of students: struggling adolescent readers do not read well enough to comprehend and derive meaning from many of the texts they are exposed to at the secondary level (Allington, 2001).

Perhaps another reason why posttest mean scores on the SRI indicated that 5 of the 6 groups were reading on grade level by the end of the school year can be explained by examining how ABC Middle School addressed the variable of time during the 2005-2006 school year. For example, it was during this school year that a 20-minute period of silent sustained reading was built into the school’s master schedule for each grade level. The program was structured in such a way that students were provided choices regarding what they read during this time, as well as opportunities to dialogue with one another about the books they were reading. In addition to supporting student choice in reading and the opportunity to discuss aloud what students are reading, the literature surrounding struggling adolescent readers clearly indicates the significance of the variable time: The
amount of time allotted before, during, and/or after the school day by teachers and administrators to expose students to text and proven reading strategies is a critical component to a comprehensive approach to supporting literacy (Allington, 2001; NGA, 2005; NRP, 2002; Roe, 2004). For example, ensuring that struggling adolescent readers are provided ample time to practice reading enhances such critical literacy skills as reading fluency (Rasinski & Padak, 2005).

When examining the differences in growth for reading comprehension levels on the SRI, students in the experimental groups for grades 6 and 8 outperformed students in the control groups for these two grade levels. An analysis of variance of these results (described in Chapter IV) revealed that, of the three grade levels, only in Grade 6 did the intervention make a significant difference in reading proficiency gains on the SRI, $F(1, 38) = 6.39, p = .016$ (Table 8). One possible explanation as to why only participants’ posttest scores in the intervention group for this grade level were significantly higher on the SRI could be because these students were new to middle school altogether and had not yet had the opportunity to experience or choose an elective class. Thus, perhaps Grade 6 students in READ 180™ viewed their time in this program as an actual elective class, because it was taught during the elective block. Because all Grade 6 students at ABC Middle School were assigned an elective class instead of choosing one (with the exception of year-round band or chorus), the attitudes of these students could have been different from some of their peers in grades 7 and 8 who realized that they were being asked by parents, teachers or counselors to give up an opportunity to elect classes such as art or technology education.
Acknowledging the fact that only Grade 6 participants in the intervention group scored significantly higher on the SRI posttest when compared to students in the control group, what aspects of the READ 180™ program could then have contributed to the significant mean gain in reading comprehension for students in this grade level? First, as noted above, the importance of the variable time cannot be discounted. Students participating in the READ 180™ program received an additional 90 minutes of instruction in language arts every other school day. This equates to approximately 135 additional hours of instruction in this content area over the course of the school year. Second, as recommended by the National Governors Association (2005), struggling adolescent readers must be targeted for diagnostic reading assessment and provided interventions designed to meet their needs at the individual student level. The design of the READ 180™ instructional model enables the instructor to differentiate instruction for all learners through the use of the various workstations and the low student-to-teacher ratio.

Differentiation of instruction at the individual student level can be a difficult task for classroom teachers in the traditional language arts classroom. For example, students in the intervention were grouped by ability during the guided reading portion of the lesson, students moved through the different topics on the computer at their own pace, and students were able to choose what they read or listened to during the independent choice workstation. Third, and perhaps most importantly, the READ 180™ program is built upon a compilation of best practices in adolescent literacy. For example, in the comprehensive report conducted by the National Reading Panel (2000), the panel concluded that reading programs should emphasize the five major components of reading acquisition: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary instruction,
and (e) text comprehension. While phonemic awareness and phonics are foundational components of reading that are emphasized heavily at the elementary level, fluency, vocabulary instruction, and text comprehension are mechanisms that should be emphasized by schools in addressing the deficits of the struggling adolescent reader at the secondary level (Salinger, 2003). Fluency, vocabulary instruction and text comprehension are core components of the READ 180™ program and skills that students hone during each class session.

Participants’ Performance on the Virginia Standards of Learning (SOL) Reading Assessment

The manner in which students interact with text begins to change once students enter the upper grades of their elementary experience. As a result, it is generally understood that beginning in Grade 4, students start to make the transition from learning to read to reading to learn. The emphasis placed on the skill of text comprehension, the ultimate goal of reading, is becoming more commonplace, as noted in the literature surrounding struggling adolescent readers. For example, the RAND Reading Study Group (2002), which supports the need for continued literacy instruction at the secondary level, addressed the importance of teaching text comprehension skills at the secondary level. In its report, two of the five findings referenced text comprehension:

1. Comprehension is not increasing, but high school graduates are expected to read complex, technical material in order to be successful in the workplace.

2. Secondary teachers are ill-prepared to teach literacy strategies that are necessary for students’ comprehension of content-specific text.
Beginning with the 2005-2006 school year, the state of Virginia also took steps to communicate to school districts throughout the Commonwealth the importance of measuring students' reading comprehension. While the SOL for English were last revised in 2002, the test blueprints for reading were revised in 2005. As a result, revised test blueprints for reading reflected a significant increase in the percentage of questions on the SOL reading test in the area of comprehension (Appendix F, Appendix G, Appendix H). For example, while the portion of the cumulative Grade 8 SOL reading test (2004-2005) that measured reading comprehension accounted for 36% (15 out of 42 questions) of the assessment, the portion of the test measuring reading comprehension increased to 51% (23 out of 45 items) for the 2005-2006 assessment. This increase and emphasis on reading comprehension impacted all middle school students as changes were observed in test blueprints\(^5\) for grades 6, 7 and 8 and tests were administered for the first time in grades 6 and 7.

Due to an increased emphasis on reading comprehension found within Virginia’s language arts assessment program, participants’ scores on the 2006 SOL reading test were analyzed using a 2X3 factorial ANOVA (described in Chapter IV) to determine if the READ 180\(^TM\) program significantly improved students’ results on this assessment when compared to students of similar ability levels. Mean scores for participants on the SOL reading test (Table 9) were similar to results from the SRI. For example, Grade 6 students participating in the READ 180\(^TM\) program had the highest overall mean when compared to all groups and all grade levels on this assessment. On the basis of these

\(^5\) Note. The revised test blueprints for reading (Appendix E, Appendix F, Appendix G) indicate that 34 out of the 45 questions fall within the reporting category of demonstrate comprehension of printed materials. However, at the middle school level, 11 of the 34 questions in this reporting category are referred to as elements of literature questions and do not truly assess reading comprehension.
findings, it appears that the growth in reading proficiency demonstrated by READ 180™
students in Grade 6 throughout the year positively impacted students’ outcomes on the
most heavily weighted reporting category of this assessment; reading comprehension.
While a scale score of 400 is passing in the proficient range on this assessment, a scale
score of 500 signifies a passed advance score. The mean scale score for this group of
students was 457. This score is considered to be a strong score, particularly for students
with identified deficits in the area of reading. However, one must also take into
consideration that, based on SRI pretest scores, students in Grade 6 were reading one year
below grade level on average, while participants in grades 7 and 8 began the school year
reading two years below grade level on average.

Mean scores for all groups indicated that participants at each grade level in both
groups passed in the proficient range on the SOL reading assessment. While one would
expect Grade 7 students in the control to have outperformed Grade 7 students in the
experimental group on this assessment, based on growth in reading comprehension as
measured by the SRI (Table 7), it is difficult to explain why students in the control group
for Grade 8 outperformed students receiving the intervention for this grade level. For
example, posttest Lexile scores on the SRI for Grade 8 students in the experimental and
control groups were 926L and 868L respectively. While the difference between these two
groups on the SOL reading assessment was not substantial, participants in the control
group (N = 20, M = 415.6, SD = 39.4) did outperform students in the experimental group
(N = 20, M = 401.8, SD = 41.2). One explanation for this outcome could be that
classroom teachers in Grade 8 were preparing students for an end-of-year assessment
(Grade 8 SOL reading test) where there existed a level of previous knowledge among the
teachers in this grade regarding test format and test items. For example, while the revised test blueprint changed the weighting of questions, it did not change the types of questions for Grade 8. As a result of being able to incorporate test items released by the Virginia Department of Education (VDOE) within their weekly lessons, all Grade 8 students would have benefited from this practice. For teachers in grades 6 and 7, this would not have been possible based on the fact that the 2005-2006 school year marked the first year of testing for students in these grade levels. In addition, it is important to note that the READ 180™ instructor did not use the English curriculum framework documents provided by the VDOE to plan lessons for this program. Thus, when analyzing SOL reading assessment results for students in all three grades, there appears to be a correlation between performance on the SRI and performance on the SOL assessment for students in grades 6 and 7: The groups with higher mean scores on the SRI posttest outperformed comparison groups on the SOL reading assessment for both of these grade levels. By not having the opportunity to review with students copies of previously released SOL reading assessments, as well as being able to share specific test-taking strategies to address certain types of questions, perhaps students’ scores on the SOL reading assessment in grades 6 and 7 were less influenced by teachers in the core language arts classrooms as compared to students in Grade 8. As a result, the SOL reading assessment for students in grades 6 and 7 could have been a more accurate reflection of students’ reading comprehension levels as compared to performance on this assessment for students in Grade 8. The data also support this assumption in that Grade 8 students in the control group represented the only group not to have demonstrated sufficient growth on the SRI by year’s end that in turn resulted in students not reading on
grade level. Yet, Grade 8 students in the control group still managed to outperform participants in the experimental group on the SOL reading assessment.

Overall, the findings indicated that scores on the SOL reading assessment were lower for READ 180™ participants in grades 7 and 8 when compared to participants in the control groups for these two grade levels. Based on the students' performance on the SOL reading assessment, it appears that the treatment only had positive results for students in Grade 6.

Participants' Performance on the Virginia Standards of Learning (SOL) Mathematics Assessment

It is becoming more evident that concerns regarding the literacy needs of adolescent students are impacting student pass rates on more than just the English portion of state-mandated assessments. For example, deficits in the areas of vocabulary and reading comprehension can impact a student's performance on a test of mathematics (Allington, 2001). While students received no math instruction within the READ 180™ classroom, results from this assessment were analyzed using a 2X3 factorial ANOVA (described in Chapter IV) to examine whether the additional time in the READ 180™ program building vocabulary, improving fluency, and strengthening students' text comprehension skills would positively impact students' scores on the 2005-2006 SOL mathematics assessment.

Mean scores on the SOL mathematics assessment (Table 11) indicated that only in Grade 6 did participants in the intervention group (N = 20, M = 379.3, SD = 59.0) outperform students in the control group (N = 20, M = 370.1, SD = 56.5). While results in Grade 7 mirrored the findings on the SRI for this grade level (i.e., students in the control...
group outperformed students in the intervention group), Grade 8 participants in the control group also scored higher on the SOL mathematics assessment. While this was also a finding when analyzing the SOL reading assessment results for Grade 8 participants, this was not the case for students in this grade level when posttest results on the SRI were compared: Students in the experimental group outperformed students in the control group on the SRI posttest.

An explanation similar to the one provided for the SOL reading assessment results could be used to discuss the findings on the SOL mathematics assessment for the three grade levels. For example, just as the 2005-2006 school year marked the first time in the state of Virginia where the SOL reading assessment was administered to students in grades 6 and 7, this was also the case for the SOL mathematics assessment for these two grade levels. As noted within the discussion section for the SOL reading assessment, perhaps the fact that Grade 8 teachers at ABC Middle School had access to copies of released tests from the previous four school years impacted students' performance on the assessment in this content area as well. For example, while Grade 8 teachers could construct chapter tests that incorporated actual released test items or composed questions with a similar format, teachers in grades 6 and 7 did not have this luxury. This was perhaps one of the reasons why across Virginia that only 20 of the 50 items in Grade 6 and 8 of the 50 items in Grade 7 were answered correctly by the majority of students (70% or more) from the 2005-2006 administration of these SOL mathematics assessments (Jonas, 2006). As a result, perhaps student outcomes for grades 6 and 7 on this assessment were also somewhat correlated to participants' performance on the SRI for these two grade levels: The groups with higher mean scores on the SRI posttest
outperformed comparison groups on the SOL mathematics assessment for both of these grade levels. It should also be noted that only in Grade 8 did participants demonstrate mean scale scores that translated into passing scores for students on this assessment ($N = 40, M = 424.4, SD = 58.1$).

An analysis of the total means (Table 11) for the experimental groups ($N = 60, M = 384.7, SD = 63.2$) and the control groups ($N = 60, M = 391.7, SD = 57.5$) on the SOL mathematics assessment indicated that students in the control groups outperformed students who received the intervention. While neither group had a total mean that indicated performance within the proficient range on this assessment (i.e., scale score greater than 399), it is apparent that participating in the READ 180™ program did not positively impact participants’ overall performances on the 2006 SOL mathematics assessment. However, there still appeared to be a positive trend for students in Grade 6 who received the intervention. For example, in this study, participants in the Grade 6 experimental group outperformed their peers in the control group on the SRI posttest, SOL reading assessment, and SOL mathematics assessment. While only the results on the SRI revealed significant findings regarding the differences between the groups, it is important to keep in mind that the fact that the present study involved a modified implementation of the READ 180™ program, where participants received the intervention every other school day as opposed to every school day, which is recommended by Scholastic, Inc.
African-American Participants’ Performance on the SOL Assessments in Reading and Mathematics

An analysis of the achievement data surrounding struggling adolescent readers reveals that that minority students are at a greater risk to experience weaknesses in adolescent literacy skills (McCombs, Kirby & Barney, 2005). Noting this trend within ABC Middle School, the school took measures to address this issue by targeting the identified gap in achievement in the 2004-2006 School Learning Plan. As a result, one of the action steps listed in the school’s plan included utilizing the READ 180™ program for African-American students with identified reading deficiencies.

A 2X3 factorial ANOVA (described in Chapter IV) was used to address research questions four and five. These two research questions examined whether African-American students participating in READ 180™ scored significantly higher on the 2005-2006 reading and mathematics SOL assessments when compared to African-American students of similar ability levels who did not receive the intervention. Because students in this study were matched on ethnicity in addition to other variables, the number of African-American students in each group was identical. The number of African-American participants in the experimental or control group for each grade was (a) 16 students in Grade 6, (b) 20 students in Grade 7, and (c) 17 students in Grade 8. The fact that the findings for both of these research questions were similar to the pattern of results for research questions two and three can be attributed in part to the large percentage of African-American participants for each grade level. For example, the percentages of African-American students for grades 6, 7 and 8 were 80%, 100% and 85% respectively.
Overall findings for both the reading SOL assessment and the mathematics SOL assessment indicated that participation in READ 180™ did not significantly impact African-American participants’ performances on these assessments. As noted above, because African-American participants comprised 100% of the group for students in Grade 7, the scores on these two assessments were identical to the results analyzed and discussed in the previous two sections for this grade level. An examination of the mean scale scores on the SOL reading assessment, however, did reveal subtle differences in scores for READ 180™ participants in grades 6 and 8. For example, the mean scores for the control groups (Table 13) for both of these grade levels varied by less than two points when compared to the means for the control groups for African-American students and white students combined (Table 9). In addition, the mean for Grade 6 African-American participants in the experimental group \( (N = 16, M = 451.9, SD = 50.7) \) was slightly lower than the mean for the total Grade 6 intervention group \( (N = 20, M = 456.9, SD = 50.8) \), and the mean for Grade 8 African-American participants in the experimental group \( (N = 17, M = 398.1, SD = 45.6) \) was slightly lower than the mean for the total Grade 8 intervention group \( (N = 17, M = 401.8, SD = 41.2) \).

As noted above, the pattern of results for research questions four and five were similar to those from research questions two and three. Only in Grade 6 did the intervention have a positive impact on students when compared to participants in the control groups for all three grade levels. According to Tatum (2000), the issue of how to increase the literacy achievement of African-Americans is embedded in social, cultural, economic, and historical dynamics. Tatum’s research, as well as that of Ladson-Billings (1995) and Gay (2000), suggests that there are specific strategies educators can utilize to
enhance the learning environment for African-American students. It appears that in order for students to benefit from such practices in the READ 180™ program, it will be imperative for the READ 180™ instructor to have firsthand knowledge of the literature surrounding adolescent literacy and African-Americans and to infuse these strategies into daily lessons. For example, while the READ 180™ program is very prescriptive, the instructor would still be able to incorporate culturally relevant literature into guided reading activities as well as throughout various mini-lessons.

Implications for Instructional Leadership

The findings of this study have practical implications for public school administrators, particularly for those at the middle school level faced with the challenge of how to best to address the population of struggling adolescent readers. The results of this study indicated that Grade 6 students who participated in the READ 180™ program did experience significant growth in reading comprehension when compared to grade level peers of the same reading ability levels. While the results of this study also indicated no significant findings for any of the groups of students who participated in the intervention program on the Virginia SOL assessments in reading and mathematics, the finding for Grade 6 students on the SRI is promising. For example, considering the fact that this study incorporated a modified implementation model of the READ 180™ program, ABC Middle School was able to achieve these results in Grade 6 via a block schedule. Thus, while utilizing a program designed for student use every school day for the same amount of class time, the school was able to positively impact the comprehension levels of twice as many students in this grade level because of the modified implementation schedule.
Based on the findings of this research, a recommendation for middle schools within this particular school district seeking to implement the READ 180™ program would be to focus efforts on students in Grade 6 reading one to two years below grade level. By targeting students in this grade level for the reading remediation program, schools would be making a commitment to close gaps in reading achievement between struggling readers and those reading on grade level during the students’ first year of middle school. In order for ABC Middle School to implement the program in this manner, the current implementation schedule would need to be modified in an effort to maximize the number of Grade 6 participants. For example, assuming that the school would utilize the one instructor already assigned to work with READ 180™, taking the program off of the elective schedule would enable the instructor to reach a greater number of Grade 6 students. In order to accomplish this, a recommendation would be for the instructor to teach four 55-minute classes on a daily basis. Based on the current licensing agreement with Scholastic, Inc., this schedule would allow the instructor to teach 60 Grade 6 students each school day for nearly one hour as opposed to reaching only 20 Grade 6 students (10 each block) for 90 minutes every other day. The advantages to this schedule would be (a) an increase in the number of Grade 6 students participating in the program by 40 students, (b) an increase in the amount of time students spend in the program over the course of two weeks by 150 minutes (450 minutes vs. 600 minutes), and (c) it would allow the students to meet with the instructor on a daily basis. In order for this revised schedule to be feasible, it would also mean that these 60 students would have to forgo attending one core class each day. In this case, the recommendation would be to seek parent permission for this group of students not to attend their daily scheduled
science classes. The rationale behind this decision is twofold. First, without adequate literacy skills, students have a difficult time comprehending texts on grade level, much less texts written above grade level: Science textbooks are often written at reading levels one to two grade levels higher than the grade level where the book is adopted for actual use. Second, currently students in Virginia are not tested on Grade 6 science standards until Grade 8. Thus, many administrators would argue that the tradeoff of being able to increase students' literacy skills in an intensive remediation setting on a daily basis at the expense of delaying for up to a year many of the skills specific to science students would have received while present in their Grade 6 science classrooms serves a plan that would ultimately benefit this population of students.

Based on the findings of this study regarding participants' performance on the Virginia SOL reading assessment, there are also several implications for practicing administrators regarding the use of the READ 180™ program. First, while many schools that implement READ 180™ require students to attend the program in lieu of their language arts class, the recommendation in this school district would be for students to attend the intervention in addition to attending their English classes on a daily basis. For example, even though the reading test blueprint was changed by the VDOE to increase the percentage of questions measuring reading comprehension to 51%, it would be too difficult to hold the READ 180™ instructor responsible for covering the contents of the entire Grade 6 curriculum framework document provided by the VDOE while trying to incorporate the instructional framework model of the intervention program at the same time. Second, if the READ 180™ instructor and the language arts teacher were able to plan as a team, approaching planning along the lines of a Venn Diagram, not only would
all of the curriculum be covered, but differentiation of instruction at the student level could also take place. Third, based on the findings for Grade 8 students on the SOL reading assessment, there does appear to be an indication that test-taking strategies used in conjunction with released test items could benefit students. As students in grades 6 and 7 continue to be tested in reading throughout Virginia, READ 180™ instructors are encouraged to incorporate these strategies into their lessons. Fourth, while Scholastic, Inc., provides a plethora of resources for the READ 180™ instructor to draw upon, Virginia teachers working with the program are encouraged to reference the state’s English curriculum framework documents on a weekly basis when planning lessons. This will not only assist students in making connections to what they are learning in their English classes, but it will also better prepare students for the SOL reading assessments. For example, this strategy would help to ensure that the terminology students will be held accountable for on the SOL reading assessments will be taught in such a way that students will be able to not only identify terms, but that they will be able to demonstrate understanding of the specific skills required to be successful on these assessments.

As discussed in Chapter IV, participants’ results on both the SRI and the SOL reading assessment were positive for students in the control group and the experimental group for all three grade levels. Based on the performance by students in the control groups on these assessments, it was evident that ABC Middle School’s comprehensive plan for addressing the school’s population of struggling adolescent readers did not only benefit the select group of students participating in the READ 180™ program. As a result of the school’s documented success involving students identified with deficits in reading, the findings of this study have additional implications for instructional leadership in
regards to support for literacy at the school district level as well as the individual school
level.

District level support for literacy. The results of this study have several
implications for supporting literacy at the school district level. First, it is important that
school districts acknowledge that the proportion of students entering middle and
secondary programs who are deemed to be proficient readers remains alarmingly low
(NCES, 2006). As a result, it also essential that school districts realize that reading
development is a continuum that begins in the preschool years and then extends into
adolescence and adulthood (Rand, 2002; Witkowski, 2004). While school districts should
examine the reasons why some students are leaving the elementary setting lacking the set
of literacy skills needed to be successful at the secondary level, districts should also work
to prepare secondary students for the array of literacy skills needed to be successful
during students' middle school and high school years (Moje, Young, Readence, &
Moore, 2000).

A second implication present within this study for supporting literacy at the
district level can be found when one examines the comprehensive approach taken by
ABC Middle School to address the issue of adolescent literacy. For example, in a recent
report by the National Governors Association (2005), the organization found that when
school districts develop all-encompassing literacy plans, many of the districts realize
gains in student achievement as a result of their efforts to target literacy. As a result of the
association's findings, the Adolescent Literacy Advisory Panel of the NGA suggested
that the states' governors pursue the encouragement and support of school and district
literacy plans as one of several strategies to improve adolescent literacy achievement.
Implications for school districts also exist when one examines the amount of time allotted to literacy related activities at the individual school level. For example, as noted by Ivey (2002), increasing the percentage of adolescents who will experience success as readers at the secondary level will require among other things, an allotment of time above and beyond the traditional 45- to 50-minute class period. While ABC Middle School accomplished this through a remediation period for select students in addition to time set aside each day for a period of silent sustained reading for all students, other avenues exist for increasing the amount of time students spend working on literacy related activities (NIH, 2003).

A fourth implication present within this study for supporting literacy at the district level relates to the emphasis school districts place on professional development for teachers and school leaders (Key, 2005). For example, the administration at ABC Middle School appeared to understand the importance of involving all stakeholders in such a large initiative. As a result of the school-wide focus on literacy, all faculty members received training in best practices surrounding adolescent literacy. This strategy not only allowed for meaningful dialogue to take place across discipline areas, it also encouraged a vested interest on the part of all staff members. In addition, the emphasis on using data to make instructional decisions at ABC Middle School enabled the administration to identify and focus remediation efforts on a specific subgroup population. The school’s efforts regarding staff development activities in the area of data disaggregation could also be embraced at the school district level.

Lastly, there exist implications for supporting literacy at the school district level through districts’ efforts to recruit and retain effective teachers and school leaders based
on the literature which links teacher quality and instructional leadership to student achievement. For example, a growing body of research suggests that schools can make a difference in student learning, and a considerable portion of the difference can be attributed to teachers (Darling-Hammond, 2000b). The effects of teachers on student achievement were examined closely in several studies that analyzed the Tennessee Value-Added Assessment System as well as a similar database used in Dallas, Texas (Wright, Horn, & Sanders, 1997). Findings indicated that teacher effectiveness is a strong factor which influences student learning. For example, those students in the study who were assigned an ineffective teacher several years in a row had significantly lower gains in achievement when compared to students who were assigned to several effective teachers for consecutive years. In addition, evidence exists which indicates that making changes to curriculum content, courses, testing, or student texts makes little impact on student achievement if teachers do not understand how to use these resources well and how to analyze their students' academic needs (Darling-Hammond, 1997).

A growing body of research also suggests that instructional leaders can make a difference in student learning. For example, a meta-analysis by Waters, Marzano and McNulty (2005) found an average correlation between 21 leadership responsibilities and various measures of student achievement. In their findings, the researchers concluded that students in the school of an average principal who improved his demonstrated abilities in all 21 responsibilities by one standard deviation would see approximately a 10% increase in student test scores. A report commissioned by The Wallace Foundation also conducted an in-depth analysis on how effective educational leadership makes a difference in improving student learning (Leithwood, Louis, Anderson, & Wahlstrom, 2004). The
review, which summarized a broad range of empirical research and related literature, concluded that:

there seems little doubt that both district and school leadership provides a critical bridge between most educational reform initiatives and their consequences for students. Of all the factors that contribute to what students learn at school, present evidence led us to the conclusion that leadership is second in strength only to classroom instruction. Furthermore, effective leadership has the greatest impact in those circumstances (e.g., schools “in trouble”) in which it is most needed. (p. 70)

School level support for literacy. In examining ABC Middle School’s approach to addressing the school’s population of struggling adolescent readers, there are several fundamental components of sound literacy plans that the school addressed during the 2006 school year. First, recognizing the need to have all stakeholders involved, the school developed a comprehensive literacy plan through its School Learning Plan process (NGA, 2005). This approach helped to facilitate a school-wide literacy program in an attempt to establish a positive reading culture. For example, included in the literacy plan were strategies such as a school-wide literacy committee, professional development activities focusing on best practices in reading for all faculty members, a process for identifying students in need of remediation, and financial resources allocated to support the various initiatives outlined in the plan.

Secondly, an effective literacy program often incorporates an extended period for literacy-related instruction (Robb, 2000). Recognizing the important role a school’s master schedule can play in fostering a culture of literacy, ABC Middle School reconfigured the school’s schedule so that all students were provided additional time
during the school day to interact with an increased volume of text. Perhaps the school-wide implementation of the daily 20-minute period for silent sustained reading (SSR) in each grade level contributed to the mean gain scores by all groups of participants on the SRI. In addition, the time allotted for SSR could have influenced the students’ performance on the SOL assessment, where mean scale scores for all groups of participants were in the passing proficient range on the 2005-2006 SOL reading assessment. In order to create this additional period of time during the day, ABC Middle School revamped the school’s master schedule because the school made a commitment to making literacy a priority. The amount of time allotted before, during and/or after the school day by teachers and administrators to expose students to text and proven reading strategies is a critical component to a comprehensive approach to supporting literacy (Allington, 2001; NGA, 2005; NRP, 2002; Roe, 2004).

A third implication for instructional leadership at the school level can be found when one examines the emphasis placed on disaggregating data at ABC Middle School and the school’s approach to using data to making instructional decisions at the individual student level. For example, the school realized through data disaggregation that a gap in reading achievement existed between African-American and white students. As a result, the school chose to target and address this identified need through its literacy plan. Because remediation resources (i.e., funding, space availability within programs such as READ 180™) are often limited at the individual school level, it is critical that building administrators possess the knowledge to effectively disaggregate data and to optimize remediation efforts for identified subgroup populations and individual students (Marshall, 2006; NGA, 2005).
A fourth implication for instructional leadership at the school level present within this study is evident when one analyzes the research-based approach taken by the school’s principal to address the issue of adolescent literacy. In the principal’s role as the instructional leader for the school, it is essential that the school leader examines the most recent research and what it reveals regarding best practices in literacy for the students they serve (Blokker, Simpson, and Whittier, 2002). For example, while an analysis of the achievement data surrounding struggling adolescent readers reveals that minority students are at a greater risk to experience weaknesses in adolescent literacy skills, what are school leaders actually doing to address this issue (McCombs, Kirby & Barney, 2005)? What steps are principals taking, for example, to incorporate a culturally relevant approach to teaching literacy (Gay, 2000)? Are school leaders continuing to grow as professionals by reading the works of experts in the field? What actions are principals taking to create individualized learning plans for those students identified as struggling adolescent readers (NGA, 2005)?

Conclusions

Because the primary responsibility of today’s principal is to facilitate effective teaching and learning, with an overall objective of enhancing student achievement, it is paramount that principals play an active role in identifying effective strategies and/or programs to reach this select group of students (Boscardin, 2005; McLeod, D’Amico, & Protheroe, 2003). As principals work toward improving student achievement in an effort to meet both state and federal criteria, it is becoming more evident that deficiencies in literacy skills, particularly at the secondary level, are proving to be a barrier for a large percentage of students whose districts’ goals include proficient
scores for all students on all statewide assessments (Rasinski & Padak, 2005). As a result, it will be vital for this group of educational leaders to be prepared to support reading initiatives in the schools in which they work (Ivey, 2002).

The current study was undertaken to examine the effectiveness of a reading intervention program designed to meet the needs of struggling adolescent readers. The findings suggest that a modified implementation model of the READ 180™ program (i.e., students attending every other day as opposed to every day) was found to significantly impact Grade 6 students' reading comprehension levels. It is important to note, however, that Grade 6 students identified for the program were reading one year below grade level on average, while participants in grades 7 and 8 began the program reading two years below grade level on average. Findings also indicated that the intervention did not significantly impact students' performance on the Virginia SOL assessments in reading or mathematics, nor did the modified implementation of the program significantly enhance African-American participants' scores on the dependent measures. Additional conclusions are as follows:

1. Simply allotting more time to address deficits in adolescents' literacy skills is not sufficient to closing the gap in reading achievement for all students. For example, all groups in all grade levels demonstrated gains on the Scholastic Reading Inventory (SRI) posttest. While students who received the intervention in Grade 6 demonstrated significant gains when compared to grade level peers of the same ability levels, students in grades 7 and 8 who received the intervention did not. Even though students in these two grade levels received approximately an additional 135 hours of instruction via the
remediation program, there were no significant differences in posttest scores on the SRI.

2. Regardless of whether schools choose to implement the READ 180™ program on a modified schedule or the schedule recommended by Scholastic, Inc., instructors should be encouraged to use their state’s curriculum framework documents while planning lessons. In addition to demonstrating growth in literacy skills, adolescents are going to be held accountable for their performance on end-of-year statewide assessments. While the program offers instructors an abundance of materials to use with students, it would be in students’ best interests for instructors to incorporate similar terminology, for example, found in state documents when teaching students in this setting.

3. Based on the findings for Grade 8 students in this study, there does appear to be some merit in utilizing test-taking strategies and having students to work with released test items (when available) to become familiar with state mandated test formats.

4. An important variable not examined within the confines of this study is the quality and effectiveness of the classroom teacher/instructor. While the READ 180™ instructor at ABC Middle School was a veteran educator (i.e., five years teaching READ 180™, 11 years experience as a reading specialist, over 20 years of experience as a teacher), the impact of the participants’ English teachers cannot be overlooked.
5. Perhaps the fact that all groups of participants passed the SOL reading assessment and demonstrated growth in reading proficiency on the SRI speaks to the school-wide approach ABC Middle School has taken to foster a culture of literacy and to reduce the identified gap in reading achievement between African-American and white students. As advocated by the National Governors Association (2005), states, school districts and individual schools are encouraged to develop comprehensive plans to address adolescent literacy. Implications for instructional leadership abound, as the primary responsibility of school principals in the 21st century is to facilitate effective teaching and learning with an overall objective of enhancing student achievement (Booth & Roswell, 2002; Boscardin, 2005; McLeod, D'Amico, & Protheroe, 2003).

6. Although the READ 180™ program did not produce significant positive findings for all students who participated in the intervention, it is important to keep in mind that students at ABC Middle School who participated in the intervention received only half of the class time recommended by Scholastic, Inc. The fact that Grade 6 students demonstrated a significant difference on the SRI under these conditions is promising considering that twice as many students in this grade level were able to be served under this model of implementation. Future research on a larger scale is recommended to explore the possible benefits of a modified implementation schedule of the READ 180™ program for Grade 6 students.
Recommendations for Future Research

1. The current study found a significant difference in reading comprehension levels for Grade 6 students who received the intervention when compared to Grade 6 students of similar ability levels who did not participate in the program. One avenue for future research would be to expand the size of the study for Grade 6 participants in schools with similar demographics while modifying the implementation schedule of READ 180™ so that students are provided the opportunity to participate in the program on a daily basis. Further research is also necessary to examine the impact of Grade 6 students reading within the range of one to two years below grade level, as the present study analyzed Grade 6 students who, on average, were reading one year below grade level.

2. The additional time students in the intervention groups received in language arts due to participating in the intervention did not necessarily translate into gains in reading (for students in grades 7 and 8) or significantly higher scores on SOL assessments in reading or math (for students in grades 6, 7, and 8). A second line of research in the future would be a study that used a second reading intervention program as an additional comparison group. For example, participants' results from students who were assigned to work with a reading specialist using a separate curriculum or program in a pullout setting could also be contrasted with READ 180™ participants' results on various dependent measures. Such a study would negate the fact that students receiving the intervention in the present study received approximately 135
hours of additional instruction in this content area above and beyond students in the control groups.

3. Research surrounding the topic of adolescent literacy often recognizes the impact student motivation can have on reading, particularly for adolescent boys (Allington, 2001; Brinda, 2004; Witkowski, 2004). The current study was unable to determine the impact student motivation had on students participating in the intervention in any of the three grade levels. For example, was there resentment among students receiving the intervention in grades 7 and 8 for not being able to participate in elective course offerings with their grade level peers? Did students’ attitudes toward reading improve significantly after having participated in READ 180™ for an entire school year? In addition, what would a search of school library records reveal about the difficulty level of books being selected by year’s end following participation in READ 180™? Or, did school attendance improve as a result of reading deficits being reduced and, in turn, result in a more positive outlook on school altogether?

4. Research studies have concluded that incorporating a culturally relevant approach to teaching literacy can lead to gains in student achievement (Educational Research Service, 2001; Gay, 2000; Office of Educational Research and Improvement, 1997). While the present study examined the impact of the READ 180™ program on African-American participants’ achievement scores at ABC Middle School, this study was not able to ascertain what impact creating a culturally responsive classroom via the
READ 180™ program would have had on African-American students.

Another line of research in the future would be to conduct a study that incorporated culturally responsive pedagogy in a remedial reading setting to examine the impact of this strategy on students from various ethnic backgrounds.

5. Based on the gains in reading achievement demonstrated by participants in the control groups for all three grade levels involved in this study, in addition to the performance by these students on the 2006 Virginia Standards of Learning assessment in reading, ABC Middle School was able to achieve positive student outcomes for this group of struggling readers. These results were impressive considering that this group of students, with identified reading deficits, received no additional remediation in reading above and beyond the regular classroom setting. A sixth avenue for future research would be to analyze the instructional leadership at ABC Middle School in an effort to ascertain what specific strategies were implemented which yielded the school such positive student outcomes with its population of struggling readers.
References

Allen, R. (2000, Summer). Before it’s too late: Giving reading a last chance. *Curriculum Update*. Retrieved September 20, 2006, from http://www.ascd.org/portal/site/ascd/template.MAXIMIZE/menuitem.7aaa3600d26ec4cebb85516f762108a0c/?javax.portlet.tpst=d5b9c0fa1a493266805516f762108a0c_ws_MX&javax.portlet.prp_d5b9c0fa1a493266805516f762108a0c_viewID=isue_view&javax.portlet.prp_d5b9c0fa1a493266805516f762108a0c_journalmoid=e854a58683eaff00VgnVCM1000003d01a8c0RCRD&javax.portlet.begCacheToken=token


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APPENDIX A

RESOURCES FOR CULTURALLY RESPONSIVE INSTRUCTION


## APPENDIX B

**LEXILE SCALE: PROFICIENCY LEXILE RANGES**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lexile Range</th>
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<td>Grade 1</td>
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<td>Grade 5</td>
<td>700-1000</td>
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<td>800-1050</td>
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<tr>
<td>Grade 7</td>
<td>850-1100</td>
</tr>
<tr>
<td>Grade 8</td>
<td>900-1150</td>
</tr>
<tr>
<td>Grade 9</td>
<td>1000-1200</td>
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<tr>
<td>Grade 10</td>
<td>1025-1250</td>
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<tr>
<td>Grade 11</td>
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<td>Grade 12-College Senior</td>
<td>1240-1500</td>
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<tr>
<td>Graduate School</td>
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## APPENDIX C

### CUT SCORES FOR THE VIRGINIA STANDARDS OF LEARNING TESTS

| SOL Test | Grade 3 | | Grade 4 | | Grade 5 | | Grade 6 | | Grade 7 | | Grade 8 |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|          | Fail/Basic | Pass/Proficient | Pass/Advanced | Fail/Basic | Pass/Proficient | Pass/Advanced | Fail/Basic | Pass/Proficient | Pass/Advanced |
| **English: Reading** | | | | | | | | | |
| Mathematics | 13 out of 35 items | 23 out of 35 items | 31 out of 35 items | 14 out of 35 items | 23 out of 35 items | 31 out of 35 items | 17 out of 40 items | 27 out of 40 items | 37 out of 40 items |
| History & Social Science | 21 out of 50 items | 35 out of 50 items | 45 out of 50 items | 16 out of 50 items | 23 out of 50 items | 43 out of 50 items | 27 out of 40 items | 35 out of 40 items | 44 out of 50 items |
| Science | NA | 27 out of 40 items | 44 out of 50 items | NA | 26 out of 40 items | 37 out of 40 items | NA | 25 out of 40 items | 35 out of 40 items |
| **Mathematics** | 17 out of 35 items | 27 out of 35 items | 37 out of 35 items | 23 out of 35 items | 27 out of 35 items | 37 out of 35 items | 23 out of 35 items | 27 out of 35 items | 37 out of 35 items |
| **English: Writing** | | | | | | | | | |
| Mathematics | 17 out of 40 items | 27 out of 40 items | 37 out of 40 items | 23 out of 40 items | 27 out of 40 items | 37 out of 40 items | 23 out of 40 items | 27 out of 40 items | 37 out of 40 items |
| Virginia Studies | NA | 32 out of 44 items | 41 out of 44 items | NA | 35 out of 50 items | 44 out of 50 items | NA | 25 out of 40 items | 35 out of 40 items |
| Science | 23 out of 50 items | 35 out of 50 items | 44 out of 50 items | 19 out of 50 items | 25 out of 50 items | 35 out of 50 items | 26 out of 40 items | 36 out of 40 items | 37 out of 40 items |
| **Science** | 27 out of 40 items | 32 out of 40 items | 35 out of 40 items | 26 out of 40 items | 29 out of 40 items | 35 out of 40 items | 26 out of 40 items | 29 out of 40 items | 35 out of 40 items |
| **History & Social Science** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **Mathematics** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| Science | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **History & Social Science** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **Mathematics** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| Science | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **History & Social Science** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **Mathematics** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| Science | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **History & Social Science** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| **Mathematics** | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
| Science | 32 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items | 29 out of 40 items | 35 out of 40 items | 37 out of 40 items |
APPENDIX D

LETTER OF APPROVAL TO CONDUCT RESEARCH IN HAMPTON CITY SCHOOLS
January 16, 2007

Mr. John Caggiano
170 Fox Hill Rd.
Hampton, VA 23669

Dear Mr. Caggiano,

Thank you for your request to conduct research in Hampton City Schools. The Research Committee has approved your proposal “Addressing the Learning Needs of Struggling Adolescent Readers: The Impact of a Reading Intervention Program on Students in a Middle School Setting”.

It is our hope that you will share your findings with the committee. We wish you success in your research.

Sincerely,

Sally B. l'Anson, Ed.D.
Director of Instructional Accountability

SBI:kjn

"The First Choice"
www.sbo.hampton.k12.va.us
This is to notify you on behalf of the Protection of Human Subjects Committee (PHSC) that protocol EDIRC-PHSC-2007-02-04-4558-jacagg titled Addressing the Learning Needs of Struggling Adolescent Readers: The Impact of a Reading Intervention Program on Students in a Middle School Setting has been EXEMPTED from formal review because it falls under the following category(ies) defined by DHHS Federal Regulations: 45CFR46.101.b.1, 45CFR46.101.b.2, 45CFR46.101.b.4.

Work on this protocol may begin on 2007-02-06 and must be discontinued on 2008-02-06. Should there be any changes to this protocol, please submit these changes to the committee for determination of continuing exemption using the Protocol and Compliance Management channel on the Self Service tab within myWM (http://my.wm.edu/).

Please add the following statement to the footer of all consent forms, cover letters, etc.:

THIS PROJECT WAS FOUND TO COMPLY WITH APPROPRIATE ETHICAL STANDARDS AND WAS EXEMPTED FROM THE NEED FOR FORMAL REVIEW BY THE COLLEGE OF WILLIAM AND MARY PROTECTION OF HUMAN SUBJECTS COMMITTEE (Phone 757-221-3966) ON 2007-02-06 AND EXPIRES ON 2008-02-06.

You are required to notify Dr. Deschenes, chair of the PHSC, at 757-221-2778 (PHSC-L@wm.edu) if any issues arise with participants during this study.

Good luck with your study.

----------------------------------
COMMENTS
----------------------------------
No comments available
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<td>6.3 a-d</td>
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<tr>
<td></td>
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<td>6.5 c</td>
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<td></td>
<td></td>
<td>6.5 g</td>
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<td>Demonstrate comprehension of printed materials</td>
<td>34</td>
<td>6.4 a-h</td>
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<tr>
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| Total Number of Operational Items                      | 45              |
| Field-Test Items*                                      | 10              |
| Total Number of Items                                  | 55              |

*These field-test items will not be used to compute students’ scores on the test.
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<tr>
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*These field-test items will not be used to compute students' scores on the test.
### Grade 8 Reading Test

#### Blueprint Summary Table

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*These field-test items will not be used to compute students' scores on the test.