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An Assessment of *READ 180* Regarding Its Association With the Academic Achievement  
of At-Risk Students in Sevier County Schools

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A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor of Education

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by

Jayson Nave

August 2007

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Dr. Cecil Blankenship

Dr. Eric Glover

Dr. Louise MacKay

Keywords: Academic Achievement, At-Risk, *Read 180*, TCAP Scores,  
Phonics, Whole Language

## ABSTRACT

### An Assessment of *READ 180* Regarding Its Association With the Academic Achievement of At-Risk Students in Sevier County Schools

by

Jayson Nave

*READ 180* is an intensive reading intervention program designed to meet the needs of students whose reading achievement is below the proficient level. The program addresses individual learning styles through adaptive software, interesting literature, and direct instruction with reading skills. The purpose of this study was to compare the achievement of academically at-risk students in Sevier County Public Schools in East Tennessee who participated in the *READ 180* pilot program with the achievement of their academically at-risk peers not enrolled in the intervention program before and after its implementation in order to assess the reading intervention program. The Sevier County school system, after extensive study and involved research, decided to allocate over \$750,000 into the *READ 180* reading intervention program at the beginning of the 2004-2005 school year.

The study included students in grades 5 and 7 who participated in the *READ 180* pilot program and their at-risk peers in grades 5 and 7 who did not participate in the *READ 180* program. The select group of at-risk students participated in *READ 180* as a pilot program to determine the impact of the program upon each student's academic achievement. The students were selected for the study based upon their composite reading TCAP score being in the lowest quartile, thus deeming the student at-risk. Test scores reported for 2004 and 2005 on the Tennessee

Comprehensive Assessment Program were obtained from the Sevier County school system's records.

Comparisons were made on the TCAP total reading-language scores, total math scores, gender, and socioeconomic assessments. Differences between the program's groups (*READ 180* at-risk participants and nonparticipants) on "pre-*READ 180*" scores were measured using two 3-way ANOVA models, one for 5th grade and one for 7th grade. Results from the study showed that *READ 180* was significantly associated with the success for many of the at-risk students whether by gender, socioeconomic status, or overall student numbers as compared to their at-risk counterparts who were not enrolled in the *READ 180* program.

## DEDICATION

I dedicate my hours of work to God.  
The Lord instills in me a passion for learning and greatness.  
The Lord gives me health, strength, and drive.  
The Lord gives me endurance.  
The Lord gives me patience, peace, wisdom, and knowledge.  
For without the Lord nothing would be possible.

I dedicate my hours of work to a very special lady in my life.  
My wife, Julie “Jules” has stood beside me and supported me throughout this process.  
She has supported the many trips.  
She has supported the many hours.  
She has supported the time away from her and family.  
She has been beside me all the way.  
I thank her and love her for that.  
I do this for her and my girls.

I dedicate my hours of work to my father and mother, Dr. Charles and Marilyn Nave.  
They instilled in me a passion to go after anything I desire.  
I thank them for their understanding, molding, and patience with me.

I dedicate my hours of work to the Sevier County School System,  
A school system my ancestors have given countless hours to,  
A school system I love and believe in,  
A school system I want to give my energies, discipline, and passion to for many years.  
A school system I hope will use this work to help our community.

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## CHAPTER 1

### INTRODUCTION TO THE STUDY

Reading is a major skill at the core of all academic learning, and the professors at Vanderbilt University and Peabody College in Nashville, Tennessee, are attempting to change the world of reading education for struggling students one child at a time. Hasselbring (2000) of Vanderbilt University, while trying to improve the reading skills of the physically and mentally impaired through the use of technology, had the idea that the same technological techniques might help the nation's youth in reading proficiency. According to Davidson and Miller (2002), Hasselbring's (2000) work, Scholastic's *READ 180*, is claimed to have changed the thoughts of many educators and is now, supposedly, changing the future of thousands of young lives throughout the country.

Scholastic's *READ 180* is a reading intervention program geared for those students reading below the proficiency level in grades 4 through 12. Davidson and Miller (2002), who evaluated the program for Scholastic, reported that in essence, *READ 180* is an instructional model consisting of 90 minutes of classroom instruction during which teachers and students engage in a variety of activities and instructional modes. The class is broken into three sections with whole-group instruction for 20 minutes, then into small-group instruction that involves 20-minute stations including computers, reading, writing, and finally, a 10-minute whole-group wrap-up (Davidson & Miller).

#### *Purpose of the Study*

The purpose of this study was to compare the achievement of academically at-risk students in Sevier County Public Schools in East Tennessee who participated in the *READ 180* pilot program with the achievement of their academically at-risk peers not enrolled in the

intervention program before and after its implementation in order to assess the value of the reading intervention program. The scores on the Tennessee Comprehensive Assessment Program (TCAP) of at-risk students enrolled in the *READ 180* program were compared to those scores of at-risk students who were not enrolled in the pilot program.

### *Research Questions and Hypotheses*

The following research questions were formulated to guide the investigation:

1. To what extent, if any, are there differences in students' test performance in reading-language arts between the testing periods (the beginning and the end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
2. To what extent, if any, are there differences in students' test performance in math between the testing periods (the beginning and the end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
3. To what extent, if any, are there differences in students' test performance in reading-language between the testing periods (the beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
4. To what extent, if any, are there differences in students' test performance in math between the testing periods (the beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

The null hypotheses were:

- Ho1 There are no differences between the test scores of males and females on the reading-language arts test at the beginning of the 2004-2005 school year.

- Ho2 There are no differences between the test scores of males and females on the reading-language arts test at the end of the 2004-2005 school year.
- Ho3 There are no differences between the gain scores of males and females on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho4 There are no differences between the test scores of males and females on the math test at the beginning of the 2004-2005 school year.
- Ho5 There are no differences between the test scores of males and females on the math test at the end of the 2004-2005 school year.
- Ho6 There are no differences between the gain scores of males and females on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho7 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho8 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the end of the 2004-2005 school year.
- Ho9 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho10 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the beginning of the 2004-2005 school year.



- Ho11 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the end of the 2004-2005 school year.
- Ho12 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho13 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho14 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the end of the 2004-2005 school year.
- Ho15 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho16 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the beginning of the 2004-2005 school year.
- Ho17 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the end of the 2004-2005 school year.
- Ho18 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

### *Significance of the Study*

As a reading intervention program for students deemed to be at risk, *READ 180* has recently received a great deal of attention as a chance for success for students needing intense help. The Sevier County school system has appropriated a great deal of time, efforts, research, and resources toward the *READ 180* program as assistance for at-risk students and at-risk schools (D. Cline, Director of Curriculum and Instruction, Sevier County school system, personal communication, June 20, 2005). This study should provide quantitative information that could be used by the Sevier County school system to evaluate one dimension of the effectiveness of the reading intervention program. Teachers, administrators, and the entire school system might benefit from the information collected in this study to make better decisions on personnel, money, equipment, and time allotted for the *READ 180* program.

### *Limitations, Delimitations, and Assumptions*

The participants in this study were delimited to 160 students representing a pilot group of learners in the Sevier County school system who participated in *READ 180* during the 2004-2005 school year. Participants were broadly representative of races, socioeconomic levels, and learning abilities.

The study was limited in that *READ 180* was a pilot program for the Sevier County school system. A limitation was that only students in certain grades were able to participate in the *READ 180* program. *READ 180*'s program design has the potential to be continued in order to reach students in grades 4 through 12; however, because it was a pilot program, the focus of the study was placed upon an elementary-school grade (fifth) and a middle-school grade (seventh). Other grade-level information was available; but, because of the limited numbers of students within subgroups and the possibility of student exposure, only grades five and seven were chosen for the study. These two grades were chosen to avoid revealing the identities of students in other grades who had access to the *READ 180* program. Another limitation was that

*READ 180* had a maximum class size of 21, whereas other classrooms not involved in the study had a maximum capacity of up to 25 students for fifth grade and 30 for seventh grade. A further limitation was that students' reading instruction in non-*READ 180* classrooms was not monitored with the same guidelines to ensure that the instructional techniques and conditions were the same in the classes regardless of who the various reading teachers were.

Assumptions were made that TCAP scores reported for the beginning and ending of the 2004-2005 school years were accurate and indicative of students' achievement. It was also assumed that the TCAP tests were administered in settings that were conducive to optimum performance by all schools. Environmental factors such as lighting, room temperatures, comfortable seating, and room arrangements were assumed to have been satisfactory. Incidentals such as test stress, threat of failure, disruptive behavior, teacher behavior, and other distractions were assumed to have been recognized throughout the testing procedure.

Assumptions were made that all the teachers participating in the *READ 180* intervention program were guided by the standards set for the *READ 180* program and the schedule was implemented. It was also assumed that all the teachers participating in the *READ 180* program used the same materials and the plan of methods provided to them by the Scholastic *READ 180* training program.

Assumptions were also made that all schools in the study had capable, competent, and comparable teachers in skill and ability. A deeper assumption underlying school presence involved the schools' climate. It was assumed that all participating schools were safe and comfortable and provided equitable opportunities for academic success.

### *Definitions of Terms*

For the purpose of this study the following definitions were applied:

1. *Academic achievement*: a measure of accomplishment on a set of tasks as determined by the results reported on the Tennessee Comprehensive Assessment Program (TCAP).
2. *At-risk*: a student whose reading achievement is below the proficient level and falls into the lowest quartile for the composite reading score on the TCAP.
3. *READ 180*: an intensive reading intervention program designed to meet the needs of students whose reading achievement is below the proficient level. According to Davidson and Miller (2002), the program "directly addresses individual needs through adaptive and instructional software, high-interest literature, and direct instruction in reading skills" (p. 2).
4. *Tennessee Comprehensive Assessment Program (TCAP)*: a criterion-referenced assessment system designed to measure concepts, processes, and skills taught throughout the state using a series of interconnected assessments (TB/McGraw-Hill, 1996).
5. *Proficient level*: Although the state of Tennessee does not formally define proficient, it is defined elsewhere as having the ability to perform the art of reading with correctness and competence pertaining to the appropriate grade level of the learner (American Heritage Dictionary, 1985).

#### *Organization of the Study*

The study is comprised of five chapters. Chapter 1 contains an introduction, the purpose of the study, research questions and hypotheses, the significance of the study, limitations, delimitations, assumptions, and definitions of terms. Chapter 2 contains a review of literature related to the study. Chapter 3 includes the research design, population, instrumentation, method of data collection, and the methods of data analysis used in the study. Chapter 4 presents an

analysis of the data and treatment of the results. Chapter 5 includes a summary of the findings, conclusions, and recommendations for practice and further study.

## CHAPTER 2

### REVIEW OF LITERATURE

#### *Education in Colonial America*

Religious turmoil in England in the early 17th century drove thousands of dissenters across the Atlantic Ocean seeking a better life in the region they would name New England. Many brought literacy with them as they sought economic as well as spiritual betterment for themselves and their children (Monaghan, 2005).

Reading was valued more than writing because it gave access to Biblical scriptures, and memorizing scriptures was the key for children learning to read. The availability of books was very limited, although some books, the “steady sellers” of the printing business, had a comparatively large circulation and a long shelf life as books were treated with reverence and read again and again (Monaghan, 2005). According to Monaghan, the colonists' texts for reading instruction were virtually a course in Christianity: the Hornbook, Primer, Psalter, Testament, and the Bible. The Hornbook was a little paddle of wood with a single page tacked onto it that consisted of the alphabet, four lines of syllables, the invocation, and the Lord’s Prayer. The original meaning of a primer was a book of prayer. The instructional content of primers--the letters of the alphabet, the syllabary (ab, eb, ib, ab, ub, bas, be, bi, bo, bu), and a few tables of words--was brief in relation to the religious content. The Psalter was the Book of Psalms printed as a separate book, and the “Testament” was the New Testament. The Bible was the climax of the reading sequence, capping this succession of ever more challenging Christian texts (Monaghan).

One text that lay outside this sequence of Christian texts was the spelling book. According to Monaghan (2005), this spelling book might have been a reprint of the English "Schoole-Maister" by Edmund Coote, first printed in London in 1596 and reprinted many times

thereafter. The book was in two parts, the first of which offered the syllabary and monosyllables and the second contained rules for reading and spelling. The increased use of the spelling book across the American provinces was the most significant feature of the 1730s and 1740s. Inserted into the reading sequence after the Primer and before the Psalter, it would become the most widely imported and domestically printed reading instructional schoolbook of its time (Monaghan). While schoolmasters and missionary societies adhered to traditional texts, the world around them was changing. The printing press with the production of newspapers introduced an important addition to the stock of print available for reading in the early 18th century.

In the larger towns of Massachusetts, as in much of New England, public schooling opportunities for boys continued to improve; by 1720, Boston had two Latin grammar schools and three writing schools. In the cities, curricular offerings expanded for boys whose parents could afford to send them to private schools. By 1750, private schools in Boston were offering classes in mathematics, from arithmetic to trigonometry, as well as the core subjects of instrumental and vocal music (Monaghan, 2005).

As noted by Monaghan (2005), girls were not wholly excluded from this curricular expansion, although they rarely attended school at the same time as did their brothers. Schools for girls focused mainly on needlework, tapestry, embroidering, and marking. Girls as well as boys could take language lessons, most often French, that were offered in Boston and other major colonial cities well before 1750 (Monaghan).

### *Reading Instruction*

For most of the colonial period, the order of skills taught (reading, writing, and spelling) was consistent. Spelling was the route to reading, reading before writing, and writing before arithmetic. Reading was taught through the alphabet method, using the alphabetical letter as the unit and proceeding from the letter to the syllable, from the syllable to the word, from the word

to the sentence, from part to whole. The goal of reading instruction for virtually all children, in any region of the colonies, was to enable them to read the entire Bible (Monaghan, 2005). Monaghan pointed out that reading was also regarded as a bulwark against barbarism, and in principle, children needed to learn to read so that they could read and obey laws as adults.

Children in colonial and provincial America were exposed to alternative pronunciation of vowels from their first instructional text, for, while they were mastering the syllabaries of the hornbook, primer, and speller, they learned that the *e* in *eb* was to be pronounced differently from the *e* in *be*. These principles were reinforced throughout the spelling book (Monaghan, 2005).

The colonial approach to reading and writing instruction has largely been discarded today; there is little temptation to return to lengthy exercises in the pronunciation of lists of words arranged mainly by syllabic length and stress placement that were the backbone of the early spelling book. According to Monaghan (2005), this practice involved an excess of repetition and deferred meaningful reading far too long. Indeed, from the 1820s on, educational reformers initiated a quest to find substitutes for the alphabet methods and devised several new approaches such as the word, phonic, and sentence methods in attempts to improve beginning reading instruction (Monaghan). Under the alphabet method, if students should meet the word *leg* for the first time in a book, they would have to make the linguistic leap for the letter names, “*el, ee, gee,*” to the word’s pronunciation, “*leg.*” Critics noted that the “*el, ee, gee*” would more likely be construed as *elegy* than *leg*. Under the phonic approach, sounding and blending the letters representing sounds such as, “*lll, eh, guh,*” is considered to be a somewhat better springboard to the pronunciation of “*leg*” (Monaghan).

### *Modern Approaches to Reading Instruction*

A debate rages on among educators, parents, and experts over the best approach to teach reading--whole language or phonics? Or, would a combination of the two be a better approach?



Proponents of each method maintain their particular approach provides the key to engaging children in reading. As arguments over methods intensify, the ability to read well has become more critical than ever (Cromwell, 1997).

Children who do not succeed at reading are at risk of doing poorly in school. This is why teachers and administrators are under increasing pressure to increase students' reading test scores. Guiding students to improve reading strategies and performances can be more difficult than simply recognizing the need to do so. Supporters of the whole-language approach contend that children's literature, writing activities, and communication activities can be used across the curriculum to teach reading; backers of phonics instruction insist that a direct, sequential mode of teaching enables students to master reading in an organized way (Cromwell, 1997).

Emerging from the conflict over whole language and phonics is the increasingly widespread view that each approach has a different but complementary role to play in the effective teaching of reading. Many educators now look for ways to use phonics as part of whole-language instruction by striving to teach meaningful phonics in the context of literature (Cromwell, 1997).

According to Cromwell (1997), a recent International Reading Association (IRA) position statement shocked many in the reading community who, rightly or wrongly, assumed the IRA to be a bastion of the whole-language movement. Instead, this organization took a stance supporting phonics within a whole-language program. In *The Role of Phonics in Reading Instruction*, Cromwell stated that the IRA maintained:

1. the teaching of phonics is an important aspect of beginning reading instruction;
2. classroom teachers in the primary grades do value and do teach phonics as a part of their reading programs; and
3. phonics instruction, to be effective in promoting independence in reading, must be embedded in the context of a total reading-language arts program (p. 2).

Before discussing more of the debate about which stance is more appropriate for reading instruction, one must first understand more about whole language, phonics, the history of reading instruction, and the politics that attaches itself to the battle over which strategy is best.

### *Whole Language*

Whole language is a concept that has gained increasing interest within education in the past 30 years. According to Goodman (1986), whole language is a concept that embodies both a philosophy of language development and the instructional approaches embedded within and supportive of that philosophy. This concept includes the use of real literature and writing to create motivation and interest in the context of meaningful, functional, and cooperative experiences in order to develop in students the process of learning. It puts learners in control of what they read and write. Moreover, it produces new roles for teachers and learners and a new view of how learning and teaching are related. Whole language emphasizes the need for curriculum integrated around problem solving in science and social studies with pupils generating their questions and answering them collaboratively. Whole language values the classroom as a democratic learning community where teachers and pupils learn together and learn to live peacefully together (Goodman, 1986).

Whole language has also been defined as a philosophy or concept from which to draw strategies for teaching (Morrow, Smith, & Wilkinson, 1994). According to Morrow et al., literacy activities are purposefully integrated into the learning of content area subjects such as art, music, social studies, science, math, and play. This is often done using social studies and science themes. Equal emphasis is placed on the teaching of reading, writing, and speaking because the enhancement of one area improves skills in one of the other areas as well (Morrow et al.).

According to Stahl (1994), whole language is rooted in various “progressive” movements in education especially the activity-based educational approach of Colonel Francis Parker and

John Dewey that was applied to reading and the Language Experience Approach (LEA) that was used in the 1960s. However, these movements have never achieved the mass acceptance that whole language has achieved (Stahl, 1994).

Although whole-language movement advocates credited Dewey (1916) for inspiration, according to Mathews (1966), Dewey did not concern himself with specific methods of teaching reading. Instead, he sponsored and supported Parker, whose methods of teaching reading preceded the current whole-language movement. According to Kline, Moore, and Moore, (1987), Parker's educational philosophy could be summed up with the following quotation: "Reading should be first of all interesting to the learner, and in order to be interesting, it must come close to and enter the child's stream of thought" (p. 143). Parker disdained the use of textbooks; instead, he sought out children's books and boasted of a library of over 123,000 volumes in the Cook County, Illinois, Normal School, which was a school for training teachers in a rural setting, that he ran from 1883 to 1899. The school had a printing press that was used for publishing children's writings. These writings were used as the primary source of reading material for the first 3 years of school and as a source for sight-word learning and phonics analysis (Stahl, 1994).

In addition, Parker integrated reading into the content areas using natural history and social studies as the content for reading lessons from the first grade and beyond. Students dictated their observations of nature, geography, history, or literature, and these dictations were used for oral reading (Stahl, 1994).

It is easy to see similarities between Parker's model and the current whole-language movement, nevertheless, there are some differences. First, Parker explicitly provided for sight word and skill instruction in his program developing a pedagogy that was to be used by all the teachers in his charge. In whole-language instruction, explicit phonics instruction is similarly embedded in other literacy activities, but there is no specific methodology provided. In his book devoted to phonics, Goodman (1992) said little about how to teach children to decode. Second,

some of the more modern innovations of whole-language instruction were not used in Parker's schools. There was no invented spelling; instead, children dictated their stories to the teacher. In addition, there was no use of large spelling books or "Big Books" because such material was not available (Stahl, 1994).

Parker brought his methods first to the Quincy City schools in Massachusetts and later to the Cook County, Illinois, Normal School. Because research methodology was not available in 1899, nor was any sort of standardized testing, the relative effectiveness of his approach cannot be assessed, but the ostensible reason for his leaving Cook County was concern about the low achievement of the children in the school. Parker left Cook County Normal School and went to a school that eventually became the University of Chicago Laboratory School headed by Dewey (Stahl, 1994). From contemporary surveys (Mathews, 1966), however, the progressive ideas of Parker were never the dominant views of education in this country; instead, they were used in a handful of school systems throughout the nation and then abandoned (Stahl, 1994).

### *What is Whole Language?*

The modern incarnation of whole-language instruction might be traced to a paper presented by Goodman and Goodman (1979) at a conference on the theory and practice of early reading held at the University of Pittsburgh in 1976. In a jointly written speech entitled "Learning to Read is Natural," the Goodmans melded an expanded version of the "psycholinguistic model" of reading that included socio-cultural views of language functions with interest in preschool children's emerging knowledge of reading. According to Stahl (1994), their paper laid out the basic premises of the whole-language movement: (a) learning to read can be as natural a process as learning to speak and understand oral language, (b) learning to read should take place in an environment rich in literacy where written language serves a function and is used for authentic purposes, and (c) by learning to read in such an environment, children will learn to read and write naturally.

From this beginning, the whole-language movement has burgeoned. In the late 1980s, journals such as *The Reading Teacher*, *Elementary School Journal*, and *Teacher Magazine* devoted entire issues to whole-language instruction. The National Educational Association distributed a videotape explaining how to adapt whole-language principles to teach reading. Articles have appeared about whole-language instruction in mainstream newspapers such as the *New York Times* and the *Chicago Tribune*. In a 1992 survey of fourth-grade teachers, conducted as part of the National Assessment of Educational Progress, 42% reported a “heavy” emphasis on whole language and an additional 41% reported a “moderate” emphasis. These figures undoubtedly included a great many teachers who were using basal readers marketed as “whole language basals” (Stahl, 1994).

In spite of the popularity of the whole-language movement, it is difficult to fix a clear definition to the term “whole language” (Altwerger, Edelsky, & Flores, 1987; Bergeron, 1990; Watson, 1989). Three books (Edelsky, Altwerger, & Flores, 1991; Goodman, 1986; Newman, 1985) have been essentially devoted to the topic of defining whole language. Even with this work, the definitions have been hazy. Bergeron reviewed articles that used the term and examined commonalities among definitions. She found that whole language was defined differently in each of the 64 articles reviewed and that little consistency was found in the descriptions of those attributes thought to be the focus of whole language.

In the case of whole language, this lack of an objective definition seems deliberate. Even adherents refuse to define whole language, arguing that to do so would disempower practitioners. Watson (1989), for example, cited several different definitions of whole language and then said, “These definitions may lack sameness, but they never go outside the boundaries of an acceptable definition of some dimension of whole language” (p. 15). The definitions are diverse because the personal and professional histories of the authors are different. This variety frees those who have studied and practiced whole language to generate their own definitions and revise their definitions again and again (Stahl, 1994).

Gunderson (1997) suggested that whole language was an “intertext” rather than a concept. That is, whole language defined a set of beliefs held by a community. This set of beliefs was always changing and developing as the community developed. According to Gunderson, beliefs held by members of the community might differ from those held by others in some ways, but beliefs held by any two members should be similar to each other and different from those of nonmembers. This makes whole language difficult to define, for nonadherents at least, and difficult to research.

Even if one cannot precisely define whole language, there is a consensus that is shared by most whole-language practitioners. Among these are that language (oral and written) is used for authentic purposes such as communication and information and that children will learn language (oral or written) best if it is learned for authentic purposes (Goodman & Goodman, 1979). In the classroom, this involves the use of authentic reading and writing tasks using whole texts and not looking at language for its own sake or using artificial tasks such as worksheets or the specially adapted stories found in basal-reading programs. There is also a focus on child-centered learning in empowering children to direct their own learning. One tenet is that instruction should occur not when the teacher or curriculum developer plans it but in response to students’ needs as they attempt to pursue language for communication. There are activities found in many whole-language classrooms, such as choral reading of Big Books (Holdaway, 1979) that teach reading aloud to children, sustained silent reading, the use of process writing (Graves, 1983), and the use of an “author’s chair” (Graves & Hansen, 1983), but these activities do not define whole language. Instead, these activities are practical ways of implementing a whole-language philosophy. These activities can be used in classes of a number of different philosophies. Whole-language theorists make it clear that whole language is not a “method” or a collection of activities but a philosophy that underlies all the teacher’s instructional decisions (Graves & Hansen).

Whole language has often been defined by contrasting it with other instructional practices. It was stated that whole language was not “phonics” (Watson, 1989), but others contended that whole-language methods did teach the relationships between sounds and symbols but only as needed and in a manner integrated with the reading of text (Newman & Church, 1990). Others contrasted whole language with basal reading programs (Shannon, 1993), but many commercially published materials have drawn from the whole-language movement in their design (Hoffman et al., 1994).

The reason that whole language has not been well defined seems to lie in the belief that it should not be codified into a “method” that could be combined with other methods, thus losing its philosophy. The Language Experience Approach began as a philosophy but became integrated into classrooms as one method among many. The language experience charts used today are very different from the integrated reading-writing-speaking-listening in Allen’s (1976) or Stauffer’s (1970) language-experience classrooms. Whole-language advocates argued strongly against eclecticism. Newman and Church (1990), for example, explained that one could not do just a little bit of whole language and leave everything else untouched. Goodman (1992) stated that eclecticism, taking useful bits and pieces from here and there, was probably the best policy for teachers who did not have a well-articulated belief system and knowledge base about whole language. They could put together activities that work for them without integrating it all or being overly concerned with inconsistencies. Stahl (1999) said that whole-language teachers were beyond eclecticism. Because eclecticism views instruction as a collection of activities, it would seem that eclecticism, rather than phonics or skills, is the opposite of whole language (Stahl, 1999).

Nevertheless, some researchers suggested that most teachers were eclectic. Pressley, Rankin, and Yakoi (1996) surveyed exemplary teachers and found that although teachers did claim that they were doing many of the activities typical of whole-language instruction such as using trade books as a medium of instruction, integrating reading and writing, and using invented

spelling, they also were devoting time to direct teaching of phonics and other word identification skills in isolation. Mullis, Campbell, and Farstrup (1993), in addition to finding heavy emphasis on whole language, also found that 33% of teachers used basal readers as the primary core of their reading programs and an additional 51% used both basal readers and trade books. They also found that 33% of the students worked in a reading workbook or worksheet almost every day and 48% used them at least once a week (Mullis et al.).

According to Hoffman et al. (1994), a conflict arises when 83% of the teachers who call themselves "whole language teachers" use basal readers at least part of the time and 81% of the whole-language teachers use workbooks and worksheets part of the time. Part of the answer is that teachers who were using the newer basal reading programs that had incorporated unadapted literature, written responses, and many of the activities associated with whole language, considered themselves "whole-language" teachers (Hoffman et al.). Whole-language teaching, however, depends on children being able to make choices about the material they are to read, and choices are precluded by the use of a basal reader. Furthermore, there was evidence that some of these teachers had continued to emphasize the skills that were stressed in their previous basal series, both from the survey by Pressley et al. (1996) and Pagnucco's (1995) interview study. In Pagnucco's study, experienced first-grade teachers were asked about their responses to the new style of basal-reading program. They reported that they had continued to use the same scope and sequence that they had in their previous series with the new series and used their own materials to teach skills alongside the literature used in the basal anthologies. Similarly, Walmsley and Adams (1993) found that many teachers, as they were moving toward whole language, continued to include direct instruction of skills and working in basal readers as part of their program even though they considered themselves to be whole-language teachers.

Pagnucco (1995) also found a more enduring effect of the whole-language movement. Although the teachers in his study still relied on the basal reader for their materials, the increased latitude the teachers were given in planning lessons enabled them to make more choices about



how lessons were to be structured. The teachers interviewed by Pagnucco, formerly “by the book” basal-reading teachers, were using their expectations of what children in their grades should know to structure lessons. Although those teachers would still be considered basal-dominated, the loosening up of the basal plans, spurred by the popularity of the whole-language movement, in turn, allowed such teachers to take more initiative. Thus, they were moving toward total direction of their own curriculum even though they might not ever abandon the basal reader.

Thus, there was a shift from the 5% of teachers who reported not using basal readers in the Austin and Morrison (1963) study to about 16% who reported not using basal readers in the 1992 NAEP reports (as cited in Samuels & Pearson, 1988). However, most teachers rejected Goodman’s (1992) admonition that teachers were eclectic and were using activities from whole-language instruction in conjunction with skills instruction as part of a basal reading program. According to Samuels and Pearson, the fact that teachers call themselves “whole-language teachers” is reflective of a shift in the definition of reading instruction and it is a shift that has happened dramatically.

### *Whole Language as a Political Movement*

Another way in which the whole-language movement was unprecedented was in its political nature. Previous movements’ aims were primarily pedagogical; that is, their goals were the better delivery of instruction, either through making instruction more efficient as in direct instruction, or through making it more child-oriented as in the progressive movement of Parker (Stahl, 1994). Whole-language advocates seek to realign the relationships among the child, the teacher, and the administration. They seek to empower children to direct their own learning and empower the teacher to direct instruction without interference from administrators or direction from the “master developer” who designed basal readers (Duffy, 1992). Church (1994) recorded that one noted whole-language teacher pointed out:

I've come to the conclusion that I cannot advance a whole-language agenda without taking on a political agenda. One that entails profound changes in the way we view curriculum, leadership, school reorganizing, our roles, relationships within the institution, and the change process itself. (p. 369)

According to Church (1994), this empowerment is not intended to just realign the relationships between students and teachers in school but to form a model for a re-alignment of power within society as a whole. Creek (1993) compared the strength of educators' whole-language beliefs with their general political persuasions and found a correlation of 86% between their liberal views on social and economic issues and their commitment to whole language. Shannon (1993) was, perhaps, the most openly political of the whole-language advocates. He pointed out that one function of the school was developing "democratic voices" (p. 86). When developing democratic voices, teachers and students place their experiences at the center of the curriculum and ask, "How do we want to live together?" (p. 86). Such a curriculum makes both teachers and students subjects in their education, subjects who are able to make decisions that affect their diversity and similarities as they consider common interests and possible actions based on commitment to justice, social equality, and expanded possibilities of difference (Shannon).

According to Shannon (1993), the working out of choices and the creation of a community of learners in the classroom, the goal of whole-language instruction, was intended to be the model of a more democratic and just society. Shannon stated that basal readers were inherently undemocratic because they prescribed set lesson sequences that were not chosen by the participants in the lesson but instead were chosen by publishers far removed from the classroom in which the lessons were to be carried out. These notions of using the classroom as a training ground for a larger participatory democracy are similar to Dewey's 1916 notions (Stahl, 1999).

Combined with these positive, utopian notions of education was a certain amount of paranoia. Goodman (1992) explained that even the far right had discovered whole language and made it a central target. Adams (1990) deemed the conspiracy against whole language included

the U.S. Department of Education that sponsored *Beginning to Read: Thinking and Learning about Print*. According to Goodman (1992), “These government-subsidized books are being widely promoted by publishers, right-wing groups, and professional associations” (p. 355).

The utopian views of the whole-language advocates seem to explain some of the strident advocacy. McKenna, Stahl, and Reinking (1994) suggested that many of the tactics used by whole-language advocates were political in nature. For example, certain rhetoric appears throughout the whole-language literature. Whole-language advocates tend to use terms that are positive, optimistic, authentic, and natural in describing classroom experiences. Similar terms were used to describe the political aims of the movement such as “Whole language stands for justice, democracy, and empowerment and against injustice and a stratified society” (Edelsky, 1992, p. 325). Much of this rhetoric could be problematic. Moorman, Blanton, and McLaughlin (1994) deconstructed some of the rhetoric of whole language and found that advocates’ use of “ownership,” an economic metaphor, seemed to be an implicit contradiction with their communitarian aims. Similarly, according to Stahl (1999):

The use of “natural” in describing written language is certainly inaccurate given that written language is not universal to human societies; rather, it is socially constructed and constrained and thus “artificial” in that it is created by humans for their own purposes. (p. 15)

Page (1990) pointed out that the use of positive rhetoric combined with *ad hominem* attacks on the opposition seemed more in common with the real political right than it did with pedagogical movements from the past. According to Page, Congressman Gingrich’s political action committee, GOPAC, distributed a list of terms for republicans to use in describing their programs--terms such as freedom, opportunity, and pro-family and a list of terms to describe their opponents--such as tax-and-spend, big government, and anti-family. The purpose of these lists of words, positive and negative, was to paint a positive picture for the conservatives and to taint their opposition as opposing these acknowledged goods. According to Stahl (1999), similar strategies have been used by whole-language advocates. Who would oppose something that is

“natural,” “empowering, “ or democratic”? Only those who are “right wing,” “oppressive, “ or “making a profit from basals” (Stahl, 1999).

The whole-language advocates have attempted to co-opt the liberal position by branding opponents of whole language as opponents of the poor and disadvantaged (Edelsky, 1996; Shannon, 1993). It is ironic, though, that analyses of the effectiveness of whole language have indicated that it does not seem to be particularly effective with children labeled as “disadvantaged” (Stahl, 1994; Stahl & Miller, 1989). Stahl and Miller could not find a single comparison of language experience or whole-language instruction with children labeled as disadvantaged that favored whole-language instruction.

One reason for the apparent lack of effects favoring whole language with disadvantaged children is that these children might need much more than whole language can provide. Children who come from homes with a high literacy press, that is, homes that provide a great deal of support for literacy, may resemble whole-language classes. Children from homes of upper socioeconomic status might do well in literacy-rich environments because they already know how to negotiate in such environments (Snow, Barnes, Chandler, Goodman, & Hemphill, 1992). In contrast, children who come from homes with a low literacy press--homes that contain few books, homes in which children are not read to, homes without alphabet letters used for games--might not know how to make choices in a literacy-rich environment. They also might not have the background in literacy experiences that is needed to take advantage of a whole-language environment. Adams (1990) contrasted her son, who was read to 30-45 minutes per day for a total of 3,000 or so hours before entering first grade, with children studied by Teale (1984) who had virtually no experience with storybooks prior to first grade. In addition, Delpit (1988) argued that children from nonmainstream cultures needed access to the “power code” or the language used by people in power. By accepting nonmainstream children’s dialect as correct, whole-language educators might do such children a disservice and deny them the knowledge they need to succeed in a world dominated by middle-class norms (Delpit).

### *Political Backlash*

The result is that some school districts, especially those with poor students, are starting to turn away from whole language. What is disconcerting is that many of these districts, such as schools in Houston, Texas, and Rock Island, Illinois, are moving to the other extreme and adopting strict direct-instruction programs. Although direct instruction does include literature and comprehension instruction in addition to synthetic phonics instruction, the scripted nature of these programs, specified by the program developer with little teacher flexibility, is a dramatic shift from the child-centered nature of whole language (Stahl, 1999).

Apparently, this radical swing away from whole language also uses political means. According to Taylor (1998), whole language is treated as opposition and demonized, just as whole-language advocates had demonized those associated with direct instruction or with basal readers. The opposition to whole language is often termed “phonics,” although as Church (1996), Price (1998), Routman (1996), and others pointed out, many whole-language teachers do an effective job of teaching phonics. Taylor contended that the counter-whole-language movement was associated with right wing causes, at least in a number of states. The whole-language movement, as befitting a liberal movement, uses a “grassroots” approach to politics; the counter-movement works through elected officials and state superintendents (Taylor). The legislation in California funded inservice education in reading that specifically excluded certain providers associated with the whole-language movement (California State Board of Education, 1996).

The California inservice plan is part of a rewriting of the state's language arts framework, moving from the literature-based approach mandated in 1987 to a more balanced approach. Although the intent of the document *Teaching Reading* was to promote a balance between literature-based and explicit instruction in decoding, the emphasis was clearly on the latter (California State Board of Education, 1996). Stahl (1999) reviewed the document and found that the word "literature" was used 5 times whereas the word "phonics" was used 34 times.

In Georgia, the state superintendent's office of education has promoted a program called "Reading First" (Stahl, 1999). This is a grant program in which the grantee commits to providing 1 hour of phonics instruction daily in grades kindergarten to two (as well as an hour of reading literature from basal or trade books and an hour of content area reading). The only phonics programs allowed to be funded under this program were explicit phonics approaches, all of which are synthetic, highly structured, and stand-alone approaches. In practice, this involves long exercises of tedious vowel marking and arcane rules. This program was implemented in over 300 schools during the 1998-99 school year. According to Stahl (1999), these various programs along with those in other states were designed to explicitly counter the gains made by the whole-language movement.

According to Stahl (1997), there is a danger with the politicization of education: When one party has been found to fail, there is a tendency to swing to the other party. Politicization tends to eliminate a middle ground. It is precisely this middle ground that represents the best practices of reading instruction--the encouragement of writing and the use of children's literature combined with the direct instruction of phonics and other skills (Stahl, 1997). Dudley-Marling and Murphy (1998), citing Deborah Tannen's notion of an argument culture, suggested that this politicization not only promoted extreme positions but also drove out new ideas. There was a convergence of information suggesting a need of some sort of eclecticism incorporating both direct instruction and child-responsive, child-directed instruction in an optimal reading program (Stahl, 1997). It was precisely this eclecticism that the whole-language advocates have decried (Goodman, 1992).

Stahl (1994) said there was a further danger in that if educators looked to researchers for dispassionate information and realized that they were dispensing political judgments, they might disregard all research. Oftentimes, whole-language advocates have presented a single case (chosen deliberately to illustrate successes and not randomly chosen to represent a population) as evidence that whole language worked. According to Stahl (1994), this is not research but

advertisements. Stahl (1999) predicted that if teachers begin to believe that research is no more than advertisements, they might begin to look at researchers' results as they do the ads on television and will disregard them.

### *Arresting the Swing*

The rise and decline of the whole-language movement is a prime example of what Slavin (1989) likened to swings of the pendulum, in which an approach becomes widely accepted before its effects have been studied. When the results of the program become known, the program is dropped and another approach (often the opposite) is hastily adopted. In the case of whole language, the swings are more marked because the change in approaches is the result of a change in goals (Slavin). Whole-language educators promised that this instruction would lead to motivated readers. To its credit, practices associated with whole language do lead to increased motivation (Turner, 1995). As educators and parents have realized, there is a need for achievement in word recognition and comprehension as well as motivation, and whole language has been found lacking. Optimally, educators should take what is useful from whole language and amalgamate it with approaches that are useful for meeting other goals. However, the political nature of the whole-language movement has made this difficult (Stahl, 1999).

According to Stahl (1999), the result has been a swing “back” to phonics instruction. Stahl (1999) stated, "The addition of a strong political component to reading instruction may presage a number of future swings as proponents of one position or another radicalize the rhetoric around instruction" (p. 20). Stahl (1999) maintained that to arrest the swing, an understanding of how to juggle multiple goals of instruction is needed. This means that each program or approach should state explicitly how it will orchestrate children's development of automatic word recognition, comprehension strategies, and motivation and appreciation of literature so that these claims can be tested. Stahl (1999) added there is also a need to understand

the nature of political movements in education so they can be transcended to provide effective instruction for all children (Stahl, 1999).

### *Language Experience Approaches*

There are two dominant styles of Language Experience Approaches (LEAs) in the United States: that of Roach Van Allen and that of Russell Stauffer (as cited in Tierney, Readency, & Dishner, 1995). According to Tierney et al., Allen's work was based on the oft-quoted conceptualization that "What I can read, I can talk about. What I can say, I can write. What I can write, I can read. I can read what others write for me to read" (p. 14). Thus, similar to Parker's approach, the LEA began with the children's own language captured by dictation to use as material for reading instruction. According to Tierney et al., the use of experience charts is now common stereotype of LEAs; in their original conception, however, they included considerable time devoted to reading aloud to children, oral discussions, individual reading and writing, and children's reading of selected books. These activities represent a broad range of literacy activities and are similar to those typically found in whole-language classrooms today. The major differences between the LEA and whole language are in the use of invented spelling and large spelling books. In addition, there are explicit procedures recommended for embedding phonics and sight-word instruction in the reading of the charts. These procedures received greater emphasis by Stauffer (1970) than by Allen (1976).

### *Evaluation of Language Experience Approaches*

There were two major evaluations of the LEA in the 1960s. Kendrick and Bennett (1966) compared the LEA using Allen's (1976) procedures to a more traditional basal-reader approach. They found relatively few significant differences between these approaches. Their study was part of the larger Cooperative Research Program in First-Grade Reading Instruction (Bond & Dykstra, 1967). Looking across the four studies that compared LEAs to other approaches to



teaching reading, LEAs appeared to have significant effects on measures of word reading but not on passage comprehension. Bond and Dykstra concluded that few significant differences were found between the LEA and basal approaches. Those significant differences favored the LEA. However, these sporadic differences were often not of much practical significance in terms of actual reading achievement.

Stahl and Miller (1989) used conventional meta-analysis and vote-counting procedures to examine the Bond and Dykstra (1967) study as well as other studies. They found the effect size for the Bond and Dykstra study was small and positive (.14), whereas the effect size for other studies, including studies of whole language, was near zero (0.01).

The work of Parker and the LEA movement were but two of many progressive movements in reading education. Goodman (1989) listed Parker and the LEA, along with the work of Dewey, Britton, Rosenblatt, and others, as intellectual precursors to the whole-language movement. None of these precursor movements had strong or moderate influence, according to 83% of the fourth-grade teachers surveyed by the National Assessment of Educational Progress (NAEP), as the whole-language movement was reported to have done (Mullis et al., 1993).

### *A Shift in the Definition of Reading*

Over the past century, conceptions of literacy have undergone a consistent shift. In the beginning of the 20th century, reading was conceived as the ability to decode (Farrar, 1986, Mathews, 1966). Children were taught to first memorize the letters representing sounds, then syllables such as *ba*, *bo*, *bi*, and *bu*, before they would read primers. According to Mathews, the debates in reading instruction pertained to whether children should learn words first or the alphabet or letter-sound correspondences. Mathews reported that Joseph Rice, who traveled widely and observed reading instruction across the United States in the 1890s, found evidence of alphabetic methods, phonic methods, word methods, and sentence methods in his travels. The majority of those approaches stressed accurate word recognition as the goal of reading

instruction. It was assumed that comprehension occurred when children were able to decode the text fluently and automatically. This view has persisted in some quarters (Blumenfield, 1983; Flesch, 1955), but these approaches have become increasingly a minority. Instead, it has been recognized that comprehension is the ultimate goal of reading. Farrar traced a shift from defining reading as accurate word recognition or decoding to literal and then higher levels of comprehension. By viewing reading instruction over the past 60 years, one can see a shift from the emphasis on decoding and recitation in the 19th century to emerging models of meaning-oriented instruction. During the first part of the 20th century, there was a consensus that reading instruction needed to emphasize meaning, and a number of different approaches were developed that did so. With the emergence of the directed reading activity (Betts, 1946) as the nearly universal means of instruction, most reading instruction was comprehension-oriented. The directed-reading activity, however, used questioning as a means of developing comprehension. As Farrar pointed out, the view of comprehension was largely literal, with reading defined implicitly as the ability to recall structural elements of a story. Thus, in 1967, Guszak reported that 70.4% of the questions asked in the second-, fourth-, and sixth-grade classes that he observed were literal, involving either recognition or recall. Durkin (1978), in her observation of reading comprehension instruction in third- through sixth- grade classes, found a large percentage of time was devoted to assessment of reading with little or no time devoted to instruction in how to read.

The dominance of questioning, especially using literal comprehension questions, began to abate in the 1980s as reading educators adopted a more constructivist view of reading comprehension. The rapid acceptance of ideas from the newly formed Center for the Study of Reading, especially schema theory (Anderson & Pearson, 1984), led to changes in basal readers. The publication of *Becoming a Nation of Readers* (Anderson & Pearson) led to a broad consensus on the importance of meaning construction as the basis for comprehension. The definition of comprehension embodied in *Becoming a Nation of Readers* involved "a greater

emphasis on elaborative inferences" (Stahl, 1999, p. 16) that involved the reader taking an active role to situate the information in the text within his or her network of schemata. Schema theory became embodied in the basal reader of the time that devoted more time to providing background information prior to reading and to open-ended responses rather than literal questions (Stahl, 1999).

The dominant model in the 1970s and early 1980s was a skills-hierarchy that suggested children had to learn basic literal comprehension skills prior to inferential comprehension skills. Such a skills hierarchy would be difficult to support using a schema-theoretic viewpoint (Anderson & Pearson, 1984). In such a view, comprehension occurs because of the interaction between information in the reader's knowledge and information provided by the text. Thus, both literal (text-based) and inferential (reader-based or interactional) comprehension processes were occurring simultaneously (Stanovich, 1980).

The shift involved in the whole-language movement was a more fundamental one than the shift from decoding to literal to inferential comprehension. All of these processes (decoding, literal, and inferential comprehension) can be thought of as underlying all types of reading, whether reading a novel, a car manual, or a social studies textbook. The ascendancy of the whole-language movement involves two basic shifts. One shift in reading instruction is seeing the primary purpose of instruction as developing cognitive processes during reading to viewing the primary purpose of instruction as motivating children to become lifelong readers. A second shift in reading instruction involved viewing reading as information-gathering to viewing reading as responding aesthetically to literature (Stahl, 1999).

### *From Cognition to Motivation*

From the late 1900s through the present, the fields of reading and cognitive psychology have grown together. In the beginning, the object of study was recognition of individual words. By the 1970s and 1980s, interest had broadened to include the effects of a reader's knowledge of

the content and use of cognitive and metacognitive strategies as well as the structure of texts on reading comprehension (Spiro, Bruce, & Brewer, 1980). Recommendations of reading methods were based on psychological theories and research such as the work of Anderson, Heibert, Wilkinson, and Scott (1985) and Chall (1983).

Word recognition, decoding, and comprehension are cognitive processes and are amenable to study using traditional quantitative analysis. With the whole-language movement, a shift occurred to an interest in response to literature that is not easily studied using traditional quantitative research methods as to motivation. This shift is reflected in a national survey of reading teachers undertaken to lay the groundwork for the National Reading Research Center (O’Flahaven et al., 1992). In that survey, the largest number of respondents said they wanted to see a greater research emphasis on motivation rather than on traditional areas of reading such as comprehension and decoding.

Teachers seem to have shifted the aims of their reading programs from increasing reading achievement to motivating children to become avid readers. This was reflected in the research. Stahl, McKenna, and Pagnucco (1994) examined the research on the effectiveness of the whole-language movement between 1988 and 1994. They found 45 comparative studies in that time of which only 20 had used any measure of reading achievement. In contrast, 22 had used affective measures such as attitude toward reading, orientation toward reading, or self-esteem. Of these studies, 17 used attitude surveys. Two comparisons favored the whole-language approach, one favored the traditional approach, and 14 found no differences. This mirrored the Stahl and Miller (1989) review that reflected no difference in attitude between language-experience or whole-language approaches and basal-reader approaches on attitude measurements. Similar results found on other affective measures reflected that teachers who used whole language and traditional approaches did not differ on attitude measures (Stahl, 1999).

Surveys, however, are often relative measures. Turner (1995) found that whole-language instruction did seem to have significant effects on more proximal measures of attitude.

Children in whole-language classes tended to show more voluntary use of reading strategies, to exhibit more task persistence, and to exhibit more volitional strategies such as moving away from distractions or using self-talk. Stahl, Suttles, and Pagnucco (1996) studied first graders in two schools--one a traditional school and the other moving toward whole language. The whole-language school did produce different affective effects. Although there were no differences on measures of orientation toward reading, children in two of the three whole-language classes could not name the “best” readers in their class. In the third class, one gifted child stood out. In contrast, Stahl (1999) pointed out that in the traditional school, children are very much aware of who those in the top group are. By not stratifying children early, the whole-language classes may have produced a more positive atmosphere for struggling readers (Stahl, 1999).

Thus, whole-language instruction might have fulfilled its promise to improve children’s motivation and interest. There is some evidence, however, that this approach has its drawbacks. In the Stahl, Suttles et al. (1996) study, the whole-language school had as its creed an unwillingness to push children, to allow them to choose material that they were comfortable with, and to emphasize self-esteem rather than achievement. The result was that children read relatively easy but without advancing achievement in vocabulary or comprehension. In contrast, the traditional school stressed achievement by pushing children to read more and more difficult material. Children in both schools were required to use a basal reader. In the traditional school, the basal program was followed closely; in the whole-language school, the basal reader was used as one book among many. The children in the traditional school outperformed those in the whole-language school; but more interestingly, once the difficulty of the materials the children were reading was entered in a regression equation, the school differences ceased to account for significant variance. Instead, the difficulty of the materials taken as a measure of “achievement press” was the only significant factor in predicting reading achievement. Whole-language schools could have stressed achievement as much as traditional schools, but many did not (Church, 1994).

In summary, there seems to be a shift in interest from defining reading as comprehension to defining reading as response, from a major emphasis on achievement to a major emphasis on motivation. Response to literature is difficult to examine in a comparative study, because responses are idiosyncratic. There is also little evidence that whole-language approaches lead to increased motivation. As for reading achievement, reviews by Stahl and Miller (1989) and Stahl, McKenna et al. (1994) found that the effects of whole-language instruction on reading achievement were roughly similar to those of more traditional instruction. Stahl, Suttles, et al. (1996) found that whole-language instruction if not combined with a strong achievement process could lead to children who have healthy attitudes toward reading but diminished achievement.

#### *Different Reading Processes for Different Outcomes*

Stahl (1992) differentiated between reading to-learn and reading-to-enjoy. Reading-to-learn is reading to expand one's knowledge base and generally involves comprehension of expository and narrative texts, or what Rosenblatt (1985) called "efferent" reading (p. 35). Reading-to-enjoy is more concerned with a person's immersion in the text, what Rosenblatt called "aesthetic" reading (p. 35). Generally, people have different levels of skills and interest in these different reading tasks. Each of these outcomes requires subtle shifts in instruction. For example, different skills are required to extract information from expository texts than are required to respond to a work of literature or a religious text. Proficiency in the different tasks of reading also involves interest. Not everyone enjoys fiction or nonfiction, and a person who does not gain pleasure from reading a novel will not read one or will resist doing so.

Whole-language instruction stresses the personal responses of individuals to good literature. The emphasis is on children's responses to literature as opposed to their recall or comprehension of the stories. Thus, whole language stresses aesthetic reading (Rosenblatt, 1985) rather than efferent reading; that is, it stresses reading-to-enjoy rather than reading-to-learn. Content area texts are de-emphasized and replaced by nonfiction trade books, historical

books, fiction relating to the content area (Cullinan, 1993), or original source documents (Stahl, Hynd, Britton, McNish, & Bosquet, 1996). The trend toward de-emphasis of content texts might have occurred for two reasons. First, the texts themselves (at least at the elementary level) were less than optimal for learning content. In an extensive analysis of social studies texts, Beck and McKeown (1991) found that such texts were often poorly written, missed connections between ideas, were over-reliant on children's prior knowledge, and contained distracting content. Second, there was a de-emphasis on the importance of the textbook in science education and social studies education. These critiques have come from a constructional or a social constructivist viewpoint. According to Beck and McKeown, those who hold such views considered knowledge as being constructed either by individuals as they grappled with ideas or by groups of individuals through interactive discourse.

Labbo and Field (1995) surveyed 120 elementary-school teachers and found an astonishing use of children's literature in social studies. In their survey, 85% of the primary teachers and 45% of the intermediate teachers reported using children's literature at least once a week in social studies. Labbo and Field concluded that some of this usage might be understandable in the primary grades where the social studies content is about home and community; however, by the intermediate grades, there is the beginning of an emphasis on historical, cultural, and geographic content. Here, the use of literature is a source of concern. The shift from reading-to-learn to reading-to-enjoy is a profound one. Whereas the emphasis in the directed-reading activity was upon getting facts from text, first narratives, and later expository text shifting to text-based and reader-based inferences, the emphasis in whole-language classes was on response to literature without assessing any understanding at the literal or inferential level. The result could have been that children's discussions wandered from the text itself to a discussion of issues around the text (McMahon, 1992).

### *Transition From Theory and Discussion to Reading Programs*

According to Schacter (1999), John Holt, writer of 10 books on early childhood education, argued that most children will learn to read in about 30 hours without any formal instruction if they are placed in a trusting, comfortable environment and read to one-on-one with a caring adult (Schacter, 1999). To some extent, researchers confirm Schacter's assertion by demonstrating that regardless of the method of instruction, the majority of children will learn how to read (Bruer, 1993; Lesgold, Resnick, Hamond, & Curtis, 1985). So why then is there so much discussion and strife about reading? The answer is that whereas most children learn how to read without difficulty, a surprising number face serious stumbling blocks (Schacter).

Multiple reading programs have been developed in order to combat the issues facing many that have trouble learning to read. A summary of four reading instruction programs are given before looking at *READ 180*:

1. *Success for All*: Success for All is an extensively studied school-wide reform program designed for English and Spanish speaking populations. The program was designed for grades kindergarten through three for early reading failure. Multiple techniques and philosophies are incorporated including phonics, meaning, and cooperative learning. Longitudinal research has taken place in nine districts throughout the United States (Slavin & Fashola, 1998) with consistent, substantial positive effects.
2. *Open Court*: Open Court is a direct instructional program for kindergarten through sixth graders developed for students to become independent readers and to ensure a direct and systematic approach to teaching phonics. The focus is on alphabetical and phonological awareness for the learner. Open Court has been used for 30 years with significant success for word reading, phonological processing, and spelling assessments. (Schacter, 1999)



3. *Watch Me! Read:* Watch Me! Read is a computer-based program for emerging readers with the goals of providing reading practice, comprehension awareness, and a sense of reading as communication. The software is designed to use speech recognition to assess students' performance and provide individual feedback. Data are inconclusive at this time because of the relative newness of the reading program. (Schacter, 1999)
4. *Project LISTEN:* Project LISTEN is a software-based instructional program with an automated reading tutor that displays stories on a computer screen and listens to children read aloud. The students have choices of materials with the reading tutor analyzing their oral reading skills. The reading tutor intervenes when the student asks for help, makes a mistake, or encounters difficulty. The reading tutor responds with assistance modeled after expert reading teachers and to the capabilities of the technology. The results are inconclusive but positive in the first initial samplings of data. (Schacter, 1999)

#### *History of READ 180*

Davidson and Miller (2002) evaluated Scholastic's *READ 180* program in their publication, *Scholastic's READ 180: A Heritage of Research*. They reported the program was formulated from the original work of Hasselbring (2000). In 1985, according to Davidson and Miller, Hasselbring and other members of the Cognition and Technology Group at Vanderbilt University (1990) began to address the issue of how technology could be used as an effective tool to support struggling students. These members had observed the ways that technology had improved the quality of education for persons with physical and mental impairments. Consequently, they became interested in how educational technology might help students who had learning disabilities or those whose lack of mastery of basic skills prevented them from moving on to higher-level skills (Davidson & Miller).

According to Davidson and Miller (2002), as the members of this group analyzed the research on older struggling readers, they sought to identify the key problems these learners encountered and noted these as problems they would seek to solve in their subsequent research. The group's synthesis of existing research led them to four major conclusions about the deficits exhibited by older struggling readers (Davidson & Miller). The four deficits were closely related to the skills that the National Reading Panel (2001) identified as being essential to reading success. According to Davidson and Miller these four deficits were:

1. lack of decoding skills and reading fluency;
2. poor comprehension due to the inability to form mental models and a lack of vocabulary;
3. inability to process and understand grade-level content-area text with a high concentration of academic language; and
4. low motivation and lack of connection to materials and school. (p. 4)

The related essential skill areas as identified by the National Reading Panel were:

1. phonemic awareness,
2. phonics,
3. fluency,
4. vocabulary, and
5. comprehension. (p. 4)

### *Development of Technological Solutions*

While recognizing that older struggling students have a wide range of both abilities and deficits, Hasselbring (2000) and his colleagues turned to technology as a means of providing assessment-driven individualized instruction. Partially funded by a grant from the U.S. Department of Education's Office of Special Education Programs, the team created a software program called the Peabody Learning Lab (Davidson & Miller, 2002). The software program

consisted of a carefully planned sequence of student activities that provided individualized skills, instruction, and practice. Each element was designed to address one or more of the problems that Hasselbring had identified (Davidson & Miller).

### *Development of Phonics Awareness and Decoding Solutions*

The Peabody Learning Lab became the prototype for the *READ 180* Topic CDs, a component of the now nationally used intervention program (Davidson & Miller, 2002). The process for the student begins with a video and a passage that summarizes the video. Each passage is available at several reading levels, and students are assigned to an appropriate level using diagnostic assessment (Davidson & Miller). This way, students may practice reading at their own level and thus avoid the frustration and discouragement that come with texts that are too difficult for them. According to the National Reading Panel (2001), this opportunity to read and reread with a high degree of success helps build fluency. The passages are written to include words that provide multiple exemplars of a targeted sound-spelling pattern, high-frequency words, and grade-appropriate content area vocabulary words (Davidson & Miller).

As students progress through the software, they are presented with activities that repeat words from the controlled passages. According to Davidson and Miller (2002), these activities promote fluency and automaticity allowing for better comprehension through:

1. rapid word recognition: Students must identify words at increasing speeds. The software's management system tracks the words that the student identifies incorrectly, correctly though slowly, and correctly with automaticity; and
2. orthographic knowledge and phonological processing skills: When students have difficulty identifying a word, the software provides support through visual and audio modeling of how to break the words down into meaningful phonological parts. (p. 5)

As Adams (1998) noted, this modeling of oral blending and segmentation is an important part of developing phonemic awareness that is critical in learning to read and spell with success. The

software uses spelling instruction to reinforce orthographic knowledge and enhance reading proficiency. This is done through training in segmentation and blending with instruction in letter-sound relationships and tutor-supported modeling in which an on-screen tutor models how to decode an unfamiliar word (Davidson & Miller). This modeling uses audio and visual support to highlight letter-sound correspondences, phonic elements, and significant word parts such as onset-rime, prefix-suffix, syllables, and word structure (Davidson & Miller).

The software also includes audio and visual support to provide immediate corrective feedback on students' errors and generates strategies for remediation. Words are continually reviewed and practiced to achieve fluency and mastery (Davidson & Miller, 2002).

### *Begin With Assessment*

Unlike younger emergent readers whose lack of phonologic awareness and phonics skills is often recognized, it is more difficult to ascertain where the gaps in such skills exist in older readers. For struggling readers, Blevins (2001) concluded that interventions must address students' specific deficits. According to Blevins (2001), it is crucial to continually assess, diagnose, and tailor instruction to students' needs.

The Vanderbilt group equipped the software with features that provide initial and ongoing assessment features to identify each student's individual level of proficiency with specific phonic elements. They devised features that allow the software to provide adjusted, individualized activities that promote systematic practice, review, and instruction in order to develop mastery (Davidson & Miller, 2002).

According to Davidson and Miller (2002), similar assessments are used to inform instruction and practice in the software's Spelling Zone as well. Spelling assessment words are drawn from the student's leveled reading passage; this assures that they are at the student's developmental level (Davidson & Miller). Davidson and Miller reported that instruction was focused on the words students had not yet mastered. They said this presented a low time to

benefit ratio focusing the students' time on the words and patterns with which they most needed practice. This efficient use of time is particularly urgent for students who are below grade level (Invernizzi, Abouzeid, & Gill, 1994; Moats, 1998). According to Gerber (1986), the software's corrective feedback also uses a validated imitation and modeling procedure based on early groundbreaking research by Hasselbring. This procedure helps students identify their spelling errors by comparing their spelling to the correct spelling (Moats, 1995).

### *Automaticity and Fluency*

Cognitive psychologists have concluded that when a reader's mental energy is devoted to decoding, there is little capacity for comprehending. Only when decoding skills are sufficiently developed can a student free the cognitive powers necessary for comprehension (as cited in Blevins, 1998; LaBerger & Samuels, 1974). According to Davidson and Miller (2002), with their software, Hasselbring and his colleagues sought to build low-achieving students' word recognition skills to help improve their comprehension. Automaticity involves automatic word recognition; the reader can recognize words with little effort. To develop automaticity, the software directs students to listen to a word and to distinguish it from others in a list. The software requires that a student practice identifying words at increasing speeds as the student shows mastery (Davidson & Miller).

According to the National Reading Panel (2001), to read with fluency, a reader needs more than automatic word-recognition skills. He or she must also have the proper phrasing and expression that is necessary for text comprehension. Davidson and Miller (2002) reported that the first time students encounter their leveled reading passage on the software, they visually track the text as they listen to an audio model of fluent reading. Follow-up activities guide students to repeat reading of connected text with varying levels of audio support and speed. This continuous scaffolding practice adapts to each student' level of mastery. Periodically, students are guided to

make recordings of their own reading for self-assessment. A final recording at the end of the segment is saved to teach reassessment (Davidson & Miller).

### *Development of Comprehension Solutions*

Researchers such as the Cognition and Technology Group at Vanderbilt (1990) and Irvin (1998) have shown that in order to make sense of texts, students must have some degree of prior knowledge. Prereading strategies such as building background are important in helping students who know little or nothing about a topic (Irvin).

Readers need to build mental models to construct meaning from text. If they cannot visualize ideas, they are not able to grasp concepts and understand ideas (Cognition and Technology Group at Vanderbilt, 1990). The Cognition and Technology Group at Vanderbilt has shown that students prefer visual formats to text formats in building conceptual models because video is "dynamic, visual, and spatial" (p. 8) and promotes the formation of vivid mental models of a situation. This is especially beneficial for low-achieving students and students with little knowledge of a topic.

As reported by Davidson and Miller (2002), this research was integrated into the Peabody Learning Lab's software through the use of video and CD-ROM technology. Before reading each controlled text passage on the software, students view a dynamic video that develops background knowledge and vocabulary. This process helps students build a mental model so that when they encounter the text summary of the video, they are already familiar with the vocabulary and concepts. Hasselbring (2001) and his colleagues found that the subjects who viewed the video before reading the text were more adept at discussing and evaluating the text than were those who were given a text without a video.

### *Development of Solutions to Raise Students' Motivation*

By the end of the first grade, there is a noticeable decrease in children's self-esteem, self-concept, and motivation to learn to read if they have not been able to master reading skills and keep up with their age-mates. Guthrie and Wigfield (1997) noted that the utility value of reading also affected motivation. As in all endeavors, the usefulness of the reading activity influences the investment the reader makes. According to Davidson and Miller (2002), when students recognize that one of the benefits of reading includes helping them understand and simply function in the world they live in, their motivation to read is increased.

According to Davidson and Miller (2002), the Vanderbilt software and the *READ 180* program in general, directly address the problems of students who are trapped in a cycle of failure by providing them with many opportunities to experience success from the start. In the software, instruction and practice are customized according to students' assessed abilities to prevent frustration and build success. The motivating content of the software video helps them adopt positive attitudes toward reading. Validation studies by Davidson and Miller have shown that *READ 180* helps struggling readers close the performance gap that separates them from their grade-level peers. In developing the software, encouragement of students was a key goal. As the program developed, it turned out that many of the instructional elements also had motivating effects (Davidson & Miller).

### *Development of Solutions to Increase Success With Content-Area Text and Vocabulary*

Students learn most words through everyday experience with oral and written language. However, in order to succeed, students also need to learn the academic language that is found in textbooks and the classroom. Academic language carries much of the content and meaning in nonfiction and content-area text. Nonfiction represents most of what students encounter in school, on standardized tests, and in the working world. According to the National Reading Panel (2001), repetition and exposure to new words is crucial to vocabulary development.

Furthermore, vocabulary instruction that offers both definitional and contextual information has been found to have the greatest impact on students' reading comprehension (Honig, Diamond, & Gutjohn, 2000).

By presenting images and background information, the software videos present students with the context necessary to help them understand new vocabulary words and academic language. The related skills instruction and proactive activities then reinforce vocabulary through content-area, nonfiction passages in which the same academic language figures prominently. For added support, students can click on highlighted words to receive definitions, context sentences, and pronunciation support (Davidson & Miller, 2002).

### *Implementation of the Lexile Framework*

According to Davidson and Miller (2002), 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). This allows educators to predict the level of comprehension a reader might experience with a particular text. Davidson and Miller explained that the Lexile system was developed by MetaMetrics an independent research and development firm founded in 1984 by the internationally recognized educational theorist, Dr. A. Jackson Stenner. The National Institute of Child Health and Human Development funded MetaMetrics' work with a grant intended to support research on reading and psychometric theory (Davidson & Miller).

Scholastic began its collaboration with MetaMetrics in 1998 (Davidson & Miller, 2002). *READ 180* uses the Lexile framework to match students to text at an appropriate level. The Scholastic Reading Inventory is used to determine each student's reading ability using Lexile scores as a measure. In addition, the paperback library books and software text passages are assigned Lexile scores based on their levels of difficulty (Davidson & Miller). Students can be matched easily and consistently to high-interest, age-appropriate text that engages their interest, promotes fluency, and prevents frustration. Such links make it possible for the users of these



tests to request equivalent Lexile measures for any specific score. The teacher, librarian, or partner can then look up the reader's Lexile measure on the Website and build a customized, targeted reading list for that reader (Davidson & Miller).

### *Reports for Diagnostic Assessment*

Davidson and Miller (2002) reported that another aspect of the research collaboration with Scholastic was the development of a variety of reports that provide detailed information about students' progress in word study, comprehension, vocabulary, and spelling. According to Pelegrino, Chudowsky, and Glaser (2001), students made greater gains when instruction and assessment were integrally related. The reports help teachers to tailor instruction for individual students, to group students for small-group instruction, to assess strengths and weaknesses, to evaluate reading progress, and to motivate students. These reports can also aid with administrative and grading duties and can be used to communicate progress to students' parents and guardians (Davidson & Miller).

### *Data-Driven Diagnostic Assessment*

According to Davidson and Miller (2002), *READ 180* software uses technology to provide instruction that is individualized based on the data gleaned from each student's responses. As the program gathers information on what students are able and not able to do, the software makes immediate instructional decisions based on the most recent data (Davidson & Miller). This constant feedback loop provides the most detailed form of assessment in reading skills and includes phonics and word recognition, fluency, vocabulary, spelling, and comprehension. The *READ 180* reports generated from the management system (the Scholastic Management Suite) provide teachers with the information they need to assess and focus instruction. Detailed progress reports for individual students give teachers the necessary

information to determine what type of further intervention may be warranted (Davidson & Miller).

### *Motivation*

According to Davidson and Miller (2002), the Scholastic Research Foundation reported that by the end of the first grade, they began to notice substantial decreases in the children's self-esteem, self-concept, and motivation to learn to read if they have not been able to master reading skills and keep up with their age-mates. The National Academy of Sciences has identified loss of motivation as one of the three major obstacles some students face when learning to read (Snow, Burns, & Griffin, 1998). One factor that affects motivation is known as attainment value (Guthrie & Wigfield, 1997). Students will not recognize reading as an important aspect of their lives unless they perceive success in reading to be attainable. The perceived utility value of reading also affects motivation. As in all endeavors, the usefulness of the reading activity influences the investment the reader makes (Guthrie & Wigfield). According to Braunger and Lewis (1998), when students recognize that one of the benefits of reading includes helping them understand and simply function in the world they live in, their motivation to read will be affected. Meaningful, higher interest and appropriately leveled texts that engage students provide the required balance to the necessary skills instruction for struggling readers. Matching students to texts with the appropriate level of challenge--not too easy or not too hard--is one mechanism for successful reading experiences (Gambrell, Palmer, & Codling, 1993).

To motivate learners, *READ 180* materials show respect for the reader by presenting age-appropriate materials that engage them at reading levels that allow them to experience success. According to Davidson and Miller's (2002) review, the software's on screen host, Ty, provides patient, nonjudgmental feedback and continuous encouragement. In their evaluation, these researchers reported that students using *READ 180* have shown significant increases in motivation resulting from their experiences of success and their enjoyment of reading. *READ*

*180* paperbacks provide engaging reading selections that are matched to students' abilities. Many of the Level 1 and Level 2 books are sufficiently short to allow students to finish them within several days. As noted by Davidson and Miller, for many *READ 180* students, who may never have finished a book on their own, this experience of success increased confidence and enjoyment of reading. In addition, *READ 180* paperbacks and audiobooks represent a variety of genres and topics that are of high interest to students. Through these selections, students learn about their world, topics of special interest, and perhaps most importantly, themselves. *READ 180* uses the Lexile framework to determine both student reading levels and the difficulty of texts. This helps match students to text at an appropriate level. The Scholastic Reading Inventory is used to determine each student's reading ability, using Lexile scores as a measure. In addition, the paperback library books and software text passages are assigned Lexile scores based on their levels of difficulty. Thus, students are consistently matched to high-interest, age-appropriate text that engages their interest, promotes fluency, and prevents frustration (Davidson & Miller).

### *The Instructional Model*

According to Davidson and Miller (2002), the *READ 180* instructional model consists of a 90-minute block during which teachers and students engage in a variety of activities and instructional modes. The first stage in the model consists of whole-group instruction. The teacher begins class with a 20-minute period of whole-class direct instruction. The second step in the process revolves around students rotating among three different stations at which they spend 20 minutes each receiving small-group instruction. The students work at the computer on the software by reading or writing independently. The final session to the class is a 10-minute review by the teacher with whole-group instruction (Davidson & Miller).

Davidson and Miller (2002) stated in their evaluation that the principal advantage of the *READ 180* instructional model for teachers in special education and inclusive classrooms is that

it provides much-needed structure and organization while allowing, and even encouraging, differentiated and flexible instruction. Teachers may do a read-aloud during whole-group instruction or they may teach a skill lesson. Daily small-group activities allow the teacher to better monitor and address each student's needs. In small-group instruction, teachers may group students who are having difficulty with a particular skill and provide intensive support or they may conference with individual students (Davidson & Miller).

According to Davidson and Miller (2002), students also benefit from the structure. For many students with special needs, organization and routine are crucial. Students know where they need to go and what they need to do; yet, the instructional model also allows for individualized pacing, a degree of choice, and mobility. Indeed, the latter is an extremely important aspect for students with attention problems. According to Davidson and Miller, when questioned about his favorite aspect for the program, one special education student responded, "We get to move around." Davidson and Miller stated that special education teachers often comment that their students take ownership of the process and show high levels of on-task behavior.

### *Comprehensive Reporting*

Davidson and Miller (2002) pointed out that *READ 180* is the only program of its kind that provides continuous assessment and immediate feedback for both students and teachers. Students begin the program by taking the Scholastic Reading Inventory--a scientifically based and validated instrument that assesses students' reading levels. Students are then matched to appropriate text and placed at the correct level in the software activities. Once the student has begun working on the software, it tracks, extracts, and translates the data into user-friendly reports for the teacher. *READ 180* reports provide a record of student achievement that can be used to identify needs, determine instructional grouping, and inform instruction. In addition, *READ 180* reports help special education teachers with the increased levels of administrative

record-keeping requirements such as the Individualized Educational Plans mandated by many states (Davidson & Miller).

### *Why Students Fail*

Just as the capable reader gains vocabulary and experiences reading as a pleasurable activity, the struggling reader reads less and vocabulary growth is limited; consequently, his or her reading development is inhibited (Walberg, 1984; Walberg & Tsai, 1983). This lack of practice, deficient decoding skills, and negative experiences might make reading a less-than-rewarding experience (Stanovich, 1986). Students also might become struggling readers because of poverty, difficulties in phonological processing, lack of English-language skills, having parents who are not skilled readers, having low reading abilities, or biological or psychological learner deficits (Honig et al., 2000).

According to Davidson and Miller (2002), the developers of *READ 180* tried to combat the problems of students who were trapped in a cycle of failure through adaptive and motivating instructional software, high-interest literature, and many opportunities to experience success from the start. *READ 180* instruction and practice is customized according to students' abilities to prevent frustration and build success. The motivating content of the software videos as well as the *READ 180* library of books engages students and helps them adopt positive attitudes toward reading. Davidson and Miller's validation studies have shown that *READ 180* helps struggling readers close the performance gap that previously separated them from their grade-level peers.

Davidson and Miller (2002) wrote in their evaluation that *READ 180* addresses the needs of students of varying backgrounds and abilities through a multifaceted and comprehensive array of components and instructional practices. The program delivers assessment-driven, standards-aligned instruction that addresses students' specific deficits. It develops essential skills, provides

continual guided practice, and includes motivating materials that promote success in reading as well as in other aspects of the school experience (Davidson & Miller).

Davidson and Miller (2002) also pointed out that *READ 180* is driven by assessment that pinpoints students' needs in each skill area and provides customized instruction. The customized instruction and assessment offered by *READ 180* addresses older readers who vary widely in their abilities and mastery of foundational skills (Davidson & Miller).

### *READ 180 From Another Perspective*

In reviewing the *READ 180* program, one must not only consider the program from Scholastic's viewpoint but also from others as well. Schacter (1999), of the Milken Family Foundation, wrote that in 1994 to 1995, a prototype of the *READ 180* program was designed to assist over 10,000 students in Orange County, Florida. Schacter reported that students in the *READ 180* program gained 33 percentile points in their reading achievement on the Degrees of Reading Power Test. Although the gains were significant, students who entered the program were reading at a very low level; therefore, the magnitude of the increase might have been exaggerated. In addition, the *READ 180* students were not compared to a control group; therefore, the effects of other interventions were not evaluated. Schacter pointed out, "Until treatment of controlled groups are conducted, one must reserve judgment pertaining to *READ 180*" (n. p.). Schacter concluded from his study that although *READ 180* posted some interesting preliminary results, the software was expensive and there was no definitive research in existence to show that the program was more effective than other interventions because treatment and control groups were not employed in the research design.

### *Summary*

This chapter has presented a review of literature that focused on research findings and writings relative to the history of reading instruction, methods of reading instruction, and the

focus of the study, *READ 180*. Operating principles, relationships, time, academic achievement, curriculum, and an overall description of the *READ 180* system were outlined in order to present factual and prudent information regarding *READ 180* (Davidson & Miller, 2002).

## CHAPTER 3

### RESEARCH METHODOLOGY

The purpose of the study was to compare the academic achievement of academically at-risk students in Sevier County Public Schools participating in the *READ 180* pilot program to their academically at-risk peers not enrolled in the intervention program, before and after the implementation of the *READ 180* pilot program, in order to find out the value of the reading intervention program. This chapter focuses on the research design, the population, instrumentation, data collection methods, and methods of analysis used in the study.

#### *Research Design*

A comparative quantitative approach to exploring cause and effect relationships was employed in this study. The purpose of the study was to determine if there are differences in the academic achievement of academically at-risk students participating in the *READ 180* pilot program before and after implementation of the reading intervention program compared to their at-risk peers who are not participating in the *READ 180* intervention program. Test scores of students participating and not participating in the *READ 180* program from schools in the Sevier County school system were compared in this retrospective analysis of standardized achievement test scores. This method is often referred to as *ex post facto* research (Gall, Borg, & Gall, 1996). The research design features the study and analysis of data based on causes that are examined after they have exerted their effect on another variable. In this case, achievement test scores were collected from students' records and comparisons were made between those students who participated in the *READ 180* program versus at-risk students not participating, both before and after implementation of the reading intervention program. Funding for the *READ 180* program came from Title I sources which translates into students participating in the *READ 180* program attended Title I schools as compared to the students not participating in the *READ 180* program



did not attend Title I schools. Findings might suggest a link between achievement test scores and the reading intervention program.

### *Population*

The population for this study consisted of students deemed academically at-risk in the Sevier County school system who participated in the *READ 180* reading intervention program during the 2004-05 school year and those at-risk students from schools that did not participate. Each school participating in the *READ 180* program has a site license that includes the participation of up to 60 students. The number of students participating in the study equaled 160 with 110 students enrolled in the *READ 180* program and 50 at-risk peers who were not enrolled in *READ 180*.

### *Instrumentation*

Academic achievement of the participants was compared by using the Tennessee Comprehensive Assessment Program (TCAP) test scores as reported for the beginning and ending of the 2004-2005 school year (CTB/McGraw-Hill, 1997). Each spring, students in Tennessee schools in grades three through eight are mandated to take an achievement test as part of the TCAP. The primary aim of the test is to provide an accurate measure of academic basic skills. Content knowledge in subject areas is assessed as well as the application of such knowledge. The test uses multiple-choice questions and has set time limits. Although the test questions are limited to a multiple-choice format, the test questions are said to go beyond workbook, drill, and practice. As encouraged in the state frameworks, the test proposes to evaluate students' high-order thinking skills. This format is similar to that used on the National Assessment of Educational Progress (NAEP) test (Tennessee Department of Education, 1999).

The TCAP, published by CTB/McGraw-Hill (1997), provides criterion-referenced information. Criterion-referenced information allows the comparison of a student's achievement against a specified level of performance.

The test questions use a visual format with color and graphics to encourage students' involvement and to clarify test items. The mathematics achievement test involves more problem-solving questions that require greater reading comprehension than in the past. The reading-language test uses authentic literature and articles from magazines and newspapers to capture students' interest. The test measures thinking as well as computational and mechanical skills. Students bubble in answers using separate answer sheets from the test manual (Tennessee Department of Education, 1999).

Statistics describing the TCAP have revealed it both reliable and valid. Testing for standardization was conducted in the spring and fall of 1996. The public school samples were stratified by region, community type, size, and Orshansky percentile, which is an indicator of a district's socioeconomic status. Standardization and norming procedures as well as research studies addressing reliability and validity issues are reported in the Tennessee Coordinators' Handbook (CTB/McGraw-Hill, 1997).

### *Research Questions and Hypotheses*

The following research questions were formulated to guide the investigation:

1. To what extent, if any, are there differences in students' test performance in reading-language arts between the testing periods (the beginning and the end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
2. To what extent, if any, are there differences in students' test performance in math between the testing periods (the beginning and the end of the 2004-2005 school year)

- based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
3. To what extent, if any, are there differences in students' test performance in reading-language between the testing periods (the beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?
  4. To what extent, if any, are there differences in students' test performance in math between the testing periods (the beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

The null hypotheses were:

- Ho1 There are no differences between the test scores of males and females on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho2 There are no differences between the test scores of males and females on the reading-language arts test at the end of the 2004-2005 school year.
- Ho3 There are no differences between the gain scores of males and females on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho4 There are no differences between the test scores of males and females on the math test at the beginning of the 2004-2005 school year.
- Ho5 There are no differences between the test scores of males and females on the math test at the end of the 2004-2005 school year.
- Ho6 There are no differences between the gain scores of males and females on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

- Ho7 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho8 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the end of the 2004-2005 school year.
- Ho9 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho10 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the beginning of the 2004-2005 school year.
- Ho11 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the end of the 2004-2005 school year.
- Ho12 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho13 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho14 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the end of the 2004-2005 school year.

- Ho15 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho16 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the beginning of the 2004-2005 school year.
- Ho17 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the end of the 2004-2005 school year.
- Ho18 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

### *Data Collection*

With the intent to ensure that all requirements were met, approval to initiate this study was obtained from the Institutional Review Board at East Tennessee State University prior to any data collection. Written permission to conduct this study was obtained from authorized personnel in the Sevier County school district (see Appendix A).

Data collection began in the summer of 2006 when the researcher identified TCAP scores from the previous school year. Reports provided by the testing services were obtained from official school report cards from each of the participating schools. Designated personnel at the Sevier County Board of Education supervised the accessing of records and recording of scores to ensure the integrity of the study.

The sources of data for comparison were the total reading and language scores as well as total math scores. These scores were used to make comparisons for statistically significant

differences. Primarily, comparisons were made to determine if differences in academic achievement for total reading-language and math exist for the schools after the implementation of the *READ 180* program. The first comparison was made to detect initial differences in the academically at-risk students participating in the *READ 180* program with the at-risk students who are not enrolled in the program and their 2003-2004 TCAP scores. A second comparison was made to detect differences in the academically at-risk students participating in the *READ 180* program with the at-risk students who are not enrolled in the program and their 2004-05 TCAP scores. A third comparison was made to detect differences between the male and female populations of the study to determine if the *READ 180* program has any impact on male and female success rates on the 2004-2005 TCAP scores. Finally, a fourth comparison was made that compared students of low socioeconomic status to students of high socioeconomic status to determine if the *READ 180* program and financial status had any interactions that impact student success.

### *Data Analysis*

As an initial step in the data analysis, descriptive statistics were developed to provide a profile of the population being studied. Data used in the statistical analyses for this study came from TCAP scores. The Statistical Program for the Social Sciences (SPSS) was used to analyze data. A series of two- and three-way ANOVA were conducted to determine significance and detect differences between TCAP achievement for academically at-risk students participating in the *READ 180* program compared to academically at-risk students not participating in the *READ 180* program. Analysis of variances (ANOVA) was used to identify differences in achievement test scores while controlling for prior academic achievement differences if any.

All statistical tests were conducted using a present alpha level of .05 to determine if statistically significant differences occurred in the total reading-language scores for at-risk

students participating in the *READ 180* reading intervention program compared to at-risk students not participating in the *READ 180* program

### *Summary*

Chapter 3 presented the methodology and procedures that were used in this study. The comparative quantitative research method was chosen and explained. The population and selection method was described. TCAP procedures with their reliability and validity were presented. The methods of data collection and data analysis were detailed. Results of the analysis of research data are presented in Chapter 4.

## CHAPTER 4

### ANALYSIS OF DATA

The findings of the study are addressed in this chapter. The purpose of the study was to compare the achievement of academically at-risk students in Sevier County Schools who participated in the *READ 180* pilot program to the achievement of their academically at-risk peers not enrolled in the intervention program before and after its implementation in order to assess the value of the reading intervention program. The scores on the Tennessee Comprehensive Assessment Program (TCAP) of at-risk students enrolled in the *READ 180* program were compared to the scores of at-risk students who were not enrolled in the pilot program. The study focused on students in the fifth and seventh grades in Sevier County schools. Four research questions were developed to assess the value of the *READ 180* program and guide the investigation.

#### *Research Question #1*

To what extent, if any, are there differences in students' test performance in reading-language arts between the testing periods (beginning and the end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

To answer this research question, 2-way ANOVA models were used, one for fifth-grade students and one for seventh-grade students. The null hypotheses associated with this research question were:

- Ho1 There are no differences between the test scores of males and females on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho2 There are no differences between the test scores of males and females on the reading-language arts test at the end of the 2004-2005 school year.



- Ho3 There are no differences between the gain scores of males and females on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho7 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho8 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the end of the 2004-2005 school year.
- Ho9 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

The results are shown in Tables 1, 2, and 3.

Table 1

*ANOVA Table for Fifth-Grade Reading-Language Arts Scores by Group and Gender*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	15.75	<.01*	.26
Gender	1	.60	.44	.01
Group by Gender	1	1.86	.18	.04
Error	46			

\* Significant at the .05 level

Table 2

*Fifth-Grade Reading-Language Arts Means and Standard Deviations by Test Period, Group, and Gender*

Test Period	Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Male	8	464.00	10.47
		Female	9	472.33	11.44
		Total	17	468.41	11.48
	<i>READ 180</i>	Male	19	455.32	27.90
		Female	14	451.07	25.87
		Total	33	453.52	26.72
	Total	Male	27	457.89	24.18
		Female	23	459.39	23.57
		Total	50	458.58	23.67
Ending	Control	Male	8	464.13	28.56
		Female	9	468.44	15.65
		Total	17	466.41	22.01
	<i>READ 180</i>	Male	19	473.21	31.25
		Female	14	483.57	15.63
		Total	33	477.61	25.99
	Total	Male	27	470.52	30.23
		Female	23	477.65	17.04
		Total	50	473.80	25.06

Table 3

*Fifth-Grade Reading-Language Arts Means and Standard Deviations for Difference Between Beginning and Ending Scores*

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Male	8	.13	26.17
	Female	9	-3.89	8.54
	Total	17	-2.00	18.45

Table 3 (continued)

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
<i>READ 180</i>	Male	19	17.89	25.60
	Female	14	32.50	22.54
	Total	33	24.09	25.08
Total	Male	27	12.63	26.58
	Female	23	18.26	25.62
	Total	50	15.22	26.03

As shown in Tables 1, 2, and 3, there was a significant difference from the beginning to the ending fifth graders' reading-language arts scores between the control group and the *READ 180* group,  $F(1, 46) = 15.75, p < .01$ . Compared to the beginning scores, the ending scores for the *READ 180* fifth graders were higher by an average of 24.09 points while the ending reading-language arts scores of the control group were lower by an average of 2 points. The effect size of the *READ 180*, as measured by  $\eta^2$ , was large. Approximately 26% of the variance in fifth graders' reading-language arts scores was accounted for by the *READ 180* factor.

There was no significant difference in the fifth-grade reading-language arts scores of male and female students from the beginning to the ending testing periods,  $F(1, 46) = .60, p = .44, \eta^2 < .01$ . The ANOVA indicated a nonsignificant interaction between group and gender,  $F(1, 46) = 1.86, p = .18, \eta^2 = .04$ .

A boxplot depicting these findings is shown in Figure 1.

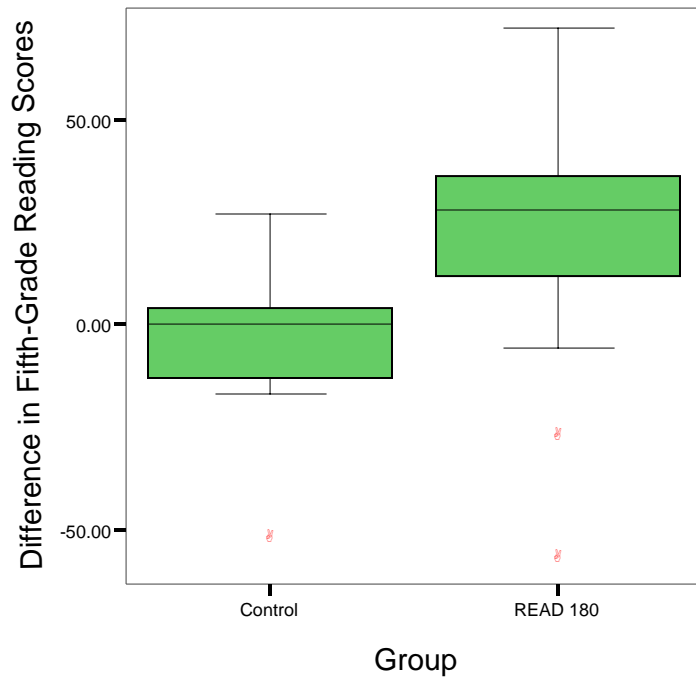


Figure 1. Boxplot for Fifth-Grade Reading-Language Arts Score Difference by Group

As shown in Tables 4, 5, and 6, there was a significant difference in the beginning and ending seventh graders' reading-language arts scores between the control group and the *READ 180* group,  $F(1, 106) = 75.52, p < .01$ .

Table 4

*ANOVA Table for Seventh-Grade Reading-Language Arts Scores by Group and Gender*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	75.52	<.01*	.42
Gender	1	3.39	.07	.03
Group by Gender	1	.32	.57	<.01
Error	106			

\* Significant at the .05 level

Table 5

*Seventh-Grade Reading-Language Arts Means and Standard Deviations by Test Period, Group, and Gender*

Test Period	Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Male	20	478.75	23.15
		Female	10	482.50	19.68
		Total	30	480.00	21.78
	<i>READ 180</i>	Male	48	474.81	22.68
		Female	32	478.06	23.01
		Total	80	476.11	22.72
	Total	Male	68	475.97	22.71
		Female	42	479.12	22.11
		Total	110	477.17	22.44
Ending	Control	Male	20	473.55	21.06
		Female	10	468.10	19.28
		Total	30	471.73	20.31

Table 5 (continued)

Test Period	Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
	<i>READ 180</i>	Male	48	500.60	19.10
		Female	32	499.00	17.41
		Total	80	499.96	18.35
	Total	Male	68	492.65	23.15
		Female	42	491.64	22.09
		Total	110	492.26	22.66

Table 6

*Seventh-Grade Reading-Language Arts Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and Gender*

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Male	20	-5.20	17.52
	Female	10	-14.40	14.35
	Total	30	-8.27	16.87
<i>READ 180</i>	Male	48	25.79	19.11
	Female	32	20.94	13.57
	Total	80	23.85	17.18
Total	Male	68	16.68	23.36
	Female	42	12.52	20.41
	Total	110	15.09	22.27

Compared to the beginning scores, the ending scores for the *READ 180* seventh graders were higher by an average of 23.85 points while the ending reading-language arts scores of the

control group were lower by an average of 8.27 points. The effect size of the *READ 180*, as measured by  $\eta^2$ , was large. Approximately 42% of the variance in seventh graders' reading-language arts scores was accounted for by the *READ 180* factor.

There was no significant difference in the seventh-grade reading-language arts scores of male and female students,  $F(1, 106) = 3.39, p = .07, \eta^2 = .03$ . The ANOVA indicated that there was no significant interaction between group and gender,  $F(1, 106) = .32, p = .57, \eta^2 < .01$ .

A boxplot depicting these findings is shown in Figure 2.

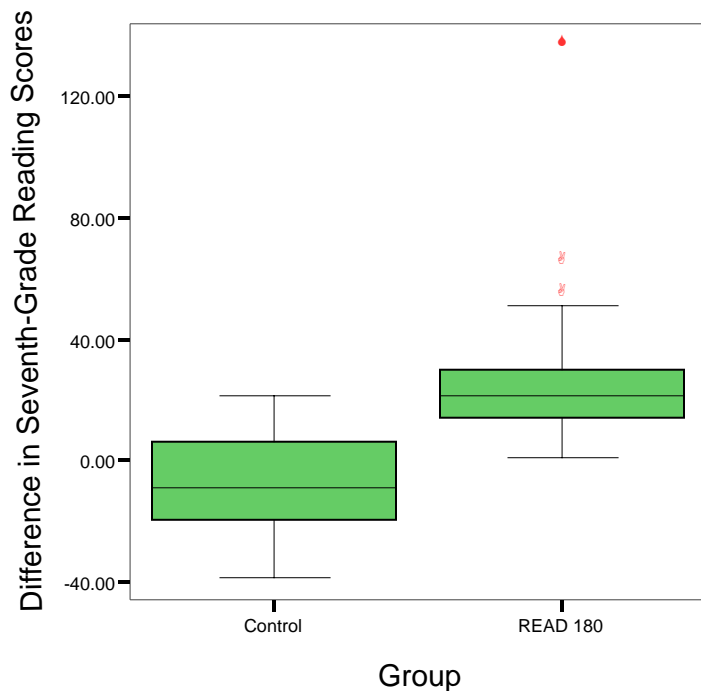


Figure 2. Boxplot for Seventh-Grade Reading-Language Arts Score Difference by Group

### Research Question #2

To what extent, if any, are there differences in students' test performance in math between the testing periods (beginning and the end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

To answer this research question, 2-way ANOVA models were used, one for fifth-grade students and one for seventh-grade students. The null hypotheses associated with this research question were as follows:

- Ho4 There are no differences between the test scores of males and females on the math test at the beginning of the 2004-2005 school year.
- Ho5 There are no differences between the test scores of males and females on the math test at the end of the 2004-2005 school year.
- Ho6 There are no differences between the gain scores of males and females on the math from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho10 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the beginning of the 2004-2005 school year.
- Ho11 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the end of the 2004-2005 school year.
- Ho12 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

The results are shown in Tables 7, 8, and 9.



Table 7

*ANOVA Table for Fifth-Grade Math by Group and Gender*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	11.05	<.01*	.19
Gender	1	.26	.62	.01
Group by Gender	1	1.98	.16	.04
Error	46			

\* Significant at the .05 level

Table 8

*Fifth-Grade Math Means and Standard Deviations by Test Period, Group, and Gender*

Test Period	Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Male	8	465.38	10.56
		Female	9	476.67	16.96
		Total	17	471.35	15.05
	<i>READ 180</i>	Male	19	454.47	35.04
		Female	14	465.57	26.50
		Total	33	459.18	31.73
	Total	Male	27	457.70	30.09
		Female	23	469.91	23.46
		Total	50	463.32	27.66
Ending	Control	Male	8	471.75	12.96
		Female	9	469.78	19.91
		Total	17	470.71	16.51
	<i>READ 180</i>	Male	19	474.16	23.34
		Female	14	491.50	15.87
		Total	33	481.52	22.02
	Total	Male	27	473.44	20.59
		Female	23	483.00	20.26
		Total	50	477.84	20.79

Table 9

*Fifth-Grade Math Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and Gender*

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Male	8	6.38	11.71
	Female	9	-6.89	22.70
	Total	17	-.65	19.08
<i>READ 180</i>	Male	19	19.68	22.96
	Female	14	25.93	27.76
	Total	33	22.33	24.89
Total	Male	27	15.74	20.98
	Female	23	13.09	30.18
	Total	50	14.52	25.38

As shown in Tables 7, 8 and 9, there was a significant difference in the beginning and ending fifth graders' math scores between the control group and the *READ 180* group,  $F(1, 46) = 11.05, p < .01$ . Compared to the beginning scores, the ending scores for the *READ 180* fifth graders were higher by an average of 22.33 points while the ending math scores of the control group were lower by an average of .65 points. The effect size of the *READ 180* factor, as measured by  $\eta^2$ , was large accounting for 19% of the variance in fifth graders' math scores.

There was no significant difference in the fifth-grade math scores of male and female students between the beginning and the ending testing periods,  $F(1, 46) = .26, p = .62, \eta^2 = .01$ . The ANOVA indicated that there was no significant interaction between group and gender,  $F(1, 46) = 1.98, p = .16, \eta^2 = .04$ . A boxplot depicting these findings is shown in Figure 3.

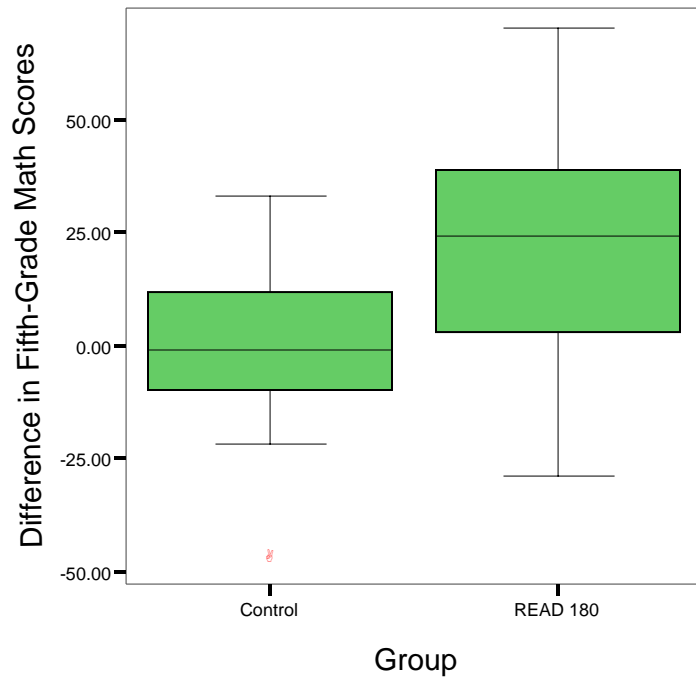


Figure 3. Boxplot for Fifth-Grade Math Score Difference by Group

As shown in Tables 10, 11, and 12, there was a significant difference in the beginning and ending seventh graders' math scores between the control group and the *READ 180* group,  $F(1, 106) = 23.64, p < .01$ .

Table 10

*ANOVA Table for Seventh-Grade Math Scores by Group and Gender*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	23.64	<.01*	.18
Gender	1	1.37	.24	.01
Group by Gender	1	.68	.41	.01
Error	106			

\* Significant at the .05 level

Table 11

*Seventh-Grade Math Means and Standard Deviations by Test Period, Group, and Gender*

Test Period	Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Male	20	487.60	36.21
		Female	10	471.30	26.75
		Total	30	476.17	33.06
	<i>READ 180</i>	Male	48	489.60	31.15
		Female	32	479.66	32.28
		Total	80	485.63	31.78
	Total	Male	68	486.37	32.83
		Female	42	477.67	30.95
		Total	110	483.05	32.26
Ending	Control	Male	20	481.90	22.01
		Female	10	476.40	25.78
		Total	30	480.07	23.03
	<i>READ 180</i>	Male	48	513.96	27.82
		Female	32	514.44	26.36
		Total	80	514.15	27.08
	Total	Male	68	504.53	29.95
		Female	42	505.38	30.66
		Total	110	504.85	30.09

Table 12

*Seventh-Grade Math Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and Gender*

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Male	20	3.30	24.86
	Female	10	5.10	29.05
	Total	30	3.90	25.84

Table 12 (continued)

Group	Gender	<i>N</i>	<i>M</i>	<i>SD</i>
<i>READ 180</i>	Male	48	24.35	18.26
	Female	32	34.78	26.71
	Total	80	28.53	22.47
Total	Male	68	18.16	22.42
	Female	42	27.71	29.80
	Total	110	21.81	25.78

The ending math scores for the *READ 180* seventh graders increased by an average of 28.53 points while the ending math scores of the control group increased by an average of 3.90 points. The effect size of the *READ 180* factor, as measured by  $\eta^2$ , was large accounting for 18% of the variance in seventh graders' math scores.

There was no significant difference between the beginning and the ending of the testing periods seventh-grade math scores of male and female students,  $F(1, 46) = 1.33, p = .24, \eta^2 = .01$ . The ANOVA indicated that there was no significant interaction between group and gender,  $F(1, 106) = .68, p = .41, \eta^2 = .01$ . A boxplot depicting these findings is shown in Figure 4.

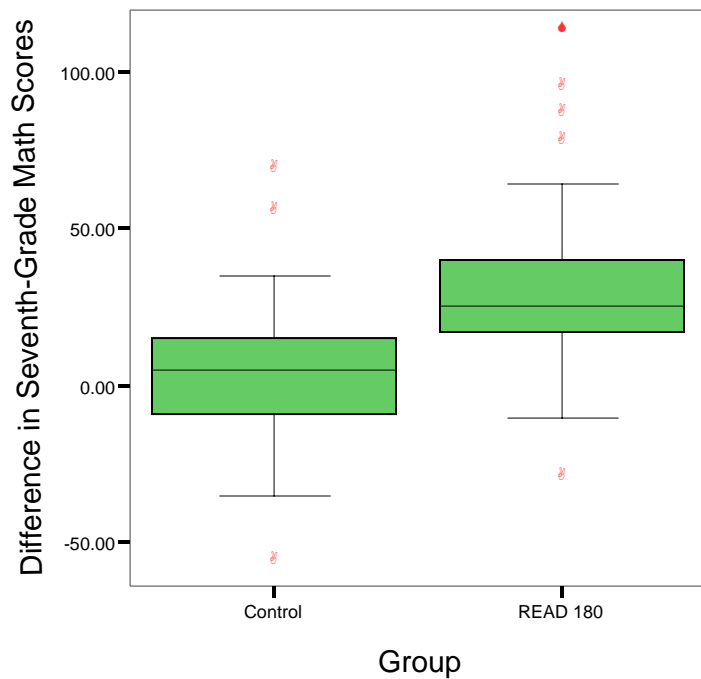


Figure 4. Boxplot for Seventh-Grade Math Score Difference by Group

### Research Question #3

To what extent, if any, are there differences in students' test performance in reading-language between the testing periods (beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high ), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

To answer this research question, 2-way ANOVA models were used, one for fifth-grade students and one for seventh-grade students. The null hypotheses associated with this research question were as follows:

Ho7 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the beginning of the 2004-2005 school year.

- Ho8 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test at the end of the 2004-2005 school year.
- Ho9 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho13 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the beginning of the 2004-2005 school year.
- Ho14 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test at the end of the 2004-2005 school year.
- Ho15 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the reading-language arts test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

As already shown in ANOVA for Research Question #1 and as shown in Tables 13, 14, and 15, there was a significant difference in the beginning and ending fifth graders' reading-language arts scores between the control group and the *READ 180* group.

Table 13

*ANOVA Table for Fifth-Grade Reading-Language Arts by Group and SES*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	17.45	.01*	.28
SES	1	4.22	.05*	.08
Group by SES	1	.98	.33	.02
Error	46			

\* Significant at the .05 level

Table 14

*Fifth-Grade Reading-Language Arts Means and Standard Deviations by Test Period, Group, and Socioeconomic Status*

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Low SES	7	465.43	11.01
		High SES	10	470.50	11.90
		Total	17	468.41	11.48
	<i>READ 180</i>	Low SES	25	453.80	27.81
		High SES	8	452.63	24.76
		Total	33	453.52	26.72
	Total	Low SES	32	456.34	25.42
		High SES	18	462.56	20.27
		Total	50	458.58	23.67



Table 14 (continued)

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Ending	Control	Low SES	7	450.57	27.01
		High SES	10	477.50	6.55
		Total	17	466.41	22.01
	<i>READ 180</i>	Low SES	25	476.04	29.18
		High SES	8	482.50	11.53
		Total	33	477.61	25.99
	Total	Low SES	32	470.47	30.25
		High SES	18	479.72	9.16
		Total	50	473.80	25.06

Table 15

*Fifth-Grade Reading-Language Arts Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and Socioeconomic Status*

Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Low SES	7	-14.86	17.99
	High SES	10	7.00	13.06
	Total	17	-2.00	18.45
READ 180	Low SES	25	22.24	27.38
	High SES	8	29.88	15.93
	Total	33	24.09	25.08
Total	Low SES	32	14.13	29.76
	High SES	18	17.17	18.21
	Total	50	15.22	26.03

There was significant difference in the beginning and ending fifth-grade reading-language arts scores of high SES and low SES students,  $F(1, 46) = 4.22, p = .05, \eta^2 = .08$ . The high SES scores increased by an average of 17.17 points while the low SES scores increased by 14.13 points. The effect size of the *SES* factor, as assessed by  $\eta^2$ , was medium accounting for 8% of the variance in fifth graders' reading-language arts scores. The ANOVA indicated a nonsignificant interaction between group and SES,  $F(1, 46) = .98, p = .33, \eta^2 = .02$ . A boxplot depicting these findings is shown in Figure 5.

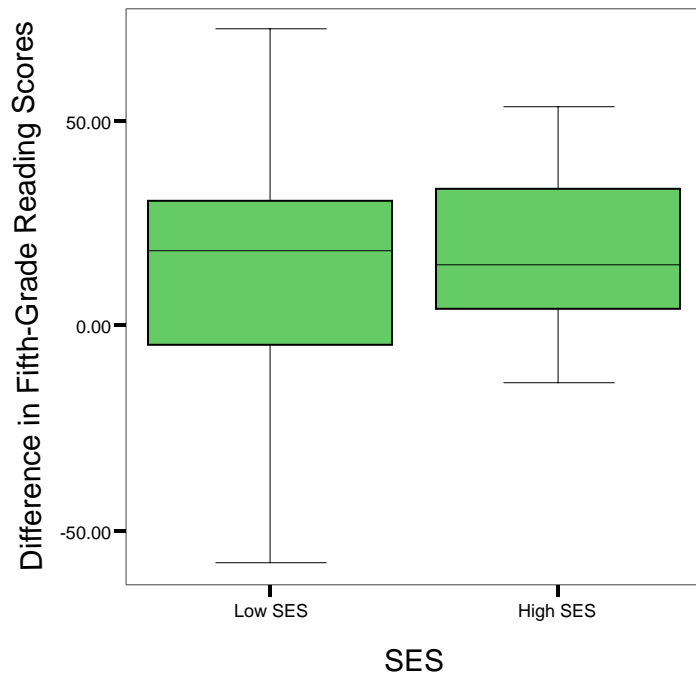


Figure 5. Boxplot for Fifth-Grade Reading-Language Arts Score Difference by Socioeconomic Status

As already shown in ANOVA for Research Question #1 and as shown in Tables 16, 17, and 18, there was a significant difference in the beginning and ending seventh graders' reading-language arts scores between the control group and the *READ 180* group.

Table 16

*ANOVA Table for Seventh-Grade Reading-Language Arts by Group and SES*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	67.15	<.01*	.39
SES	1	.15	.70	<.01
Group by SES	1	.75	.39	.01
Error	106			

\* Significant at the .05 level

Table 17

*Seventh-Grade Reading-Language Arts Means and Standard Deviations by Test Period, Group, and Socioeconomic Status*

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Low SES	17	478.76	18.65
		High SES	13	481.62	26.03
		Total	30	480.00	21.78
	<i>READ 180</i>	Low SES	56	472.68	23.11
		High SES	24	484.13	20.01
		Total	80	476.11	22.72
	Total	Low SES	73	474.10	22.18
		High SES	37	483.24	21.98
		Total	110	477.17	22.44

Table 17 (continued)

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Ending	Control	Low SES	17	469.71	20.33
		High SES	13	474.38	20.76
		Total	30	471.73	20.31
	<i>READ 180</i>	Low SES	56	497.95	17.65
		High SES	24	504.67	19.46
		Total	80	499.96	18.35
	Total	Low SES	73	491.37	21.78
		High SES	37	494.03	24.51
		Total	110	492.26	22.66

Table 18

*Seventh-Grade Reading-Language Arts Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and SES*

Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Low SES	17	-9.06	16.87
	High SES	13	-7.23	17.50
	Total	30	-8.27	16.87
<i>READ 180</i>	Low SES	56	25.27	19.20
	High SES	24	20.54	10.78
	Total	80	23.85	17.18
Total	Low SES	73	17.27	23.63
	High SES	37	10.78	18.89
	Total	110	15.09	22.27

There were no significant differences between the beginning and ending of the test period for seventh-grade reading-language arts scores for high SES and low SES students,  $F(1, 106) = .15, p = .07, \eta^2 < .01$ . The ANOVA indicated a nonsignificant interaction between group and SES,  $F(1, 106) = .75, p = .39, \eta^2 = .01$ .

#### *Research Question #4*

To what extent, if any, are there differences in students' test performance in math between the testing periods (beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

To answer this research question, 2-way ANOVA models were used, one for fifth-grade students and one for seventh-grade students. The null hypotheses associated with this research question were as follows:

- Ho10 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the beginning of the 2004-2005 school year.
- Ho11 There are no differences between the test scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test at the end of the 2004-2005 school year.
- Ho12 There are no differences between the gain scores of students in the *READ 180* (experimental) group and the non*READ 180* (control) group on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.
- Ho16 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the beginning of the 2004-2005 school year.

Ho17 There are no differences between the test scores of high socioeconomic-level students and low socioeconomic-level students on the math test at the end of the 2004-2005 school year.

Ho18 There are no differences between the gain scores of high socioeconomic-level students and low socioeconomic-level students on the math test from the beginning of the 2004-2005 school year to the end of the 2004-2005 school year.

As already shown in ANOVA for Research Question #2 and as shown in Tables 19, 20, and 21, there was a significant difference in the beginning and ending fifth graders' math scores between the control group and the *READ 180* group.

Table 19

*ANOVA Table for Fifth-Grade Math by Group and SES*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	7.49	.01*	.14
SES	1	.26	.61	.01
Group by SES	1	1.33	.26	.03
Error	46			

\* Significant at the .05 level

Table 20

*Fifth-Grade Math Means and Standard Deviations by Test Period, Group, and Socioeconomic Status*

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Low SES	7	468.43	7.02
		High SES	10	473.40	18.93
		Total	17	471.35	15.05
	<i>READ 180</i>	Low SES	25	454.80	31.70
		High SES	8	472.88	29.56
		Total	33	459.18	31.73
	Total	Low SES	32	457.78	28.64
		High SES	18	473.17	23.45
		Total	50	463.32	27.66
Ending	Control	Low SES	7	465.00	17.30
		High SES	10	474.70	15.56
		Total	17	470.71	16.51
	<i>READ 180</i>	Low SES	25	480.12	23.08
		High SES	8	485.88	19.00
		Total	33	481.52	22.02
	Total	Low SES	32	476.81	22.60
		High SES	18	479.67	17.59
		Total	50	477.84	20.79

Table 21

*Fifth-Grade Math Means and Standard Deviations for Difference Between Beginning and Ending Scores Group and SES*

Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Low SES	7	-3.43	10.75
	High SES	10	1.30	23.66
	Total	17	-.65	19.08

Table 21 (continued)

Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
<i>READ 180</i>	Low SES	25	25.32	23.93
	High SES	8	13.00	27.12
	Total	33	22.33	24.89
Total	Low SES	32	19.03	24.73
	High SES	18	6.50	25.20
	Total	50	14.52	25.38

There was no significant difference between the beginning and ending of the test period of fifth-grade math scores for high SES and low SES students,  $F(1, 46) = .26, p = .61, \eta^2 = .01$ . The ANOVA indicated a nonsignificant interaction between group and SES,  $F(1, 46) = 1.33, p = .26, \eta^2 = .03$ .

As already shown in ANOVA for Research Question #2 and as shown in Tables 22, 23 and 24, there was a significant difference between the beginning and ending of the test period of seventh graders' math scores between the control group and the *READ 180* group.



Table 22

*ANOVA Table for Seventh-Grade Math by Group and SES*

Source	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Group	1	25.35	<.01*	.19
SES	1	.19	.66	<.01
Group by SES	1	1.64	.20	.02
Error	106			

\* Significant at the .05 level

Table 23

*Seventh-Grade Math Means and Standard Deviations by Test Period, Group, and Socioeconomic Status*

Test Period	Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Beginning	Control	Low SES	17	469.71	24.82
		High SES	13	484.62	41.03
		Total	30	476.17	33.06
	<i>READ 180</i>	Low SES	56	482.93	34.60
		High SES	24	491.92	23.42
		Total	80	485.63	31.78
	Total	Low SES	73	479.85	32.91
		High SES	37	489.35	30.40
		Total	110	483.05	32.26
Ending	Control	Low SES	17	477.47	21.61
		High SES	13	483.46	25.24
		Total	30	480.07	23.03
	<i>READ 180</i>	Low SES	56	510.14	24.55
		High SES	24	523.50	30.78
		Total	80	514.15	27.08
	Total	Low SES	73	502.53	27.52
		High SES	37	509.43	34.55
		Total	110	504.85	30.09

Table 24

*Seventh-Grade Math Means and Standard Deviations for Difference Between Beginning and Ending Scores by Group and SES*

Group	SES	<i>N</i>	<i>M</i>	<i>SD</i>
Control	Low SES	17	7.76	24.24
	High SES	13	-1.15	27.94
	Total	30	3.90	25.84
<i>READ 180</i>	Low SES	56	27.21	21.78
	High SES	24	31.58	24.20
	Total	80	28.53	22.47
Total	Low SES	73	22.68	23.69
	High SES	37	20.08	29.75
	Total	110	21.81	25.78

There was no significant difference between the beginning and ending of the test period of seventh-grade math scores for high SES and low SES students,  $F(1, 106) = .19, p = .66, \eta^2 < .01$ . The ANOVA indicated a nonsignificant interaction between group and SES,  $F(1, 106) = 1.64, p = .20, \eta^2 = .02$ .

## CHAPTER 5

### SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the study was to compare the achievement of academically at-risk students in Sevier County schools who participated in the *READ 180* pilot program to the achievement of their academically at-risk peers not enrolled in the intervention program before and after its implementation in order to assess the value of the reading intervention program.

The 2004-2005 scores on the Tennessee Comprehensive Assessment Program (TCAP) of at-risk students enrolled in the *READ 180* program were compared to those scores of at-risk students who were not enrolled in the pilot program. The study focused on fifth and seventh graders in Sevier County schools along with a focus on the TCAP subtests for total reading-language and total math. The subtests were used to make comparisons associated for gender and socioeconomic status and also interactions between the variables.

#### *Summary of Findings*

The analysis centered on four research questions. The trait variables for this study were student gender and socioeconomic status. The scores reported for all students on the two subtests targeted by the study as measured by the TCAP were examined as the primary criterion variable. The population consisted of 160 students. The population was broken down between male and female, low and high socioeconomic status, fifth and seventh graders, and control and *READ 180* students. The results are summarized for each research question.

#### *Research Question #1*

To what extent, if any, are there differences in students' test performance in reading-language arts between the testing periods (beginning and the end of the 2004-2005 school year)

based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

As evidenced by the results, Tables 1, 2, and 3 show that there was a significant change from the beginning to the end of the test period for reading-language arts scores between the control group and the *READ 180* group. The ending reading-language arts scores for *READ 180* fifth graders were higher by an average of 24.09 points while the ending reading-language scores of the control group were lower by an average of 2 points.

There was no significant gain in the fifth-grade scores from the beginning to the end of the test period between male and female reading-language scores. Although none of the 2-way and 3-way interactions was statistically significant, it is interesting to note that for the beginning test period, the reading-language arts mean for the fifth-grade *READ 180* males ( $M= 455.32$ ) was 4.25 points higher than the *READ 180* females ( $M= 451.07$ ). However, for the ending test period, the reading-language arts scores for the fifth-grade *READ 180* males ( $M=473.21$ ) were 10.36 lower than the fifth-grade *READ 180* females ( $M= 483.57$ ). The averages show an increase of 32.5 points for the fifth-grade *READ 180* females compared to an increase of 17.89 for the fifth-grade *READ 180* males.

As evidenced by the results, Tables 4, 5, and 6 show that there was a significant change from the beginning to the end of the test period for seventh-grade reading-language arts scores between the control group and the *READ 180* group. The ending reading-language arts scores for *READ 180* seventh graders were higher by an average of 23.85 points while the ending reading-language arts scores for control seventh graders were lower by an average of 8.27 points. There was no significant change from the beginning to the end of the test period of the seventh-grade scores for male and female reading-language arts.

## *Research Question #2*

To what extent, if any, are there differences in students' test performance in math between the testing periods (beginning and end of the 2004-2005 school year) based on gender, participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

As evidenced by the results, Tables 7, 8, and 9 show that there was a significant change from the beginning to the end of the test period for fifth-graders' math scores between the control group and the *READ 180* group. Compared to the beginning scores, the ending scores for the *READ 180* fifth graders were higher by an average of 22.33 points while the ending math scores of the control fifth graders were lower by an average of .65 points. There were no significant changes from the beginning to the end for the fifth-grade math scores between males and females.

There was also, as shown by Tables 10, 11, and 12, a significant change from the beginning to the end of the test period for seventh-graders' math scores between the control group and the *READ 180* group. The ending math scores for the *READ 180* seventh graders increased by an average of 28.53 points while the ending math scores of the control group increased by an average of 3.90 points.

There was no significant change between the beginning and the ending of the test period for seventh-grade math scores between male and female students. Although there were no significant interactions between male and female, it is interesting to note that for the beginning test period, the math scores for the seventh-grade *READ 180* males ( $M= 489.60$ ) were 9.94 points higher than the seventh-grade *READ 180* females ( $M= 479.66$ ). However, for the ending test period, the math scores for the seventh-grade *READ 180* males ( $M= 513.96$ ) were .48 lower than were the seventh-grade *READ 180* females' scores. The means show an increase of 34.78 for the seventh-grade *READ 180* females compared to an increase of 24.35 for the seventh-grade *READ 180* males.

### *Research Question #3*

To what extent, if any, are there differences in students' test performance in reading-language between the testing periods (beginning and end of the 2004-2005 school year) based on socioeconomic status (low and high ), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

There were significant changes from the beginning to the end of the test period for fifth-graders' reading-language arts scores between the control and the *READ 180* group as evidenced already by research question #1 and Tables 13, 14, and 15.

There were also significant changes from the beginning to the end of the test period for fifth-grade reading-language arts scores between high SES and low SES students. The high SES students' scores increased by an average of 17.17 points while the low SES students' scores increased by 14.13 points.

There were no significant changes from the beginning to the end of the test period between group and SES. A note of interest in looking at data is that for the beginning test period, the reading-language scores for the fifth-grade control low SES students ( $M= 465.43$ ) was 11.63 points higher than the *READ 180* low SES reading-language students ( $M= 453.80$ ). However, for the ending test period, the reading-language arts scores for the fifth-grade control low SES students ( $M= 450.57$ ) was 25.47 points lower than the fifth-grade *READ 180* low SES students ( $M= 476.04$ ). The averages show an increase of 22.24 points for the fifth-grade *READ 180* low SES students compared to a decrease of 14.86 points for the fifth-grade control low SES students. The results show a differential swing of 37.10 points compared between the control and the *READ 180* low SES groups.

There were also significant changes from the beginning to the end of the test period for seventh graders' reading-language arts scores between the control and the *READ 180* group as already evidenced in ANOVA for research question #1 and Tables 16, 17, and 18. There was no

significant difference in the beginning and the ending of the test period for seventh-grade reading-language arts scores between high SES and low SES students.

#### *Research Question #4*

To what extent, if any, are there differences in students' test performance in math between the testing periods (beginning and the end of the 2004-2005 school year) based on socioeconomic status (low and high), participation in *READ 180* (control group and *READ 180* group), and interaction between the variables?

There were significant changes from the beginning to the end of the test period for fifth-graders' math scores between the control and the *READ 180* group as already evidenced by research question #2 and as shown in Tables 19, 20, and 21. There were no significant changes in the beginning and ending fifth-grade math scores of high SES and low SES students. The ANOVA also indicated a nonsignificant interaction between the beginning and the ending of the test period between group and SES.

There were significant changes from the beginning to the end of the test period for seventh-grader's math scores between the control and the *READ 180* group as already evidenced by research question #2 and as shown in Tables 22, 23, and 24. There were no significant changes between the beginning and the ending of the test period for seventh-grade math scores of high SES and low SES students. The ANOVA indicated a nonsignificant interaction between the beginning and the ending of the test period between the group and the SES of the students.

#### *Conclusions*

The study focused on comparisons in academic achievement between academically at-risk students who were enrolled in *READ 180* and academically at-risk students not enrolled in *READ 180*. Scores for male and female participants were compared as well as low socioeconomic and high socioeconomic status comparisons. The final interest of the study

focused on the interaction between the program, male, female, high socioeconomic status, and low socioeconomic status using math TCAP scores and reading-language TCAP scores as the measurement. The study provides support, but no clear conclusion, that *READ 180* was beneficial to the success of the *READ 180* at-risk students. There were four conclusions drawn from this study.

#### *Conclusion #1*

The *READ 180* reading intervention program was studied to determine if a difference existed for students who received the intervention and students who did not receive the intervention. There appeared to be a positive change between the beginning and the ending of the test period for students who received the intervention. Students using the *READ 180* intervention had higher proficiency scores than did students in the control group pertaining to reading-language scores. The study provides support, although not conclusive, that *READ 180* may have had a positive impact on the at-risk students receiving the intervention as evidenced by Tables 1, 2, 3, 4, 5, and 6 and Figures 1 and 2.

According to Davidson and Miller (2002), the Vanderbilt software and the *READ 180* program in general directly addresses the problems of students who are trapped in a cycle of failure by providing them with many opportunities to experience success from the start. In the software, instruction and practice are customized according to students' assessed abilities to prevent frustration and build success. The motivating content of the software video helps them adopt positive attitudes toward reading. Validation studies by Davidson and Miller have shown that *READ 180* helps struggling readers close the performance gap that separates them from their grade-level peers.



### *Conclusion #2*

The *READ 180* reading intervention program was studied to determine if a difference existed for students who received the intervention and students who did not receive the intervention. There was a significant positive change between the beginning and the ending of the test period for students receiving the intervention compared to students not receiving the intervention pertaining to math proficiency scores. Students using the *READ 180* intervention had higher proficiency scores than did students in the control group pertaining to math scores. The study provides support, although not conclusive, that *READ 180* may have had a positive impact on the at-risk students receiving the intervention as evidenced by Tables 7, 8, 9, 10, 11, and 12 and Figures 3 and 4.

### *Conclusion #3*

The *READ 180* reading intervention program was studied to determine if a difference existed for male and female students who received the intervention and male and female students who did not receive the intervention. There was no difference between the beginning and the ending of the test period for students receiving the intervention and the students not receiving the intervention in regards to gender, reading-language scores, and math scores. The study provides no support that *READ 180* had either a positive or negative impact on the differences between male and female proficiency scores as evidenced by Tables 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13 and Figures 1, 2, 3, and 4.

### *Conclusion #4*

The *READ 180* reading intervention program was studied to determine if a difference existed for students of high socioeconomic status and students of low socioeconomic status who received the intervention and students of high socioeconomic status and students of low socioeconomic status who did not receive the intervention. There was no difference between the

beginning and the ending of the test period for socioeconomic status of students receiving the treatment and students not receiving the treatment in regards to reading-language scores and math scores. Results indicate that the treatment was significantly associated with students' reading-language arts scores but not with math scores. The study provides no support that *READ 180* has a positive or negative impact on the association between high and low socioeconomic status of students as evidenced by Tables 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24 and Figure 5.

### *Limitations*

The study has some limitations. There are varying degrees of teachers' abilities and skills. The study was based on the premise that all teachers are equal in abilities and skills and that they, along with the school system, followed the principles set forth by the *READ 180* program. A second limitation was that students in *READ 180* had a maximum class size of 21 whereas students not receiving *READ 180* treatment could have had class sizes of up to 25 students for fifth grade and 30 for seventh grade. The student and teacher interactions of the smaller class size might have impacted the study. Thirdly, the study was limited to one school system and because of the small number of participants, certain socioeconomic situations were not identified that might have compromised anonymity of the participants.

### *Recommendations for Practice*

This study provided support, although not conclusive, that *READ 180* may have had a positive impact on some aspects of students' academic achievement. The following recommendations are offered to directors, supervisors, administrators, teachers, and parents who have a voice in implementing or participating in *READ 180* design.

*READ 180* should be considered for all students, whether ranked in the lower quartile or higher quartiles of the student academic testing process as a method to improve reading,

comprehension, and vocabulary skills. Davidson and Miller (2002) stated that the Vanderbilt software and the *READ 180* program includes software, practice, and instructions that customize learning according to students' assessed abilities to build success. If this is indeed true, then the higher learner or accomplished learner could possibly benefit in the same manner in order to increase his or her productivity level as well. Individualized instruction with tools of interest could be used to make gains for all levels of student learning.

Teachers using the *READ 180* program should be provided proper teacher training along with strong technical support. Educational innovations often focus on the supply of equipment, but adequate funding is also needed for training, proper staffing, and maintaining and upgrading the program as new technology is developed. Pelegrino et al. (2001) reported that students made greater gains when instruction and focused assessment were integrally related. The program is not complete when computers, software, staff, and children are in place. Maintenance of supplies, equipment, and training for staff are key elements in tailoring instruction for individual students. Focused assessment, as reported by the *READ 180* software, can provide much information for the learner, but without the proper equipment, maintenance, and training of staff in how to use the tools, the learner might be kept in a cycle of failure.

#### *Recommendations for Further Research*

Several recommendations for further research were developed as a result of this study. This study provides information on key components of *READ 180*; however, because of social settings of a community's or region's population, state and federal positions on education, and financial restraints, further study should move forward concerning the implementation and design of *READ 180*. The need for additional research would prompt the following recommendations:

1. Because of the emergent nature of the program, *READ 180* should be assessed further in order to gain data on the program's impact on the English as a Second Language

- (ESL) students who participate in the program. Davidson and Miller (2002) pointed out that students with special needs require organization and routine. They stated that organization and routine are crucial to learning and improvement. The instructional model created for the *READ 180* program allows for routine, organization, individualized pacing, a degree of choice, and mobility. ESL students are those who fit the profile of students with special needs who benefit from organization, routine activities, and individualized pacing and instruction.
2. Because of the emergent nature of the program, *READ 180* should be assessed further in order to gain data on the program's association with special education students who participate in the program. Davidson and Miller (2002) noted that students with special needs require organization and routine. The instructional model created for this program allows for routine, organization, individualized pacing, a degree of choice, and mobility. Special education students, as well as ESL students, fit this model and require routine, organization, and individualized pacing and instruction.
  3. *READ 180* should be assessed to find the association with, if any, on proficient and accomplished learners. As noted by Davidson and Miller (2002), the software, instruction, and practice are customized according to students' assessed abilities in order to build success. If the program can provide successful individualized instruction for the nonproficient reader, then why should we not move forward with expanding the horizons of the proficient learner as well.
  4. *READ 180* should be assessed as a potential accelerated reading program for the proficient and accomplished reader. The program, as pointed out by Davidson and Miller (2002), can provide individualized instruction, focused assessment, and motivation; thus, it should not be limited to focused groups of students only but to all levels of learners.

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APPENDIX

Written Permission to Conduct Study

Jayson Nave  
Vice Principal  
Sevier County High School  
1200 Dolly Parton Parkway  
Sevierville, TN 37862  
(865) 453-5525

Dr. Cline  
Director of Schools  
Central Office  
Sevierville, TN 37862  
(865) 453-4671

July 11, 2005

Dear Dr. Cline,

I am working on my dissertation for East Tennessee State University. I would like to gain your permission to research data concerning academically at-risk students in the Sevier County School System. No names will be made public in correlation with this study. The study is to find the impact of READ 180 on academically at-risk students enrolled in READ 180 compared to at-risk students not participating in the READ 180 pilot program. The study will analyze TCAP test scores to see if there is any impact on the student's academic achievement during the 2004-05 school year.

I would appreciate your support and blessing upon this project for personal pursuit of a doctorate degree and for East Tennessee State University.

Sincerely,



Jayson Nave

I hereby give Jayson Nave permission to pursue research in the field of READ 180, TCAP scores, and information regarding academically at-risk students in the Sevier County School System as long as no students names are revealed in any public form and only for the pursuit of his doctoral study.



Dr. Cline  
Sevier County School System

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VITA

JAYSON NAVE

Personal Data:                   Date of Birth: March 23, 1972  
  Place of Birth: Sevierville, Tennessee  
  Marital Status: Married

Education:                        King College, Bristol, Tennessee.  
  Bachelors of Arts  
  1995

  Lincoln Memorial University, Harrogate, Tennessee;  
  Administration & Supervision, Masters of Education  
  2000

  Lincoln Memorial University, Harrogate, Tennessee;  
  Administration & Supervision, Education Specialist  
  2001

  East Tennessee State University, Johnson City, Tennessee;  
  Educational Leadership and Policy Analysis, Ed.D.;  
  2007

Professional                        University of Tennessee: Graduate Assistant Baseball Coach;  
Experience:                        1994-1996

  Old Dominion University: Assistant Baseball Coach  
  1996-1998

  Diamond Builders Baseball: Instructor & Coach  
  1998-1999

  Pigeon Forge High School: Teacher & Coach  
  1999-2001

  Sevierville Intermediate School: Vice Principal  
  2001-2005

  Sevier County High School: Vice Principal, Athletic Director  
  2005-2006

  Sevierville Middle School: Principal, Athletic Director  
  2006-Current