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Associations Involving *Open Court Reading*® in Kindergarten and Student Performance on
Standardized Assessments in Reading in a Tennessee School System

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

by
Rachel Suzanne Walk
August 2005

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Dr. Terrence Tollefson

Keywords: Phonics, Phonological Awareness, Phonemic Awareness, Reading

ABSTRACT

Associations Involving *Open Court Reading*® in Kindergarten and Student Performance on Standardized Assessments in Reading in a Tennessee School System

by

Rachel Suzanne Walk

The purpose of this study was to determine what, if any, associations existed between the implementation of the *Open Court Reading*® program in kindergarten and students' reading achievement on the *Terra Nova* standardized achievement test in the first grade. The study involved first-grade students who attended kindergarten in one school system in East Tennessee. Using a quantitative design, this study included the first-grade *Terra Nova* scores from 2001, 2002, 2003, and 2004. Scores obtained by first-grade students who did not receive *Open Court Reading*® in kindergarten (2001 and 2002) were compared with first-grade scores obtained by students who did receive *Open Court Reading*® in kindergarten (2003 and 2004). The study factored in gender, ethnicity, students receiving special education services, and Title I and nonTitle I status of the school attended. Reading Normal Curve Equivalent (NCE), vocabulary NCE, reading composite NCE, language NCE, and word analysis NCE scores from four years of *Terra Nova* scores were used in the analysis. *t*-tests for independent means and two-way analysis of variance (ANOVA) were employed to examine the information. The data were analyzed using the Statistical Program for the Social Sciences.

Based on the findings, implementing the *Open Court Reading*® program in kindergarten appears to have reduced learning gaps that often emerge in early grades when children are learning to read. The findings indicated that a positive relationship exists between participation in *Open Court Reading*® in kindergarten and test performance in first grade. From the two years of test

data analyzed after the implementation of *Open Court Reading*® in kindergarten, learning gaps between females and males diminished; in some cases the males surpassed the females.

Implementation of *Open Court Reading*® in kindergarten does not appear to reduce differences in test performance between non-minority and minority students. Students with special needs who are exposed to *Open Court Reading*® in kindergarten appear to perform higher on reading subtests in the first grade. According to the results of the reading, reading composite, and word analysis subtests, Title I students reduced the gap with nonTitle I students after they participated in the *Open Court Reading*® program in kindergarten.

DEDICATION

This study is dedicated to my dear husband Roger. It is an honor to be the wife of such a caring and forgiving man. Ever since we met in this program, he has been an inspiration and strength to me. He is my best friend, who is always by my side showing interest in all that I do. I look forward to us both moving to the next chapter of our lives.

This study is also dedicated to my parents who instilled in me at an early age the importance of education and trying my best at everything I set out to do. Their trust in God has strengthened me and enabled me to accomplish my dreams.

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In addition, I owe the late Dr. West credit for encouraging and guiding me throughout my doctoral coursework. He was a genuine person who always went out of his way to help his students.

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CHAPTER 1

INTRODUCTION

Throughout the years, educators have disagreed about reading instruction. Some educators support the notion that beginning readers should be taught with a systematic phonics approach. The opposing view is to use a whole word or whole language approach. Moreover, some education professionals contend that a combination of the two approaches is the best method of teaching the skill of reading (Adams, 1990). Slavin (1989) described these shifts of reading instruction as a swinging pendulum. Currently, with the political push for higher student performance in reading, the pendulum has begun to swing back toward the phonics approach (National Reading Panel, 2000).

With the passage of the *No Child Left Behind* legislation in 2002, schools were faced with the mandate to follow new standards in accountability of students, teachers, and schools. The “Reading First Initiative” of the *No Child Left Behind* Act provided school systems with funding for reading programs that have demonstrated success based on research. The state of Tennessee has used the *Terra Nova*, a standardized achievement test, to assess students' performance in each subject area including reading (Tennessee Department of Education, 2004).

In schools today, many children have struggled with learning to read. Most education professionals have agreed that reading failure often results in poor self-confidence, low motivation to learn, and poor school performance (Lyon, 1998). As with many other aspects of life, there are no easy answers or quick-fix solutions to ensure that all children become effective readers. Fortunately, a knowledge base does exist to reveal to educators and parents the essential skills that children must acquire in order to read well. Many educators across the United States have been using this research on reading to guide them in creating developmentally appropriate reading programs that will supply students with the skills needed to become successful readers.

In addition to reading research conducted in the past, the National Reading Panel (2000) issued a report that identified key skills and methods central to reading achievement. In order to accomplish the goal, the Panel reviewed research in reading instruction in the early grades and identified methods that were correlated to successful readers. The report from the panel provided administrators, teachers, and parents with evidence and a standard to use in evaluating a reading program. The panel encouraged educators to use their report, especially when decisions are made regarding content and structure of a reading program (National Reading Panel, 2000).

There has been accumulating evidence that reading difficulties can be prevented through early intervention strategies (Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; Torgesen, 2000; Torgesen & Wagner, 2002; Vellutino et al., 1996). An analysis by Schatschneider, Francis, Carlson, Fletcher, and Foorman (2004) revealed that phonological awareness, sound-letter knowledge, knowledge of letter names, and naming speed in kindergarten are good predictors of multiple reading outcomes in first and second grades. The National Reading Panel (2000) presented five important areas of reading instruction that should be taught in the early grades: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) text comprehension.

The *Open Court Reading*® program for kindergarten has incorporated explicit teacher-directed instruction to teach alphabetic and phonemic awareness, phonics, comprehension, and writing. It relies on a research-based program that addresses the skills recommended by the National Reading Panel (2000). The goal of the *Open Court Reading*® program is for all children to have the tools needed to read authentic literature by the second half of first grade. In order to meet this goal, *Open Court Reading*® recommended that its kindergarten program be used prior to first grade.

This study was designed to compare students' performance on a standardized assessment as it relates to their involvement in a phonics-based program, *Open Court Reading*®, or their

participation in a whole-language approach reading program. The study might provide data that could give insight into the most effective kindergarten program. If so, the data might be used when adopting new reading programs.

Statement of the Problem

For many years, *Open Court Reading*® has been the sole program used in the first-grade curriculum in the school system being studied. With higher expectations of students' performance, the system's school leaders opted to adopt *Open Court Reading*® for kindergarten for the purpose of maximizing students' success on standardized tests that begin during students' first-grade year. The purpose of this study was to determine what, if any, associations existed between the implementation of the *Open Court Reading*® program in kindergarten and students' reading achievement on the *Terra Nova* standardized achievement test in the first grade. The study factored in gender, ethnicity, students receiving special education services, and Title I and nonTitle I status of the school attended.

Research Questions

The following research questions guided this study:

1. What were the demographic characteristics of the first graders whose test scores were used in this study?
2. Did first graders who participated in *Open Court Reading*® in kindergarten have different scores on the *Terra Nova* in reading than did first-grade students who did not participate in *Open Court Reading*® in kindergarten?
3. Were there gender differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?
4. Were there ethnicity differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

5. Were there special education status differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?
6. Was there a difference in the performance of students receiving or not receiving *Open Court Reading*® and attending a Title I or nonTitle I school?

Significance of the Study

Elementary schools were mandated by the *No Child Left Behind* Act to ensure that all students make adequate yearly progress in their reading achievement. A goal of the act was for all children to be readers by the third grade. To assist school districts in meeting this goal, the “Reading First” program was made available to them so that comprehensive, science-based reading programs could be adopted for kindergarten, first, and second grades (*No Child Left Behind Act*, 2004). In addition, the National Reading Panel (2000) was established in order to research the most important skills children must learn in order to become readers. The panel identified phonemic awareness, phonics, fluency, vocabulary, and text comprehension as necessary skills to be taught to children during the early years of school (National Reading Panel, 2000).

In recent years, a school system in East Tennessee adopted a phonics-based reading program for the kindergarten curriculum. The *Open Court Reading*® series had already been used in first and second grades for many years. In order to improve students' performance on state assessments and ensure that all children were effective readers by third grade, the school system researched ways to achieve their goals. The reading series used prior to *Open Court Reading*® was one that was classified as a whole language approach. Because research indicated that phonemic awareness, phonological awareness, phonics, and the alphabetic principles in kindergarten were the foundation for successful readers, the school system adopted the *Open Court Reading*® program for kindergarten. The *Open Court Reading*® program has

been known as a research-based series that includes instruction in phonemic awareness, phonics, the alphabetic principles, comprehension, and quality children's literature.

This study focused on the effects of a phonics-based program on standardized reading test scores and a whole-language based program's effect on standardized reading test scores. Both teachers and administrators strived to find the most effective reading instruction that would help students succeed in reading. Much discussion has been made regarding whether or not the new kindergarten program has been improving students' achievement. Some first-grade teachers have voiced their beliefs that students exposed to *Open Court Reading*® in kindergarten begin the school year at a more advanced level. Because of the new kindergarten curriculum, administrators and teachers decided to eliminate the readiness period during the first six weeks. In previous years, the first six weeks of first grade was considered a review and readiness period in which students were being prepared to start phonics reading instruction. Since the implementation of *Open Court Reading*®, the readiness period has been eliminated because the kindergarten curriculum has already addressed such skills as sound awareness, the alphabet, consonant sound-letter relationships, the five short vowel sounds, beginning high frequency words, writing, and comprehension skills. The information obtained from this study was interesting for both teachers and administrators. It revealed the differences in children's test scores from students who received the phonics-based program and those who did not. It is hoped this study will assist teachers and administrators to make educated decisions when it is time to make the next reading program adoption. Likewise, this study might be useful for other school systems contemplating a phonics-based or whole-language based program for kindergarten students.

Definitions of Terms

The following are definitions and terms used in this study:

1. *Fluency*: The ability to read text accurately and quickly (National Reading Panel, 2000).
2. *Grapheme*: The smallest part of written language that represents a phoneme in the spelling of a word. For example, b, d, f, p, or several letters, such as ch, sh, and th (Center for the Improvement of Early Reading Achievement, 2001).
3. *Phoneme*: The smallest part of spoken language that makes a difference in the meaning of words. For example, the word check has three phonemes (/ch/ /e/ /k/) (Center for the Improvement of Early Reading Achievement).
4. *Phonemic Awareness*: The ability to notice, think about, and work with the individual sounds in spoken words (Center for the Improvement of Early Reading Achievement).
5. *Phonics*: Phonics is the understanding that there is a predictable relationship between phonemes (the sounds of spoken language) and graphemes (the letters and spellings that represent those sounds in written language (Center for the Improvement of Early Reading Achievement).
6. *Phonics Instruction*: A way of teaching reading that stresses the acquisition of sound-letter correspondences and their use in reading and spelling (National Reading Panel, 2000).
7. *Phonological Awareness*: One's sensitivity to, or explicit awareness of, the phonological structure of the words in one's language (Torgesen, Wagner, & Rashotter, 1994).
8. *Whole Language Instruction*: A philosophy of teaching and learning; an approach to curriculum, and a family of distinctive but closely related activities (Daniels, Zemelman, & Bizar, 1999).

Delimitations and Limitations

Delimitations of this study included:

1. The population of the study was delimited to children exposed to the *Open Court Reading*® program in kindergarten during the 2001-2002 and 2002-2003 school years and who were still attending one of the six schools in the same school system at the end of the first grade. In addition, children enrolled in kindergarten during the 1999-2000 and 2000-2001 school years and who were still attending one of the six schools in the same school system at the end of the first grade were included.
2. The population was delimited to a school system that used a research-based phonics program and whole language-based reading program in kindergarten in recent years.
3. The population was delimited to a school system that administered standardized tests to first graders.

Limitations of this study included:

1. The amount and quality level of staff development in the *Open Court Reading*® program provided might vary among kindergarten teachers.
2. Teaching styles and abilities might vary for kindergarten teachers.
3. The results might not be generalized to other populations.
4. Research studies should be used skeptically if they have been conducted by persons with financial ties to publisher of the programs being evaluated.

Overview of the Study

This study was organized into five chapters. The first chapter included an introduction to the study, the statement of the problem, applicable research questions, significance of the study, definitions of relevant terms, and delimitations and limitations. The second chapter will present a review of the literature as it relates to the history of reading instruction, the political aspect, phonics background, whole-language background, the importance of effective reading

instruction, effective reading instruction, and the *Open Court Reading*® program. The third chapter highlights the research methodology and design. The fourth chapter presents the results of the study. The summary, conclusions, and recommendations are the focus of Chapter 5.

CHAPTER 2

REVIEW OF LITERATURE

Reading instruction has been a vital component of one's education. Because reading has been the key to success in school and in life itself, individuals in the field of education continuously debate the most effective way to instruct youngsters who are beginning to read. Through the years, two perspectives of reading instruction have evolved. One school of thought was that comprehension was the purpose of reading and should be put into place first. The opposing view held that teaching skills that enabled children to recognize written words should be the framework for early reading instruction (Adams, 1990.) According to Robinson and Clegg (1998), terms such as language experience, phonics, basal readers, and whole language have been linked to trends over time. Slavin (1989) described movement in literacy education by using a pendulum metaphor. Slavin noted that throughout history, literacy instruction has been moving through various cycles of change.

History of Reading Instruction

Throughout history, approaches of early reading instruction have been continuously debated; this deliberation has resulted in various reading movements. During colonial times, reading instruction was characterized by a two-step process (Balmuth, 1982). The process consisted of teaching a code that was based on the alphabetic principle. Phonemic significance of letters, reading syllables, and spelling exercises were fundamental skills of the alphabetic principle. Essentially, the Bible and nationalist essays were the only available works for children in the United States to read. Unfortunately, young children were limited by their vocabularies.

Sweet (1996) stated that reading instruction in the United States began with Noah Webster. According to Sweet, Webster created the *Blue-Backed Speller* in 1806 that was used

by Americans to teach children to read. In the mid-1800s, efforts were made to help children understand what they read and, in turn, enjoy the process, and desire to learn more. According to Adams (1990), Horace Mann, secretary of the Massachusetts Board of Education, made a report that proposed children be exposed to whole, meaningful words. This report spurred a movement in which new, graded series reading books were adopted and matched with children's age and ability. The focus on comprehension spanned from the 1930s to the 1940s. During this time, children were taught using sight words and context clues. Phonics was introduced gradually and used only with the meaning-bearing dimension of the text (Chall, 1967). During the 1940s, the progressivist movement brought about the recommendation of a holistic approach. A highly respected educator, Dewey (1943), created a reading approach coined as the look-say method. Instead of learning how to read a word by breaking it into its phonetic syllables and learning its linguistic meaning, one learned what a series of characters looked like and from one's own experience gave that string of characters meaning. Thus, children were expected to create their own language (Dewey). This school of thought coincided with the reading series known as *Dick and Jane*. These readers encouraged children to recognize words by sight.

The tide began to turn during the 1950s as a result of Flesch's (1955) book entitled, *Why Johnny Can't Read*. Flesch directed his writings at parents of young children and sparked a nationwide interest in the reading controversy. He reported that a phonics approach was the only natural way to teach reading to youngsters. Identifying letters, associating sounds to letters and letter combinations, and having children write were ways that Flesch deemed as suitable to the alphabetic principle. He contended that children would become independent readers. His book and its presentation were viewed as political in that associations were made between phonics and democracy. The idea that American children were being discounted and their rights were being taken away was prevalent at this time.

Chall (1967) suggested in her book, *Learning to Read: The Great Debate*, that systematic phonics instruction was a valuable component of beginning reading instruction. Chall's (1967)

research spanned three years and involved interviewing authorities, educators, and students. Her research indicated that children who were taught by the phonics approach performed better than did those who did not receive phonics training. She stated that phonics training should be paired with reading stories. Because of the research, Chall (1967) made a plea for the country to never ignore the data again.

Since that time, the reading pendulum has swung back and forth from phonics to whole language approaches. According to Robinson and Clegg (1998), the whole language ideology made a comeback in the 1980s only for the pendulum to swing back to the phonics method in the late 1990s. The debate between phonics and whole-language reading instruction has continued through recent years. Currently, reading programs in schools have become more eclectic in that they are incorporating phonics techniques along with stories and exercises to aid in the development of comprehension skills.

Political Aspect of Reading Instruction

According to the publication, *Becoming a Nation of Readers*, being literate benefits an individual as well as society (Center for the Study of Readers, 1985). The report maintained that education is a valuable investment and brings about human capital. Furthermore, it was noted that the highest return of investment was from kindergarten through third grade or when children were beginning to learn how to read. Without the skill of reading, individuals are unable to succeed in such subjects as math, science, social studies, and language arts (Center for the Study of Readers). Likewise, it was unlikely that a nonreader would experience success in the latter school years. In recent years, legislators have realized that in order to improve academic performance, action must be taken through legislation to ensure that children become readers. Consequently, it has been noted that a nation of literate individuals will be citizens who are more productive.

According to Bock (2000), the National Reading Panel was created in 1997 in order to review scientific literature and, in turn, determine the most effective forms of reading instruction. The panel was established as a result of a Congressional order. Under then-Secretary of Education, Richard Riley, and the Director of the National Institute of Child Health and Human Development, a panel of 14 individuals was created. This panel presented its report to Congress in February 1999. The National Reading Panel (1999) reported that when California passed its "ABC" laws in 1995, the reading instruction pendulum was swinging once again toward the phonics approach. The ABC laws created a state mandate for school systems to use explicit phonics and spelling instruction for reading. The National Reading Panel's (1999) progress report noted that explicit, systematic phonics in grades kindergarten through six improved children's abilities to read and spell.

In 2002, The *No Child Left Behind* legislation continued the argument that early reading programs should be based on phonics. The goal of the law was to ensure that every child would be a fluent reader upon entering the third grade. In order for students to meet this goal, the "Reading First" initiative was created. Under "Reading First," states were allotted funds and tools to assist in the elimination of illiteracy. "Reading First" built upon the National Reading Panel's Progress Report and invested money only into programs based on scientific reading research in the early elementary grade levels (*No Child Left Behind Act*, 2004).

Importance of an Effective Reading Program

In recent years, research and test performance has indicated that many American school children are failing to master essential reading skills. National longitudinal studies revealed that at least 17% of children had faced reading problems. This percentage was the equivalent of 10 million students who experienced difficulties with reading in the first three crucial years of their schooling (National Reading Panel, 1999). In the United States, the National Assessment of Educational Progress (NAEP) is used to track students' performance in each subject area. The

1994 NAEP showed that 42% of fourth graders performed below basic reading levels. In 1996, the NAEP revealed that 36% of nine-year olds were unable to perform at the level of “partially developed skills and understanding.” According to the NAEP in 1999, 40% of all fourth graders were unable to read at the basic level. The report further indicated that 44% of elementary and high school students read below the basic level. This means that they did not possess the skills needed to master work at their grade levels. Equally as disturbing, the NAEP (1999) results for minorities indicated that African American and Hispanic students scored four grade levels below Caucasians on reading assessments. Another way to look at the data is that the average scores for 17-year-old African American students in reading were about the same as the averages for 13-year-old Caucasian students. Moats (1999) noted that the reading failure amongst Hispanics, African Americans, limited-English speakers, and low socioeconomic status children ranged from 60% to 70%. The 2003 NAEP reported that the percentage of fourth graders performing at or above basic levels was not significantly different from students' performance in 1992.

In 1998, Lyon relayed that 5% of children were able to learn to read relatively easy and 20% to 30% of children experienced success in reading when they were exposed to formal instruction. Unfortunately, 60% of children were said to face alarming challenges when learning to read. Of this 60%, 20% to 30% reported that reading was one of the most difficult tasks they had to master in school. When children did experience failure in reading, they were also likely to have difficulties in spelling, writing, vocabulary, and general knowledge (Lyon). Reading has been a fundamental skill in life. According to Lyon, the inability to master reading skills was likely to affect children's attitudes toward school and, therefore, their excitement and love of learning. Likewise, children were likely to have increased low self-esteem when they were unable to keep up with their peers. Children who never conquered reading often viewed reading as a chore and were unlikely to attend a higher educational institution (Lyon). In 1999, Moats noted that 25% of adults in the United States did not possess the basic literacy skills needed in a typical job.

Patterns and studies indicated that children who experienced difficulties in reading would continue to struggle throughout their school years. According to Francis, Shaywitz, Steubing, and Shaywitz (1996), 75% of children who were identified as having problems in reading during the third grade were still experiencing difficulties in the ninth grade. These statistics illustrated the need for early reading interventions in the United States. The National Reading Panel (1999) stated that an obvious decline of reading interest was apparent in the nation. It noted that 54% of 9-year olds read for fun every day, compared to 23% of 17-year olds. Moats (1999) indicated that at least 20% of children in elementary school did not read fluently enough to engage in independent reading.

Background of Phonics Instruction

Reading instruction dealing with sounds is composed of three distinct areas: (a) phonological awareness, (b) phonemic awareness, and (c) phonics. Phonological awareness is associated with an individual's attentiveness to the phonological structure of words (Torgesen et al., 1994). Phonemic awareness is the understanding that spoken words and syllables are composed of a specific sequence of individual speech sounds (National Reading Panel, 2000). In contrast, phonics is the system in which letters and graphemes represent sounds in an alphabetic-phonetic language (Adams, 1990).

Phonological processing has been described as a person's mental operations that use the phonological or sound structure of oral language when an individual is discovering how to decode written language (Torgesen et al., 1994). Three kinds of phonological processing skills have been studied. These skills are: (a) phonological memory, (b) rate of access for phonological information, and (c) phonological awareness. These three kinds of processing skills have been linked to rates at which beginning reading skills are attained (Brady & Shankweiler, 1991; Crowder & Wagner, 1991).

Phonological memory refers to the ability to remember brief, nonmeaningful sequences of verbal items. Studies have revealed that codes or representations are used to store verbal material in the brain. This process is enabled by phonological features of the stimuli (Baddeley, 1986). Evidence was presented to indicate that tasks to measure phonological memory in kindergarten were predictors of reading disabilities and individual differences in reading skills at the end of first grade (Mann & Liberman, 1984).

The rate of access for phonological information is yet another processing skill. An individual's ability to access phonological information from long-term memory is measured by his or her ease and speed in doing so. Typically, the rate is assessed via rapid, automatic naming tasks. In 1976, Denckla and Rudel used this type of task in order to make predictions regarding children's reading abilities. Further studies revealed that individual differences in rates of completing tasks in kindergarten were predictors of later differences in the rate at which students acquired word-reading skills in first grade (Bowers, Steffy, & Tate, 1988; Felton & Wood, 1989; Wolf, 1991).

According to Torgesen et al. (1994), phonological awareness is measured by tasks that require children to identify, isolate, or synthesize phonemes in words. Strong phonological awareness skills in kindergarten were indications of individuals who learned to read more easily than did individuals with delayed development in this area (Byrne, Freebody, & Gates, 1992; Stanovich, Cunningham, & Cramer, 1984). Most often children do not possess fully developed phonological awareness until they are exposed to reading instruction in the first grade (Torgesen et al.). White (2000) listed the following as being phonological awareness skills:

1. hearing the separate words within a sentence,
2. hearing the number of syllables within a word,
3. recognition and creation of rhymes, and
4. listening for words that begin or end with the same sounds. (n. p.)

MacDonald and Cornwall (1995) found a relationship between phonological awareness and reading and spelling achievement of students 11 years after they were enrolled in kindergarten. Students in the kindergarten class were given phonological analysis tests. Eleven

years later, the phonological awareness ability that was assessed was found to be a significant predictor of word identification and spelling skills. It is important to note that both socioeconomic status and vocabulary development were controlled. A similar study conducted by Tunmer, Herriman, and Nesdale (1988) recorded phonological abilities of first-grade students. The researchers found that second-grade students' reading comprehension and word recognition skills were significantly correlated with their phonemic segmentation skills in first grade. Lundberg, Olofsson, and Wall (1980) noted that kindergarten children's performance on a phoneme reversal task was highly correlated with spelling and reading achievement two years later.

Phonemic awareness is a subset of phonological awareness. It has been defined as the ability to notice, think about, and work with the individual sounds in spoken words (Adams, 1990; Center for the Improvement of Early Reading Achievement, 2001). Bock (2000) noted that phonemic awareness was an individual's knowledge that spoken words were composed of segments of sounds that were referred to as phonemes. Phonemic awareness is a prerequisite to phonics instruction because without phoneme awareness, phonics would not make sense. Consequently, when individuals do not have an understanding of phonics, skills such as word recognition and spelling depend on rote learning. Phonemic awareness qualifies as phonics instruction when it involves teaching children to synthesize or segment the sounds in words using letters. Phonemic awareness instruction can be taught to students by manipulating sounds in speech without any letters; however, this is not considered to be phonics instruction (National Reading Panel, 2000). Most beginning levels of phoneme awareness do not involve written letters or words. According to White (2000), the following are considered phoneme awareness skills:

1. the blending of phonemes into words or syllables;
2. substitution of phonemes within syllables or words;
3. identification of beginning, middle, and final phonemes in words;
4. deletion of phonemes from the beginning, middle, or end of words;
5. segmentation of words or syllables into phonemes; and
6. manipulation of phonemes within words or syllables. (n. p.)

Lyon (1998) noted that the foundation for the development of phonemic awareness is established by exposing young children to literacy experiences. These experiences consist of hearing the spoken language through literature, rhymes, and other word and language play. Furthermore, Lyon stated that phonemically aware children are more likely to be good readers. Phonemic awareness allows children to apply phonic skills when reading words; this aids in fluency and accuracy. When an individual does not have phonemic awareness, he or she is likely to not hear the sounds in spoken words. As a result, the individual has an increased chance of being unable to decode or “sound out” words fluently (Lyon). Researchers such as Chall (1967) and Adams (1990) have found that young children who are read to on a regular basis are exposed to the sounds of the language.

It is important that phonemic awareness instruction is included in the elementary school curriculum. Researchers have shown that phonemic awareness training by teachers in classrooms is effective and boosts students' performance. In 1988, Lundberg, Frost, and Peterson conducted a study of 12 classrooms that incorporated games that encouraged children to listen to sounds and, in turn, manipulate them. The activities grew more difficult as the year progressed. The same study was tested by another group of researchers, Schneider, Kuspert, Roth, Vise, and Marx (1997). The results of both studies revealed that phonemic awareness training produced large effect sizes. According to Smith (1998) several published programs were available that taught phonemic awareness skills; however, researchers have found that simple, teacher-made materials worked well when the teachers were sufficiently trained.

The National Reading Panel (2000) reported that phonemic awareness instruction was more effective when it was taught with letters. A study conducted by Blachman, Ball, Black, and Tangel (1994) examined kindergarteners from low socioeconomic backgrounds in reading programs that consisted of both phonemic awareness and letter instruction. The children were taught in small groups for 20 minutes a day each week. Using a “say it and move it” technique, the children physically moved a tile down a page as they pronounced each phoneme in a word.

Then the children were required to practice segmenting words with blank markers and letters. The control group in the study consisted of a traditional kindergarten classroom and curriculum. The researchers established that students receiving the phonemic awareness instruction performed better than did the control group. By being exposed to letters, children were more likely to make the connection between sounds and reading and writing (Blachman et al.). Likewise, another study has shown the importance of making connections between phonemic awareness skills and reading and writing tasks. In Cunningham's (1990) study, one group of kindergarten- and first- grade students were taught to segment and blend as well as to apply the skills in reading words. The first group received a meta-level knowledge that illustrated when, where, how, and why to use phonemic awareness when reading a text. The second group of students received identical phonemic awareness training but was discounted the application training. The results indicated that both groups of students made significant improvement in reading achievement. However, the students receiving both phonemic awareness and application training performed significantly better on a transfer measure of reading achievement than did those who did not receive instruction in application (Cunningham).

In 1998, Lyon noted that phonemic awareness skills in kindergarten served as reliable predictors of difficulties in learning to read. Likewise, Stanovich (1986, 1993) noted that phonemic awareness was directly related to learning to read even more than listening comprehension, reading readiness, and tests of general intelligence. Success in decoding in one out of five children depended on explicit phonemic awareness instruction (Adams, 1990). In 1984, Share, Jorm, Maclean, and Matthews conducted a study in which kindergarteners were assessed on areas when they entered school. Phonemic segmentation, letter name knowledge, memory for sentences, vocabulary, father's occupational status, parental reports of reading to children, and television viewing were areas that were considered for each child. Each of these areas was evaluated to determine which was the best predictor of how well a child would be

reading at the end of kindergarten. The results of the study revealed that phonemic awareness and knowledge of letters were the best indicators (Share et al., 1984).

Another study to address the relationship between phonemic awareness and future reading ability was conducted by Mann (1993). Both a phoneme segmentation test and an invented spelling test were administered to 100 kindergarten students. Approximately one year later, the same group of students was given standardized reading tests and IQ tests. The scores of the phoneme awareness tests predicted 30% to 40% of variance in first-grade reading abilities (Mann). Snider (1997) implemented a longitudinal study that evaluated the relationship between phonemic awareness and reading achievement in elementary-aged students. The study was characterized by testing each kindergartener for phonemic awareness and then comparing those scores to a standardized reading test in second grade. A significant correlation was found between performance on the phonemic awareness test and reading achievement in the second grade (Snider). Consequently, Byrne and Fielding-Barnsley (1991, 1993, 1995) tested the long-term effects of phonemic awareness training. Students were assessed during kindergarten, first, and second grades. At the end of the first year, children trained in phonemic awareness were only slightly superior to the control group. At the end of the next two grades, the group trained in phonemic awareness read significantly more pseudowords that suggested that they were better able to decode words. At the end of the third year, the group of students trained in phonemic awareness was ahead in reading comprehension (Byrne & Fielding-Barnsley, 1995).

According to Adams (1990), phonics is a system of teaching reading that builds upon the alphabetic principle. The central component of the system is the teaching of correspondences between sounds and letters and groups of letters. With practice, the process of linking sounds (phonemes) to form sound-letter correspondences and spelling patterns aid children in applying this skill into their reading (Adams). Phonics reading instruction can be provided in one of two ways: systematically or incidentally. When teaching by a systematic method, educators use a sequential set of phonics elements that are taught along a dimension of explicitness depending on

the type of method being used (Adams). Consequently, an incidental approach is characterized by the instructor not following a formal, planned sequence of phonics elements. Instead, the instructor highlights particular elements opportunistically as they appear in text. Within phonics instruction are five types of systematic and explicit phonics approaches: (a) analogy, (b) analytic, (c) embedded, (d) phonics through spelling, and (e) synthetic (National Reading Panel, 2000). An analogic phonics approach is used when students are taught to decode unfamiliar words by comparing the rime segment to an identical familiar word. For example, a child is able to read the word *sick* by recognizing that -ick is in the known word *brick*. Analytic phonics refers to readers analyzing sound-letter relationships in previously learned words in order to avoid pronouncing sounds in isolation. The embedded phonics approach relies somewhat on incidental learning. Students are taught phonics skills by phonics that are implanted in the text. Phonics through spelling deals with students learning to segment words into phonemes and to select letters for those phonemes. The synthetic phonics approach instructs children to explicitly convert letters into phonemes and then synthesize the sounds to form words (National Reading Panel, 2000). According to Stahl, Duffy-Hester, and Stahl (1998), the benefits of phonics instruction and differences among approaches may occur as a result of the amount of content covered and learned by students rather than from the characteristics unique to the various methods.

The question of when phonics instruction should begin has been asked by educators and researchers throughout the field. Chall (1996) stated that young children must develop a foundational knowledge of literacy consisting of print awareness, phonological awareness, and letter names before they are introduced to formal reading instruction. The research regarding phonemic awareness supported the idea that students need these prereading skills to be successful. According to the National Reading Panel (2000), the first grade is the most important grade for formal instruction in phonics to occur.

Studies regarding phonics instruction have been conducted through the years. Brown and Felton (1990) found that children who began phonics instruction in kindergarten or first grade and continued it for two years were more effective readers. This study supported the value of starting phonics early and continuing to teach it in the elementary grades. Consequently, a study conducted by Stuart (1999) observed three kindergarten teachers using a phonics program and three kindergarten teachers using a big-book approach. The phonics program was systematic and prescribed the teaching of letters. At the end of the year, both groups of students were given tests to compare the effects of the program. The children exposed to the explicit phonics instruction outperformed the students who received the big-book training. The phonics students were able to read more words and pseudowords as well as write more words. A follow-up test was given one year later and it was found that the phonics group spelled better and read more words than the control group (Stuart).

Background of Whole Language Instruction

According to Daniels et al. (1999), whole language is a philosophy of teaching and learning. They pointed out that whole language is an approach to curriculum. Moats (2000) stated that whole language could be viewed as a system of beliefs and intentions. Goodman (1967, 1986) viewed whole language as a context-driven process. He reported that skilled readers use semantic and syntactic skills to make predictions of words that are likely to appear in text that is being read. Reading instruction using this approach is like being taught to read using a “psycholinguistic guessing game” (Goodman, 1967). Hence, children rely more on context clues than on phonemic applications. Likewise, Smith (1971) held that children should learn to read as naturally as they learn to speak. He asserted that breaking words into sounds was pointless and skill development was unrelated to developing effective readers (Smith, 1971). According to Goodman (1992), whole language is a holistic reading and writing program that uses authentic literature and puts children in control of their own learning.

Most proponents of whole language have come to a consensus regarding the components and elements of a whole language program (Stahl, 1999; Weaver, 1994). Most agree that the whole language approach emphasizes the use of whole, natural texts. Whole language classrooms are characterized by literacy materials that are easily available for students to explore reading and writing. A second component is that learning is intended to be meaningful for children. Thirdly, the focus is on child-centered learning where children are given the opportunity to make choices and direct their own learning (Morrow, 1997).

Whole language is looked upon as a top-down process. The most important aspect of the process is making a direct connection between the text and the meaning followed by decoding words through prediction and guessing (Pressley, 1998). Meaning construction is the purpose for reading instead of decoding sounds to construct words. Goodman (1967) reported that whole language advocates feel that the process of learning to read should not be broken down into skills taught in a systematic sequence.

A whole language classroom is based on a constructivist philosophy (McCarty, 1991). It is one in which students are provided with language experiences and tools to construct their own knowledge about reading. Oftentimes, a whole-language directed classroom focuses on cooperative learning, portfolio assessments, and does not contain a teacher's manual (McCarty). The focus is on what the child can do rather than on what the child cannot accomplish.

Because proponents of whole language reject standardized achievement tests and experimental methods, most studies of whole language are case studies (Anderson, 1993). There are studies available that reveal children benefiting from whole language activities. One positive aspect of whole language appears to be reading aloud to children (Morrow, Pressley, Smith, & Smith, 1997; Tompkins & McGee, 1993). Stahl and Miller (1989) compared basal reading instruction to whole language instruction in kindergarten and first grades. They found that students benefited more from a whole language approach in kindergarten. Stephens (1991) asked students in both skills-based reading programs and whole language programs if they

viewed themselves as good readers. He found that more children in whole language classrooms considered themselves effective readers.

Effective Reading Instruction

Some researchers have stated that most reading failure is preventable. According to Moats (1999), classroom instruction is effective when it includes research-based components and practices. Reading instruction that focuses on specific language skills starting in kindergarten is likely to improve success for most developing students (Moats, 1999). Based on scientists' findings, 95% of all children can learn to read. Lyon (1998) indicated that the success of 90% to 95% of poor readers could be increased by incorporating the following techniques in early intervention programs: phonemic awareness, phonics, fluency development, and reading comprehension strategies. He stated that in order for reading skills to reach average levels, the instruction must be conducted by well-trained teachers. Lyon indicated that kindergarten curricula should include phonological, vocabulary, and early reading skills that will be needed in first grade. The kindergarten reading curriculum should encourage children to identify upper and lowercase letters, develop comprehension skills, and acquire the basic purpose of reading and writing. Researchers have reported that the best predictor of beginning reading achievement is a child's knowledge of letter names (Bond & Dykstra, 1967; Chall, 1967).

Farr (1991) stated that most reading specialists view that the best reading instruction is a combination approach. He indicated that the relationship between sounds and letters was important; however, some words in the English language were unable to be decoded (Farr). According to the National Academy of Sciences' National Research Council's (1998) Committee on Preventing Reading Difficulties in Young Children, using elements of both a phonics and whole language approach is the most effective method of teaching children to read. The report noted that it is imperative for children to be exposed to sound-letter relationships as

well as quality children's literature. Furthermore, the report relayed the importance of children entering first grade with a baseline of language and cognitive skills and a desire to learn to read.

The National Reading Panel (2000) reviewed 100,000 reading research studies that have been published since 1966. Another 15,000 studies conducted before 1966 were viewed.

Because of the large quantity of studies available, the panel elected to include only the most scientifically rigorous experimental and quasi-experimental studies. The areas that were focused on included (a) phonemic awareness, (b) phonics, (c) reading fluency, (d) comprehension, (e) teacher education, and (f) technology. The panel concluded the evidence was clear that explicit and systematic phonics instruction is essential in every classroom. The panel first addressed the use of planned sequences of phonics elements instead of using elements as they appear in a text. When observing children with learning disabilities, the panel discovered that both systematic and synthetic phonics used together yielded the best results. Synthetic phonics is essentially the conversion of letters into phonemes in order to synthesize the entire word. Furthermore, the panel indicated that no single approach to teaching phonics could be implemented in all cases. To meet the needs of all students, teachers must receive appropriate training to enable them to use different kinds of phonics-based approaches (National Reading Panel, 2000).

The National Reading Panel (2000) noted that the use of guided oral reading in the classroom was vital to developing reading fluency. They considered a child reading to an adult or another student to be guided reading. The focus in guided reading is for the student to be corrected and provided with feedback during oral reading. The panel also reviewed studies regarding how children learn to comprehend what they read. The following areas were noted to greatly affect comprehension: (a) vocabulary development, (b) text comprehension instruction, and (c) teacher preparation of comprehension strategies to be taught. Comprehension instruction was found to be most successful when instructors encouraged students to recall information, generate questions, and summarize what had been read previously. In order to carry out this

instruction, the panel noted the need for teachers to receive relevant and intensive training (National Reading Panel, 2000).

Regarding vocabulary instruction, the National Reading Panel (2000) concluded that vocabulary should be taught apart from a text as well as with words that are encountered within a text. They found that repetition and multiple exposures to words aided in a child's vocabulary development. As with phonics, the panel stated that a combination of methods should be used in vocabulary instruction (National Reading Panel, 2000).

The National Reading Panel (2000) noted the most influential years for students to receive systematic phonics were kindergarten through sixth. It stated that kindergartners who receive systematic beginning phonics were more likely to experience success in reading and spelling words. Likewise, first graders who were exposed to systematic phonics performed decoding and spelling tasks better than did those who did not receive the instruction. The first graders' comprehension skills were significantly improved as well.

The Open Court Reading® Program

SRA/Open Court Reading® is a reading program with a history of preparing teachers with the understanding and tools to provide a balance of literature and skills. It is a commercially published reading and writing program that applies a balanced approach to reading instruction. The program consists of systematic direct instruction in phonics and phonemic awareness (American Federation of Teachers, 1998). The program is based on empirical research that identifies the factors that lead to success in early reading. *The Open Court Reading®* program was first published in the early 1960s. The premise of the approach was that if children were to learn to read with fluency and comprehension, they must be exposed to explicit, systematic instruction in addition to rich experiences with quality children's literature. The program prides itself in being equally balanced with explicit phonics and comprehension skills. Both decodable texts and literature are available to beginning readers. Ultimately, the

goal of *Open Court Reading*® is for all first graders to possess the skills necessary to read authentic literature on grade level by the second half of the school year. The program focuses on fluency, comprehension, writing, research, and inquiry from grades kindergarten through six. Making no assumptions of what children already know, *Open Court Reading*® systematically teaches letter knowledge as well as phonemic awareness in kindergarten. Sounds and their spellings are introduced systematically. Likewise, teaching how to synthesize sounds in words is taught by direct instruction. Through decodable books, student's comprehension and fluency skills are addressed. A connection is made to spelling by incorporating dictation activities in each lesson (American Federation of Teachers).

The kindergarten program consists of systematic steps to teaching beginning literacy skills. Students are introduced to the alphabet and how it works. Through phonemic awareness instruction, children are taught to connect sounds with letters and make connections about how the sounds work together (*Open Court Reading*®, 2000). Print awareness is addressed through the exposure to decodable books and children's literature. In addition, the program incorporates other subjects such as science, social studies, and the arts. From the start, comprehension strategies and writing skills are emphasized even before students can read. Likewise, decoding skills are developed through predecodable and decodable books (*Open Court Reading*®).

Phonemic awareness activities in the kindergarten program provide students with practice activities. Discriminating sounds that make words is the basis of the practice activities. The exercises are brief and are teacher-directed (*Open Court Reading*®, 2000). Each exercise incorporates some form of word play. For example, words are taken apart in various ways and then are put back together. A puppet is used to lead the activities and games to make it enjoyable for young children. Paying special attention to the sequence, the creators of *Open Court Reading*® designed the activities to support students in the beginning and gradually remove the support as the students progress (*Open Court Reading*®).

The alphabetic principle is addressed in kindergarten through lessons that introduce students to the relationships between sounds and letters. Each of the activities introduced a limited set of letters, associated them with the sounds they represent, and focused on the concept of the relationship. Structured activities are provided that allow students to explore and understand the alphabetic principle. The authors of *Open Court Reading*® acknowledged that the foundation for systematic phonics instruction is established by this approach (*Open Court Reading*®, 2000).

Open Court Reading® introduces kindergarteners to phonics instruction by teaching the sounds and letters of the alphabet in addition to the five short vowels. This phonemic instruction constructs a foundation for the first grade when they will learn the 43 common sounds and the letter and letter combinations that represent the sounds (*Open Court Reading*®, 2000). In order to teach effectively the sound-letter relationships, *Open Court Reading*® uses 43 alphabet/sound cards. The cards are displayed in a prominent place in the classroom and serve as a tool for students to use as a reference when learning the sound-letter relationships. The name of the picture begins with the same sound of the letter on each card. The consonants have an object whose beginning sound is the same, whereas the short vowel sounds are words where the sound occurs in the middle (*Open Court Reading*®). In order to make connections to young children, each picture associates a sound with an action. When the sounds and letters are introduced, an interactive poem is read by the teacher that illustrates the pictured object making the sound. To encourage students to apply their knowledge of sound-letter relationships, decodable books are used daily. The books are designed to review and reinforce sound and spelling correspondences. In addition, children use letter cards to build words dictated by the teacher. Word building activities are opportunities for children to apply letter sounds (*Open Court Reading*®).

The authors of the *Open Court Reading*® (2000) program recognize the importance of reading comprehension. Research has shown that comprehension must be taught and modeled for students. Beginning in kindergarten, *Open Court Reading*® guides students through steps

that will aid in their understanding of the story. By using these techniques daily, it is expected that children will internalize the procedures and use them when they are reading independently. The first step is for readers to establish reading goals. These goals are set by activating prior knowledge, browsing the text, and considering the purpose of reading. During the actual reading of a literary work, readers are guided to respond to the text and implement self-examinations that check for understanding. The comprehension strategies taught are: asking questions, clarifying, making connections, making predictions, summarizing, and visualizing (*Open Court Reading*®). Upon the completion of a story, instructors guide students to consider the author's point of view, the author's purpose, and cause and effect relationships. In addition, children are taught to compare and contrast, draw conclusions, distinguish from fact and opinion, identify main ideas and details, make inferences, distinguish between reality and fantasy, and sequence events (*Open Court Reading*®).

A founding principle of *Open Court Reading*® is to provide children with quality literature. The program provides both traditional and contemporary stories. Each story is chosen because it specifically applies to the unit and theme. Two types of themes are found in the *Open Court Reading*® series. One kind of theme involves universal topics of interest such as friendship and courage. The second kind of theme is based on research, such as weather (*Open Court Reading*®, 2000).

In order to provide effective instruction to students, *Open Court Reading*® incorporates a variety of teaching techniques. Whole class instruction, collaborative learning, small group instruction, and individual instruction are used in the reading program. Material is initially presented to a heterogeneous, whole group classroom rather than ability grouping. Collaborative learning is incorporated through whole class discussions. During independent work time, teachers are able to assist small groups of students or an individual in an area of need (*Open Court Reading*®, 2000).

Independent field tests have been conducted for the kindergarten- through second-grade curriculums. Foorman, Francis, Novy, and Liberman (1991) conducted a study of 80 first-grade students. The children were divided into classrooms that differed in the amount of sound-letter instruction taught daily. Forty children were enrolled in three classrooms in which a basal series was used and reading was taught with an emphasis on words in meaningful contexts. The other 40 children were enrolled in three classrooms that used a basal series in addition to an extra emphasis on letter/sound correspondences with *Open Court Reading*®. The students were given tests of phonemic segmentation, reading, and spelling. The researchers concluded that the children in classrooms that used *Open Court Reading*® received more letter-sound instruction and, therefore, showed better spelling and reading skills (Foorman et al., 1991).

Webster and Braswell (1991) examined reading scores of two groups of second graders. *Open Court Reading*® instruction was administered to one group of students. The second group of students received instruction with Houghton-Mifflin basal series. Four standardized tests were used to assess the students in both groups. The results of the research indicated that the students receiving *Open Court Reading*® outperformed the control group in each area.

Barrett (1995) compared achievement of first graders. The students were divided into three groups. The first group of children was exposed to *Open Court Reading*® phonics instruction. The second group received a phonics program that included guided and shared activities. The third group was taught using the school system's standard curriculum. At the end of the year, all students were assessed. Barrett found that there were no significant differences among the groups in reading ability or oral reading. However, students receiving *Open Court Reading*® did outperform the control group on all three subtests.

An additional study conducted by Foorman et al. (1998) supported the *Open Court Reading*® program. In their study, 285 first- and second-grade students received instruction in one of the following instructional settings: (a) direct instruction in sound-spelling correspondences (*Open Court Reading*®), (b) less direct instruction in sound-spelling

correspondences, and (c) implicit instructions in the alphabetic code. In general terms, the approaches ranged from a direct phonics method to a whole language approach (Education Commission of the States, 2002). The researchers found that students who participated in the reading programs that emphasized explicit instruction in sound-spelling correspondences performed better (Foorman et al., 1998).

McRae (2000) implemented a study that analyzed achievement from a standardized test. The test was given to all students from 2nd grade to the 11th grade in California. *Open Court Reading*® was used in all schools in kindergarten, first, second, and third grades. The Total Reading scores of second and third graders were compared to statewide averages. The results revealed that for second grade, the gains were substantially greater than the statewide gains. The third grade results were larger than the statewide gains as well (McRae).

In addition to the studies mentioned, two case studies have been documented. A Title I kindergarten- through fifth-grade school in New York City credited a turnaround in its students' performances as a result of the adoption of the *Open Court Reading*® program. Approximately 10 years after implementation of the program, the school reported that 93% of fifth graders were scoring above the state's average and 80% of third graders were performing above the state's minimum level (American Federation of Teachers, 1998). Another case study involved a small school in Laredo, Texas, where 70% of its students received free and reduced price lunches. In large part because of its reading scores, the school was named one of the state's 12 spotlight schools as 85% percent of third and fourth graders passed the statewide reading tests. The school gave partial credit to the phonics portion of the *Open Court Reading*® program (American Federation of Teachers).

CHAPTER 3

METHODOLOGY

Chapter 3 presents the methodology used in this study to determine the relationship between the implementation of the *Open Court Reading*® program in kindergarten and students' performance in reading on the *Terra Nova* standardized test in first grade. The chapter focuses on research design, population, instrumentation, data collection, data analysis, and a listing of hypotheses.

Research Design

With new federal legislation requiring schools' accountability for students' performance on standardized tests, one school district has implemented the *Open Court Reading*® program in kindergarten. However, the question becomes, "Is there evidence that this program has increased students' test scores on the reading portion of the *Terra Nova*?" To establish trends, a quasi-experimental design was implemented. The quasi-experimental design is a commonly used type of longitudinal research. Experimental designs are often employed when addressing evaluation questions regarding the effectiveness and impact of programs (Gribbons & Herman, 1997). The emphasis is on the use of comparative data to interpret findings. Thus, confidence is increased that the outcomes are a result of a given program instead of a function of other events (Gribbons & Herman). According to Gall, Borg, and Gall (1996), a quasi-experimental design is likely to produce useful knowledge if used appropriately. Often, it is a useful method when random assignment is not feasible (Gall et al.).

In the state of Tennessee, the TCAP achievement tests are referred to as the *Terra Nova* tests. Using a quantitative design, this study included the first grade *Terra Nova* scores from 2001, 2002, 2003, and 2004. Scores obtained by first-grade students who did not receive *Open Court Reading*® in kindergarten (2001 and 2002) were compared with first-grade scores

obtained by students who did receive *Open Court Reading*® in kindergarten (2003 and 2004). The independent variable in this study was the kindergarten *Open Court Reading*® program. The dependent variable was first-grade students' reading achievement as measured by the *Terra Nova*. The relationship was examined by controlled variables such as gender, ethnicity, students receiving special education services, and Title I and nonTitle I status of the school attended. In order to establish relationships, comparisons using the variables were made between the treatment group and the control group. Furthermore, reading Normal Curve Equivalent (NCE), vocabulary NCE, reading composite NCE, language NCE, and word analysis NCE scores from four years of *Terra Nova* test scores were used in the analysis.

Population

This study was conducted in one school system in East Tennessee. The school system has six elementary schools. Of these elementary schools, three qualify as Title I and the other three do not qualify. The elementary schools have the following number of first-grade classrooms: Elementary School A has three, Elementary School B has four, Elementary School C has two, Elementary School D has two, Elementary School E has three, and Elementary School F has two. This study was based on a population of 1,001 first-grade student's test scores. Of this number, 439 students received *Open Court Reading*® instruction in kindergarten and 562 students did not receive the instruction. During the years of 2000 and 2001, all kindergarten students in this school system participated in the same reading program; this was not *Open Court Reading*®. For the 2002 and 2003 school years, all kindergarten students in the school system participated in the *Open Court Reading*® program. The following years yielded the number of test scores noted: 285 in 2001, 277 in 2002, 210 in 2003, and 229 in 2004. The first graders who were not enrolled in this system's kindergarten program were eliminated from the study.

Instrumentation

The Tennessee Comprehensive Achievement Test (TCAP) was used to obtain first-grade student's academic performance. Currently, schools in Tennessee are mandated to test students in third through eighth grades. School systems are given the option of testing kindergarten-, first-, and second-grade students. The school system participating in this study has elected to give the standardized tests to both first and second graders.

The TCAP achievement tests were published by CTB/McGraw-Hill. In 1996, CTB/McGraw-Hill conducted norming studies with a large national sample of students from kindergarten to 12th grade. This procedure was implemented in order to ensure accurate and fair representation of all minority and socioeconomic groups (Teachers' Guide to Terra Nova, 1999). In addition, CTB/McGraw-Hill indicated that the standardized test was valid and reliable (Teachers' Guide to Terra Nova). According to Bratton, Horn, and Wright (1996), the content validity of the achievement test was good based on four reasons. First, in 1988, the CTB/McGraw-Hill test was chosen over others because of the degree to which the test matched the Tennessee curriculum. Secondly, criterion-referenced portions were created by teachers to purposefully match the Tennessee curriculum. Thirdly, the norm-referenced questions have been pulled from the same bank used to create achievement tests worldwide. Finally, the Tennessee Value-Added scores prove a relationship between the *Terra Nova* norm-referenced questions and the Tennessee curriculum. Bratton et al. noted that the gains made across the state would not exist if the tests and curriculum were not related.

The tests were administered in the spring during two to three designated weeks set by the Tennessee Department of Education. The test administered for each of the years was called the *Terra Nova*. The *Terra Nova* test for first graders included reading/language, vocabulary, word analysis, mathematics, mathematics computation, science, and social studies.

Data Collection

Prior to the implementation of the study, exempt status was obtained from the East Tennessee State University Institutional Review Board. Written permission was received from the director of schools in the school system involved in the study (see Appendix). In addition, the study was shared with the school system's testing coordinator.

When collecting the data, the researcher worked cooperatively with the testing coordinator to obtain archived standardized test reports through the *Clarity* software program. This program generates reports for first-grade tests given in each of the six schools. The reports provided gender, ethnicity, and special education status of each student in addition to test scores. The school system did not release the names of students to the researcher. In order to protect identity and privacy, each student's name was omitted from the reports by the school system's testing coordinator. In order to categorize the data, the researcher assigned each score a number. The students' Normal Curve Equivalent (NCE) scores were used to compare the programs. NCE scores range from 1 to 99. NCE scores are based on an equal-interval scale. The difference between two NCE scores has the same meaning across the scale. NCE scores on different tests can be directly compared. Likewise, NCE scores can be averaged for comparison across groups. This score is best used for conducting comparisons and contrasts that require statistical calculations (Teachers' Guide to Terra Nova, 1999).

Data Analysis

To provide information regarding the entire population, descriptive statistics were used. In addition, *t* tests for independent means and two-way analysis of variance (ANOVA) were employed to examine the information. The data were analyzed using the Statistical Program for the Social Sciences (SPSS).

The strategies used to answer the research questions are detailed as follows:

Research Question #1: What were the demographic characteristics of the first graders whose test scores were used in this study? To answer this research question, descriptive statistics were used to display information about the population in relation to gender, race, special education students, and Title I and nonTitle I students.

Research Question #2: Did first graders who participated in *Open Court Reading*® in kindergarten have different scores on the *Terra Nova* in reading than did first-grade students who did not participate in *Open Court Reading*® in kindergarten? This research question was answered using a *t* test for independent means. The *t* test was used to test the significance of the difference between two sample means of students who participated in *Open Court Reading*® and of those who did not.

Research Question #3: Were there gender differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not? This research question was answered with a two-way analysis of variance test. The test determined if significant differences existed in the groups of students who received *Open Court Reading*® and of those who did not. The test compared the performance of boys and girls using the following five subsections of the test: reading, vocabulary, reading composite, language, word analysis.

Research Question #4: Were there ethnicity differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not? Similar to question three, this question was answered using a two-way analysis of variance test. The test determined if significant differences existed in the groups of students who received *Open Court Reading*® and of those who did not based on a student's ethnicity. The test compared the performance of race using the following five subsections of the test: reading, vocabulary, reading composite, language, and word analysis.

Research Question #5: Were there special education differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not? Similarly, a two-way analysis of variance test was used to determine if significant differences

existed in groups of students who received *Open Court Reading*® and of those who did not based on whether or not a child was receiving special education services. The test compared the performance of students receiving special education using the following five subsections of the test: reading, vocabulary, reading composite, language, and word analysis.

Research Question #6: Was there a difference in the performance of students receiving or not receiving *Open Court Reading*® and attending a Title I or nonTitle I school? A *t* test was employed to find out if significant differences were apparent between students who received *Open Court Reading*® and those who did not and whether or not they attended a Title I school. The test compared the performance of students using the following five subsections of the test: reading, vocabulary, reading composite, language, and word analysis.

Hypotheses

The following research null hypotheses were tested in this study:

Research Question #2: Did first graders who participated in *Open Court Reading*® in kindergarten have different scores on the *Terra Nova* in reading than did first-grade students who did not participate in *Open Court Reading*® in kindergarten?

Ho₂₁: There is no difference in the 2001 and 2002 reading NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 reading NCE scores who did not receive *Open Court Reading*®.

Ho₂₂: There is no difference in the 2001 and 2002 vocabulary NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 vocabulary NCE scores who did not receive *Open Court Reading*®.

Ho₂₃: There is no difference in the 2001 and 2002 reading composite NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 reading composite NCE scores who did not receive *Open Court Reading*®.

Ho2₄: There is no difference in the 2001 and 2002 reading NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 language NCE scores who did not receive *Open Court Reading*®.

Ho2₅: There is no difference in the 2001 and 2002 vocabulary NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 word analysis NCE scores who did not receive *Open Court Reading*®.

Research Question #3: Were there gender differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Ho3₁: There is no difference between female and male students and their NCE reading subtests scores.

Ho3₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho3₃: There is no significant interaction.

Research Question #4: Were there ethnicity differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Ho4₁: There is no difference between minority and non-minority students and their NCE reading subtests scores.

Ho4₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho4₃: There is no significant interaction.

Research Question #5: Were there special education status differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Ho5₁: There is no difference between students receiving special education services and students not receiving special education services and their NCE reading subtests scores.

Ho5₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho5₃: There is no significant interaction.

Research Question #6: Was there a difference in performance of students receiving or not receiving *Open Court Reading*® and attending a Title I or nonTitle I school?

Ho6₁: There is no difference between students attending Title I schools and nonTitle I schools and NCE reading subtests scores.

Ho6₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho6₃: There is no significant interaction.

Summary

Chapter 3 consisted of the presentation of the research design, population, instrumentation, data collection, data analysis, and the list of null hypotheses used in this study. The implementation of a quantitative, quasi-experimental design was discussed. In addition, the testing instrument, *Terra Nova*, was described and explained. Null hypotheses based on research questions were listed and statistical tests were identified for each. In chapter 4, the results will be presented.

CHAPTER 4

DATA ANALYSIS

Introduction

The research questions presented in Chapter 1 and the hypotheses introduced in Chapter 3 are addressed in this chapter. The purpose of this study was to determine what, if any, associations existed between the implementation of the *Open Court Reading*® program in kindergarten and students' reading achievement on the *Terra Nova* standardized achievement test in the first grade. Normal Curve Equivalent (NCE) scores on the following tests were used: reading, vocabulary, reading composite, language, and word analysis. Test scores of students not receiving *Open Court Reading*® in kindergarten during 2001 and 2002 were compared to test scores of students receiving *Open Court Reading*® during 2003 and 2004. Test scores were collected from six elementary schools from one school system in East Tennessee. This study was guided by six research questions and the corresponding null hypotheses.

Analysis of Research Questions

Data for this study were compiled from the results of the 2001, 2002, 2003, and 2004 first-grade *Terra Nova* tests. Various statistical methods were used to analyze the data. The organization of this chapter follows the order of the research questions as listed in Chapters 1 and 3.

Research Question #1

What were the demographic characteristics of the first graders whose test scores were used in this study?

The population consisted of 1,001 first-grade students. Students included in the study were enrolled in both kindergarten and first grade in one of the six elementary schools in one

school district in East Tennessee. Demographic information of the population encompassed Title I and nonTitle I status, gender, ethnicity, students receiving special education services, and students receiving and not receiving *Open Court Reading*®. In addition, four year totals of students' performance on reading, vocabulary, reading composite, language, and word analysis *Terra Nova* tests are included. Of the population, 442 (44.2%) students attended schools that qualify for Title I funds and 559 (55.8%) attended nonTitle I schools. The population consisted of 496 (49.6%) females and 505 (50.4%) males.

Ethnicity was another area observed in the study with 87 (8.7%) students being categorized as a minority. Of the population 914 (91.3%) students were non-minority. The minority category consisted of African-American, Hispanic, and Asian students. Among the students, 852 (85.1%) did not receive special education services whereas 149 (14.9%) did receive special education services. The test scores of students qualifying as “gifted” were not included in the special education population. During the years of 2001 and 2002, the *Open Court Reading*® program was not used in any kindergarten classroom in the school system. Therefore, during this period, 562 (56.1%) students did not receive instruction from the *Open Court Reading*® program. In 2003 and 2004 school years, the *Open Court Reading*® program was implemented in each kindergarten classroom in the school system. During this period, 439 (43.9%) students did receive reading instruction from the program.

The performance levels of first-grade students are displayed in Table 1. Reading, vocabulary, reading composite, language, and word analysis scores from 2001, 2002, 2003, and 2004 were averaged together. The table displays the mean, median, and standard deviations of each.

Table 1

Level of Performance for 2001-2004 Students in First Grade

Subtest	<i>n</i>	<i>M</i>	<i>Mdn</i>	<i>SD</i>
Reading	1001	62.23	64	21.11
Vocabulary	1001	62.31	63	20.77
Reading Composite	1001	63.10	65	21.03
Language	1001	65.17	66	21.95
Word Analysis	1001	64.59	65	22.74

Research Question #2

Did first graders who participated in *Open Court Reading*® in kindergarten have different scores on the *Terra Nova* in reading than first-grade students who did not participate in *Open Court Reading*® in kindergarten?

A *t* test for independent means with an alpha level of .05 was used to address research question #2 and the following null hypotheses:

Ho₂₁: There is no difference in the 2001 and 2002 reading NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 reading NCE scores who did not receive *Open Court Reading*®.

Ho₂₂: There is no difference in the 2001 and 2002 vocabulary NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 vocabulary NCE scores who did not receive *Open Court Reading*®.

Ho₂₃: There is no difference in the 2001 and 2002 reading composite NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 reading composite NCE scores who did not receive *Open Court Reading*®.

Ho2₄: There is no difference in the 2001 and 2002 reading NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 language NCE scores who did not receive *Open Court Reading*®.

Ho2₅: There is no difference in the 2001 and 2002 vocabulary NCE scores of students who received *Open Court Reading*® and students' 2003 and 2004 word analysis NCE scores who did not receive *Open Court Reading*®.

Table 2 shows the means and standard deviations for all five dependent variables. Students who received *Open Court Reading*® had higher means on each of the five subtests than those who did not. Reading, vocabulary, and reading composite each showed the means of students who received the *Open Court Reading*® were around 7 points higher than students who did not receive *Open Court Reading*®, whereas the means for language and word analysis were 10 and 11 points higher, respectively.

Table 2

Comparison of Means of Students Who Received the Open Court Reading® Program and Those Students Who Did Not Receive Open Court Reading® Program

	Open Court	<i>N</i>	<i>M</i>	<i>SD</i>
Reading	No	562	59.21	22.60
	Yes	439	66.08	18.36
Vocabulary	No	562	59.21	21.39
	Yes	439	66.28	19.26
Reading Composite	No	562	60.10	22.33
	Yes	439	66.95	18.57
Language	No	562	60.98	21.95
	Yes	439	70.54	20.76
Word Analysis	No	562	59.84	21.80
	Yes	439	70.67	22.49

The results of the *t* test for independent means are displayed in Table 3.

Table 3

Comparison of Reading, Vocabulary, Reading Composite, Language, and Word Analysis Scores of Students Receiving and Not Receiving Open Court Reading®

	<i>t</i>	<i>df</i>	<i>p</i>
Reading *	5.308	998	.001
Vocabulary *	5.490	979	.001
Reading Comprehension *	5.296	996	.001
Language	7.003	999	.001
Word Analysis	7.692	999	.001

**t* test does not assume equality of variances

Each of the null hypotheses was rejected ($p = .001$). Students who received *Open Court Reading®* had an average NCE score that was higher than students who did not receive *Open Court Reading®*. The results of the test reveal a statistically significant difference between students who participated in *Open Court Reading®* and those who did not on all five dependent variables. The students who received *Open Court Reading®* had a reading mean of 66.08 compared to those students not receiving *Open Court Reading®* who had a reading mean of 59.21. The vocabulary mean of students who received *Open Court Reading®* was 66.28 whereas the mean of students not receiving *Open Court Reading®* was 59.21. The mean reading composite for students who received *Open Court Reading®* was 66.95. The mean reading composite score for students who did not receive the program was 60.10. In the area of language, students who received *Open Court Reading®* had a mean of 70.54 whereas students

who did not had a mean of 60.98. In the category of word analysis, students who received *Open Court Reading*® had a mean of 70.67 compared to the mean of 59.84 of students who did not receive *Open Court Reading*®.

Research Question #3

Were there gender differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Five two-way analysis of variance (ANOVA) models, one for each of the five dependent variables, with an alpha level of .05 were used to address research question #3. The null hypotheses associated with this research question were as follows:

Ho3₁: There is no difference between female and male students and their NCE reading subtests scores.

Ho3₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho3₃: There is no significant interaction.

Table 4 shows the descriptive statistics for the reading subtest scores by the gender of students and participation in *Open Court Reading*®. Table 5 shows the results of the two-way ANOVA for the reading subtest NCE scores.

Table 4

Mean Comparisons of Gender Reading Subtest Scores and Participation in Open Court Reading®

Gender	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Female	No	62.22	21.01	273
	Yes	65.75	18.99	223
	Female Total	63.81	20.18	496
Male	No	56.37	23.69	289
	Yes	66.43	17.72	216
	Male Total	60.67	21.89	505
Open Court Status	No	59.21	22.60	562
	Yes	66.08	18.36	439
Population Total		62.23	21.11	1001

Table 5

Analysis of Variance for Reading NCE Scores by Gender and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1	3.834	.051
Open Court Status	1	26.418	.001
Gender x Open Court	1	6.085	.014
Error	997		

As shown in Table 5, the probability for gender by Open Court status interaction term was statistically significant ($F = 6.085$, $df = 1, 997$, $p = .014$). Therefore, the null hypothesis of

no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for female students showed there was not a significant difference ($F = 3.553$, $df = 1, 997$, $p = .060$) between the reading means of students who had not received *Open Court Reading*® ($M = 62.22$) and students who had participated in *Open Court Reading*® ($M = 65.75$). Among female students, the mean for students who received *Open Court Reading*® was only 3.53 points higher than the mean for students who did not.

Among male students, there was a significant difference ($F = 29.058$, $df = 1, 997$, $p = .001$) between the reading means of students who did not participate in *Open Court Reading*® ($M = 56.37$) and those who did ($M = 66.43$). Among male students, the mean for students who received *Open Court Reading*® was 10 points higher than for those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 11.160$, $df = 1, 997$, $p = .001$) between female students ($M = 62.22$) and male students ($M = 56.37$), a difference in means of almost 6 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = .118$, $df = 1, 997$, $p = .731$) between the means of female students ($M = 65.75$) and male students ($M = 66.43$), a difference of less than 1 point with males surpassing females.

In summary, the tests for simple effects for females showed there was no difference in the means of female students who received *Open Court Reading*® and female students who did not. However, male students who received *Open Court Reading*® had a statistically significant higher mean than males who did not receive *Open Court Reading*®. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, female students had a statistically significant higher mean than did male students. However, among students who received *Open Court Reading*®, the difference between female and male students diminished and was not statistically significant.

Table 6 shows the descriptive statistics for the vocabulary subtest scores by the gender of students and participation in *Open Court Reading*®.

Table 6

Mean Comparisons of Gender Vocabulary Subtest Scores and Participation in Open Court Reading®

Gender	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Female	No	61.96	20.75	273
	Yes	65.35	19.42	223
	Female Total	63.48	20.22	496
Male	No	56.62	21.68	289
	Yes	67.25	19.09	216
	Male Total	61.17	21.26	505
Open Court Status	No	59.21	21.39	562
	Yes	66.28	19.26	439
Population Total		62.31	20.77	1001

Table 7 shows the results of the two-way ANOVA for the vocabulary subtest NCE scores.

Table 7

Analysis of Variance for Vocabulary NCE Scores by Gender and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1	1.752	.186
Open Court Status	1	29.111	.001
Gender x Open Court	1	7.763	.005
Error	997		

As shown in Table 7, the probability for gender by Open Court status interaction term was statistically significant ($F = 7.763$, $df = 1$, 997 , $p = .005$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for female students showed there was not a significant difference ($F = 3.392$, $df = 1$, 997 , $p = .066$) between the vocabulary means of students who had not received *Open Court Reading®* ($M = 61.96$) and students who had participated in *Open Court Reading®* ($M = 65.35$). Among female students, the mean for students who received *Open Court Reading®* was only 3.39 points higher than the mean for students who did not.

Among male students, there was a significant difference ($F = 33.585$, $df = 1$, 997 , $p = .001$) between the vocabulary means of students who did not participate in *Open Court Reading®* ($M = 56.62$) and those who did ($M = 67.25$). Among male students, the mean for students who received *Open Court Reading®* was over 10 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading®* showed there was a significant difference ($F = 9.626$, $df = 1$, 997 , $p = .002$) between female students

($M = 61.96$) and male students ($M = 56.62$), a difference in means of more than 5 points.

However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = .952, df = 1, 997, p = .329$) between the means of female students ($M = 65.35$) and male students ($M = 67.25$), a difference of about 2 points with males surpassing females.

In summary, the tests for simple effects for females showed there was no difference in the vocabulary means of females who received *Open Court Reading*® and female students who did not. However, male students who participated in *Open Court Reading*® had statistically significant higher mean on vocabulary than male students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, female students had a statistically significant higher mean than male students. However, among students who received *Open Court Reading*®, the difference between female and male students diminished and was not statistically significant.

Table 8 shows the descriptive statistics for the reading composite subtest scores by the gender of students and participation in *Open Court Reading*®.

Table 9 shows the results of the two-way ANOVA for the reading composite subtest NCE scores.

Table 8

Mean Comparisons of Gender Reading Composite Subtest Scores and Participation in Open Court Reading®

<i>Gender</i>	<i>Open Court</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Female	No	63.19	20.99	273
	Yes	66.35	19.20	223
	Female Total	64.61	20.25	496
Male	No	57.18	23.18	289
	Yes	67.56	17.92	216
	Male Total	61.62	21.69	505
Open Court Status	No	60.10	22.33	562
	Yes	66.95	18.57	439
Population Total		63.10	21.03	1001

Table 9

Analysis of Variance for Reading Composite NCE Scores by Gender and Open Court Reading® Status

<i>Source</i>	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1	3.312	.069
Open Court Status	1	26.484	.001
Gender x Open Court	1	7.544	.006
Error	997		

As shown in Table 9, the probability for gender by Open Court status interaction term was statistically significant ($F = 7.544$, $df = 1, 997$, $p = .006$). Therefore, the null hypothesis of

no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for female students showed there was not a significant difference ($F = 2.872$, $df = 1, 997$, $p = .090$) between the reading composite means of students who had not received *Open Court Reading*® ($M = 63.19$) and students who had participated in *Open Court Reading*® ($M = 66.35$). Among female students, the mean for students who received *Open Court Reading*® was only 3 points higher than the mean for students who did not.

Among male students, there was a significant difference ($F = 31.209$, $df = 1, 997$, $p = .001$) between the reading composite means of students who did not participate in *Open Court Reading*® ($M = 57.18$) and those who did ($M = 67.56$). Among male students, the mean for students who received *Open Court Reading*® was more than 10 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 11.882$, $df = 1, 997$, $p = .001$) between female students ($M = 63.19$) and male students ($M = 57.18$), a difference in means of 6 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = .376$, $df = 1, 997$, $p = .540$) between the means of female students ($M = 66.35$) and male students ($M = 67.56$), a difference of about one point with males surpassing females.

In summary, the test for simple effects for female students showed no difference in the reading composite means of females who participated in *Open Court Reading*® and females who did not. However, male students who participated in *Open Court Reading*® had statistically significant higher mean on reading composite than male students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, female students had a statistically significant higher mean than male students.

However, among students who received *Open Court Reading*®, the difference between female and male students diminished and was not statistically significant.

Table 10 shows the descriptive statistics for the language subtest scores by the gender of students and participation in *Open Court Reading*®.

Table 10
Mean Comparisons of Gender Language Subtest Scores and Participation in Open Court Reading®

Gender	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Female	No	65.09	20.71	273
	Yes	71.77	20.32	223
	Female Total	68.09	20.78	496
Male	No	57.09	22.41	289
	Yes	69.27	21.19	216
	Male Total	62.30	22.69	505
Open Court Status	No	60.98	21.95	562
	Yes	70.54	20.76	439
Population Total		65.17	21.95	1001

Table 11 shows the results of the two-way ANOVA for the language subtest NCE scores.

Table 11

Analysis of Variance for Language NCE Scores by Gender and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1	15.029	.001
Open Court Status	1	48.589	.001
Gender x Open Court	1	4.134	.042
Error	997		

As shown in Table 11, the probability for gender by Open Court status interaction term was statistically significant ($F = 4.134$, $df = 1$, 997 , $p = .042$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for female students showed that there is a significant difference ($F = 12.150$, $df = 1$, 997 , $p = .001$) between the language means of female students who had not received *Open Court Reading*® ($M = 65.09$) and female students who had participated in *Open Court Reading*® ($M = 71.77$). Among female students, the mean for students who received *Open Court Reading*® was almost 7 points higher than the mean for students who did not.

Among male students, there was a significant difference ($F = 40.680$, $df = 1$, 997 , $p = .001$) between the language means of students who did not participate in *Open Court Reading*® ($M = 57.09$) and those who did ($M = 69.27$). Among male students, the mean for students who received *Open Court Reading*® was over 12 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 19.931$, $df = 1$, 997 , $p = .001$) between female students

($M = 65.09$) and male students ($M = 57.09$), a difference in means of exactly 8 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = 1.521$, $df = 1, 997$, $p = .218$) between the means of female students ($M = 71.77$) and male students ($M = 69.27$), a difference of 2.5 points.

In summary, the tests for simple effects for both female and male students showed that students who participated in *Open Court Reading*® had statistically significant higher means on language than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, female students had a statistically significant higher mean than male students. However, among students who received *Open Court Reading*®, the difference between female and male students diminished and was not statistically significant.

Table 12 shows the descriptive statistics for the word analysis subtest scores by gender and participation in *Open Court Reading*®.

Table 13 shows the findings of the two-way ANOVA for the NCE word analysis subtest.

Table 12

Mean Comparisons of Gender Word Analysis Subtest Scores and Participation in Open Court Reading®

Gender	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Female	No	62.79	20.93	273
	Yes	71.71	22.06	223
	Female Total	66.80	21.88	496
Male	No	57.05	22.27	289
	Yes	69.59	22.93	216
	Male Total	62.41	23.37	505
Open Court Status	No	59.84	21.80	562
	Yes	70.67	22.49	439
Population Total		64.59	22.74	1001

Table 13

Analysis of Variance for Word Analysis NCE Scores by Gender and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Gender	1	7.860	.005
Open Court Status	1	58.557	.001
Gender x Open Court	1	1.660	.198
Error	997		

As shown in Table 13, the interaction term for gender by Open Court status was not significant ($F = 1.660$, $df = 1$, 997 , $p = .198$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of gender was significant ($F = 7.860$, $df = 1$, 997 , $p = .005$) and, therefore, the null hypothesis for the main effect of gender was rejected. Female students had a higher mean ($M = 66.80$) on the word analysis subtest than male students ($M = 62.41$).

The main effect of Open Court status was also statistically significant ($F = 58.557$, $df = 1$, 997 , $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for word analysis showed that students who received *Open Court Reading*® ($M = 70.67$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 59.84$), a difference of more than 10 points.

Research Question #4:

Were there ethnicity differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Five two-way analysis of variance (ANOVA) models, one for each of the five dependent variables, with an alpha level of .05 were used to address research question #4. The null hypotheses associated with this research question were as follows:

Ho4₁: There is no difference between minority and non-minority students and their NCE reading subtests scores.

Ho4₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho4₃: There is no significant interaction.

Table 14 shows the descriptive statistics for the reading subtest scores by ethnicity and participation in *Open Court Reading*®

Table 14

Mean Comparisons of Ethnicity Reading Subtest Scores and Participation Open Court Reading®

Ethnicity	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Minority	No	49.65	24.26	46
	Yes	61.80	21.55	41
	Minority Total	55.38	23.69	87
Non-minority	No	60.06	22.27	516
	Yes	66.53	17.97	398
	Non-minority Total	62.88	20.75	914
Open Court Status	No	59.21	22.60	562
	Yes	66.08	18.36	439
Population Total		62.23	21.11	1001

Table 15 shows the findings of the two-way ANOVA for the NCE reading subtest.

Table 15

Analysis of Variance for Reading NCE Scores by Ethnicity and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Ethnicity	1	10.529	.001
Open Court Status	1	15.932	.001
Ethnicity x Open Court	1	1.490	.223
Error	997		

As shown in Table 15, the interaction term for ethnicity by Open Court status was not significant ($F = 1.490$, $df = 1, 997$, $p = .223$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of ethnicity was significant ($F = 15.932$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of ethnicity was rejected. Non-minority students had a higher mean ($M = 62.88$) on the reading subtest than did minority students ($M = 55.38$).

The main effect of Open Court status was also statistically significant ($F = 15.932$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for reading showed that students who received *Open Court Reading*® ($M = 66.08$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 59.21$), a difference of almost 7 points.

Table 16 shows the descriptive statistics for the vocabulary subtest scores by ethnicity and participation in *Open Court Reading*®.

Table 17 shows the findings of the two-way ANOVA for the NCE vocabulary subtest.

Table 16

Mean Comparisons of Ethnicity, Vocabulary Subtest Scores, and Participation in Open Court Reading®

Ethnicity	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Minority	No	49.26	19.76	46
	Yes	62.34	19.36	41
	Minority Total	55.43	20.54	87
Non-minority	No	60.10	21.32	516
	Yes	66.69	19.23	398
	Non-minority Total	62.97	20.68	914
Open Court Status	No	59.21	21.39	562
	Yes	66.28	19.26	439
Population Total		62.31	20.77	1001

Table 17

Analysis of Variance for Vocabulary NCE Scores by Ethnicity and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Ethnicity	1	11.002	.001
Open Court Status	1	18.451	.001
Ethnicity x Open Court	1	2.009	.157
Error	997		

As shown in Table 17, the interaction term for ethnicity by Open Court status was not significant ($F = 2.009$, $df = 1, 997$, $p = .157$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of ethnicity was significant ($F = 11.002$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of ethnicity was rejected. Non-minority students had a higher mean ($M = 62.97$) on the vocabulary subtest than did minority students ($M = 55.43$).

The main effect of Open Court status was also statistically significant ($F = 18.451$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for vocabulary showed that students who received *Open Court Reading*® ($M = 66.28$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 59.21$), a difference of more than 7 points.

Table 18 shows the descriptive statistics for the reading composite subtest scores by ethnicity and participation in *Open Court Reading*®.

Table 19 shows the findings of the two-way ANOVA for the NCE reading composite subtest.

Table 18

Mean Comparisons of Reading Composite Subtest Scores and Participation in Open Court Reading®

Ethnicity	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Minority	No	49.37	21.60	46
	Yes	62.95	20.80	41
	Minority Total	55.77	22.18	87
Non-minority	No	61.05	22.16	516
	Yes	67.36	18.30	398
	Non-minority Total	63.80	20.80	914
Open Court Status	No	60.10	22.33	562
	Yes	66.95	18.57	439
Population Total		63.10	21.03	1001

Table 19

Analysis of Variance for Reading Composite NCE Scores by Ethnicity and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Ethnicity	1	12.027	.001
Open Court Status	1	18.375	.001
Ethnicity x Open Court	1	2.461	.117
Error	997		

As shown in Table 19, the interaction term for ethnicity by Open Court status was not significant ($F = 2.461$, $df = 1, 997$, $p = .117$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of ethnicity was significant ($F = 12.027$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of ethnicity was rejected. Non-minority students had a higher mean ($M = 63.80$) on the reading composite subtest than did minority students ($M = 55.77$).

The main effect of Open Court status was also statistically significant ($F = 18.375$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for reading composite showed that students who received *Open Court Reading*® ($M = 66.95$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 60.10$), a difference of more than 6 points.

Table 20 shows the descriptive statistics for the language subtest scores by ethnicity and participation in *Open Court Reading*®.

Table 21 shows the findings of the two-way ANOVA for the NCE language subtest.

Table 20

Mean Comparisons of Language Subtest Scores and Participation in Open Court Reading®

Ethnicity	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Minority	No	50.07	20.97	46
	Yes	64.80	21.67	41
	Minority Total	57.01	22.43	87
Non-minority	No	61.95	21.79	516
	Yes	71.13	20.61	398
	Non-minority Total	65.95	21.75	914
Open Court Status	No	60.98	21.95	562
	Yes	70.54	20.76	439
Population Total		65.17	21.95	1001

Table 21

Analysis of Variance for Language NCE Scores by Ethnicity and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Ethnicity	1	14.473	.001
Open Court Status	1	24.973	.001
Ethnicity x Open Court	1	1.349	.246
Error	997		

As shown in Table 21, the interaction term for ethnicity by Open Court status was not significant ($F = 1.349$, $df = 1, 997$, $p = .246$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of ethnicity was significant ($F = 14.473$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of Ethnicity was rejected. Non-minority students had a higher mean ($M = 65.95$) on the language subtest than did minority students ($M = 57.01$).

The main effect of Open Court status was also statistically significant ($F = 24.973$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for language showed that students who received *Open Court Reading*® ($M = 70.54$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 60.98$), a difference of more than 9 points.

Table 22 shows the descriptive statistics for the word analysis subtest scores by ethnicity and participation in *Open Court Reading*®.

Table 23 shows the findings of the two-way ANOVA for the NCE word analysis subtest.

Table 22

Mean Comparisons of Word Analysis Subtest Scores and Participation in Open Court Reading®

Ethnicity	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Minority	No	51.28	19.06	46
	Yes	67.76	25.41	41
	Minority Total	59.05	23.64	87
Non-minority	No	60.60	21.89	516
	Yes	70.97	22.18	398
	Non-minority Total	65.11	22.60	914
Open Court Status	No	59.84	21.80	562
	Yes	70.67	22.49	439
Population Total		64.59	22.74	1001

Table 23

*Analysis of Variance for Word Analysis NCE Scores by Ethnicity and Open Court Reading®**Status*

Source	<i>df</i>	<i>F</i>	<i>p</i>
Ethnicity	1	6.389	.012
Open Court Status	1	29.330	.001
Ethnicity x Open Court	1	1.517	.218
Error	997		

As shown in Table 23, the interaction term for ethnicity by Open Court status was not significant ($F=1.517$, $df=1$, 997 , $p=.218$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of ethnicity was significant ($F = 6.389$, $df = 1, 997$, $p = .012$) and, therefore, the null hypothesis for the main effect of ethnicity was rejected. Non-minority students had a higher mean ($M = 65.11$) on the word analysis subtest than did minority students ($M = 59.05$).

The main effect of Open Court status was also statistically significant ($F = 29.330$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for word analysis showed that students who received *Open Court Reading*® ($M = 70.67$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 59.84$), a difference of more than 10 points.

Research Question #5:

Were there special education status differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

Five two-way analysis of variance (ANOVA) models, one for each of the five dependent variables, with an alpha level of .05 were used to address research question #5. The null hypotheses associated with this research question were as follows:

Ho5₁: There is no difference between students receiving special education services and students not receiving special education services and their NCE reading subtests scores.

Ho5₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho5₃: There is no significant interaction.

Table 24 shows the descriptive statistics for the reading subtest scores by the special education status of students and participation in *Open Court Reading*®.

Table 24

Mean Comparisons of Special Education Status Reading Subtest Scores and Participation in Open Court Reading®

Special Education Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
No	No	63.04	20.30	470
	Yes	67.85	16.78	382
	No Special Ed. Total	65.20	18.95	852
Yes	No	39.63	23.65	92
	Yes	54.25	23.58	57
	Yes Special Ed. Total	45.22	24.60	149
Open Court Status	No	59.21	22.60	562
	Yes	66.08	18.36	439
Population Total		62.23	21.11	1001

Table 25 shows the results of the two-way ANOVA for the reading subtest NCE scores.

Table 25

Analysis of Variance for Reading NCE Scores by Special Education Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Special Education Status	1	107.666	.001
Open Court Status	1	29.633	.001
Special Ed. Status x Open Court	1	7.559	.006
Error	997		

As shown in Table 25, the probability for special education status by Open Court status interaction term was statistically significant ($F = 7.559$, $df = 1, 997$, $p = .006$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students not receiving special education services showed there was a significant difference ($F = 12.701$, $df = 1, 997$, $p = .001$) between the reading means of students who had not received *Open Court Reading*® ($M = 63.04$) and students who had participated in *Open Court Reading*® ($M = 67.85$). Among students not receiving special education services, the mean for students who received *Open Court Reading*® was almost 5 points higher than the mean for students who did not.

Among students receiving special education services, there was a significant difference ($F = 19.597$, $df = 1, 997$, $p = .001$) between the reading means of students who did not participate in *Open Court Reading*® ($M = 39.63$) and those who did ($M = 54.25$). Among students receiving special education services, the mean for students who received *Open Court Reading*® was almost 15 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 109.843$, $df = 1, 997$, $p = .001$) between students not receiving special education services ($M = 63.04$) and students receiving special education services ($M = 39.63$), a difference in means of almost 23 points. Likewise, for those students who participated in *Open Court Reading*®, there was still a significant difference ($F = 23.899$, $df = 1, 997$, $p = .001$) between the means of students not receiving special education services ($M = 67.85$) and students receiving special education services ($M = 54.25$), a difference of about 13 points.

In summary, the tests for simple effects for both students receiving special education services and not receiving special education services showed that students who participated in

Open Court Reading® had statistically significant higher means on reading than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, students receiving special services had a statistically significant higher mean than students receiving special services. Among students who received *Open Court Reading*®, the difference between students receiving special education services and not receiving special education services remained significant. However, the difference between the students who received special education services and those who did not was 12.5 points less among students who received *Open Court Reading*® than the difference between special education and nonspecial education students who had not participated in *Open Court Reading*®.

Table 26 shows the descriptive statistics for the vocabulary subtest scores by the special education status of students and participation in *Open Court Reading*®.

Table 26

Mean Comparisons of Special Education Status Vocabulary Subtest Scores and Participation in Open Court Reading®

Special Education Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
No	No	62.92	18.99	470
	Yes	68.30	18.22	382
	No Special Ed. Total	65.33	18.83	852
Yes	No	40.27	22.94	92
	Yes	52.77	20.71	57
	Yes Special Ed. Total	45.05	22.87	149
Open Court Status	No	59.21	21.39	562
	Yes	66.28	19.26	439
Population Total		62.31	20.77	1001

Table 27 shows the results of the two-way ANOVA for the vocabulary subtest NCE scores.

Table 27

Analysis of Variance for Vocabulary NCE Scores by Special Education Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Special Education Status	1	119.220	.001
Open Court Status	1	26.148	.001
Special Ed. Status x Open Court	1	4.147	.042
Error	997		

As shown in Table 27, the probability for special education status by Open Court status interaction term was statistically significant ($F = 4.147$, $df = 1$, 997 , $p = .042$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students not receiving special education services showed there was a significant difference ($F = 16.542$, $df = 1$, 997 , $p = .001$) between the vocabulary means of students who had not received *Open Court Reading®* ($M = 62.92$) and students who had participated in *Open Court Reading®* ($M = 68.30$). Among students not receiving special education services, the mean for students who received *Open Court Reading®* was more than 5 points higher than the mean for students who did not.

Among students receiving special education services, there was a significant difference ($F = 14.914$, $df = 1, 997$, $p = .001$) between the vocabulary means of students who did not participate in *Open Court Reading*® ($M = 40.27$) and those who did ($M = 52.77$). Among students receiving special education services, the mean for students who received *Open Court Reading*® was more than 12 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 107.051$, $df = 1, 997$, $p = .001$) between students not receiving special education services ($M = 62.92$) and students receiving special education services ($M = 40.27$), a difference in means of almost 23 points. Likewise, for those students who participated in *Open Court Reading*®, there was still a significant difference ($F = 32.443$, $df = 1, 997$, $p = .001$) between the means of students not receiving special education services ($M = 68.30$) and students receiving special education services ($M = 52.77$), a difference of about 15 points.

In summary, the tests for simple effects for both students receiving special education services and those not receiving special education services showed that students who participated in *Open Court Reading*® had statistically significant higher means on vocabulary than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, students not receiving special services had a statistically significant higher mean than students receiving special services, a difference of almost 23 points between the two groups. Among students who received *Open Court Reading*®, the difference between students receiving special education services and those not receiving special education services remained significant with a difference between the two groups of around 15.5 points. However, the difference between the means of students not receiving special education services and those who did was 8 points less among students who received *Open Court Reading*® than students who did not receive *Open Court Reading*®.

Table 28 shows the descriptive statistics for the reading composite subtest scores by the special education status of students and participation in *Open Court Reading*®.

Table 28

Mean Comparisons of Special Education Status Reading Composite Subtest Scores and Participation in Open Court Reading®

Special Education Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
No	No	64.20	19.68	470
	Yes	68.95	17.25	382
	No Special Ed. Total	66.33	18.77	852
Yes	No	39.12	23.35	92
	Yes	53.49	21.48	57
	Yes Special Ed. Total	44.62	23.64	149
Open Court Status	No	60.10	22.33	562
	Yes	66.95	18.57	439
Population Total		63.10	21.03	1001

Table 29 shows the results of the two-way ANOVA for the reading composite subtest NCE scores.

Table 29

Analysis of Variance for Reading Composite NCE Scores by Special Education Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Special Education Status	1	133.423	.001
Open Court Status	1	29.680	.001
Special Ed. Status x Open Court	1	7.513	.006
Error	997		

As shown in Table 29, the probability for special education status by Open Court status interaction term was statistically significant ($F = 7.513$, $df = 1, 997$, $p = .006$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students not receiving special education services showed there was a significant difference ($F = 12.796$, $df = 1, 997$, $p = .001$) between the reading composite means of students who had not received *Open Court Reading®* ($M = 64.20$) and students who had participated in *Open Court Reading®* ($M = 68.95$). Among students not receiving special education services, the mean for students who received *Open Court Reading®* was almost 5 points higher than the mean for students who did not.

Among students receiving special education services, there was a significant difference ($F = 18.196$, $df = 1, 997$, $p = .001$) between the reading composite means of students who did not participate in *Open Court Reading®* ($M = 39.12$) and those who did ($M = 53.49$). Among students receiving special education services, the mean for students who received *Open Court Reading®* was almost 14 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 130.249$, $df = 1, 997$, $p = .001$) between students not receiving special education services ($M = 64.20$) and students receiving special education services ($M = 39.12$), a difference in means of about 25 points. Likewise, for those students who participated in *Open Court Reading*®, there was still a significant difference ($F = 31.905$, $df = 1, 997$, $p = .001$) between the means of students not receiving special education services ($M = 68.95$) and those students receiving special education services ($M = 53.49$), a difference of about 15 points.

In summary, the tests for simple effects for both students receiving special education services and not receiving special education services showed that students who participated in *Open Court Reading*® had statistically significant higher means on reading composite than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, students not receiving special services had a statistically significant higher mean than students receiving special services. Among students who received *Open Court Reading*®, the difference between students receiving special education services and not receiving special education services remained significant. However the difference between the means of students receiving and those not receiving special education services was 10 points less among students who received *Open Court Reading*® than those students who did not receive *Open Court Reading*®.

Table 30 shows the descriptive statistics for the language subtest scores by the special education status of students and participation in *Open Court Reading*®.

Table 30

Mean Comparisons of Special Education Status Language Subtest Scores and Participation in Open Court Reading®

Special Education Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
No	No	64.40	19.83	470
	Yes	72.64	19.38	382
	No Special Ed. Total	68.09	20.04	852
Yes	No	43.48	23.94	92
	Yes	56.49	24.21	57
	Yes Special Ed. Total	48.46	24.79	149
Open Court Status	No	60.98	21.95	562
	Yes	70.54	20.76	439
Population Total		65.17	21.95	1001

Table 31 shows the results of the two-way ANOVA for the language subtest NCE scores.

Table 31

Analysis of Variance for Language NCE Scores by Special Education Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Special Education Status	1	100.164	.001
Open Court Status	1	32.907	.001
Special Ed. Status x Open Court	1	1.665	.197
Error	997		

As shown in Table 31, the interaction term for special education status by Open Court status was not significant ($F = 1.665$, $df = 1, 997$, $p = .197$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of special education status was significant ($F = 100.164$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of special education status was rejected. Students not receiving special education services had a higher mean ($M = 68.09$) on the language subtest than students receiving special education services ($M = 48.46$).

The main effect of Open Court status was also statistically significant ($F = 32.907$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for language showed that students who received *Open Court Reading*® ($M = 70.54$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 60.98$), a difference of more than 9 points.

Table 32 shows the descriptive statistics for the word analysis subtest scores by the special education status of students and participation in *Open Court Reading*®.

Table 33 shows the results of the two-way ANOVA for the word analysis subtest NCE scores.

Table 32

Mean Comparisons of Special Education Status Word Analysis Subtest Scores and Participation in Open Court Reading®

Special Education Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
No	No	63.27	20.39	470
	Yes	73.11	20.84	382
	No Special Ed. Total	67.68	21.16	852
Yes	No	42.30	20.39	92
	Yes	54.32	26.22	57
	Yes Special Ed. Total	46.90	23.45	149
Open Court Status	No	59.84	21.80	562
	Yes	70.67	22.49	439
Population Total		64.59	22.74	1001

Table 33

Analysis of Variance for Word Analysis NCE Scores by Special Education Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Special Education Status	1	108.762	.001
Open Court Status	1	32.856	.001
Special Ed. Status x Open Court	1	.325	.569
Error	997		

As shown in Table 33, the interaction term for special education status by Open Court status was not significant ($F = .325$, $df = 1, 997$, $p = .569$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of special education status was significant ($F = 108.762$, $df = 1, 997$, $p = .001$) and, therefore, the null hypothesis for the main effect of special education status was rejected. Students not receiving special education services had a higher mean ($M = 67.68$) on the word analysis subtest than students receiving special education services ($M = 46.90$).

The main effect of Open Court status was also statistically significant ($F = 32.856$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for word analysis showed that students who received *Open Court Reading*® ($M = 70.67$) had a higher mean than students who did not receive *Open Court Reading*® ($M = 59.84$), a difference of more than 10 points.

Research Question #6

Was there a difference in the performance of students receiving or not receiving *Open Court Reading*® and attending a Title I or nonTitle I school?

Five two-way analysis of variance (ANOVA) models, one for each of the five dependent variables, with an alpha level of .05 were used to address research question #6. The null hypotheses associated with this research question were as follows:

Ho₆₁: There is no difference between students attending Title I schools and nonTitle I schools and NCE reading subtests scores.

Ho₆₂: There is no difference in the NCE reading subtests scores of students who had *Open Court Reading*® and those who did not.

Ho₆₃: There is no significant interaction.

Table 34 shows the descriptive statistics for the reading subtest scores by Title I and nonTitle I students and participation in *Open Court Reading*®.

Table 34

Mean Comparisons of Title I and NonTitle I Reading Subtest Scores and Participation in Open Court Reading®

Title I Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Title I	No	54.82	22.18	245
	Yes	64.76	15.48	197
	Title I Total	59.25	20.08	442
NonTitle I	No	62.60	22.36	317
	Yes	67.16	20.37	242
	NonTitle I Total	64.58	21.62	559
Open Court Status	No	59.21	22.60	562
	Yes	66.08	18.36	439
Population Total		62.23	21.11	1001

Table 35 shows the results of the two-way ANOVA for the reading subtest NCE scores.

Table 35

Analysis of Variance for Reading NCE Scores by Title I Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Title I Status	1	14.774	.001
Open Court Status	1	29.968	.001
Title x Open Court	1	4.126	.043
Error	997		

As shown in Table 35, the probability for the Title I status by Open Court status interaction term was statistically significant ($F = 4.126$, $df = 1, 997$, $p = .043$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than addressing each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students in Title I schools showed there was a significant difference ($F = 25.304$, $df = 1, 997$, $p = .001$) between the reading means of students who had not received *Open Court Reading*® ($M = 54.82$) and students who had participated in *Open Court Reading*® ($M = 64.76$). Among students in Title I schools, the mean for students who received *Open Court Reading*® was almost 10 points higher than the mean for students who did not.

Among students in nonTitle I schools, there was also a significant difference ($F = 6.693$, $df = 1, 997$, $p = .01$) between the reading means of students who did not participate in *Open Court Reading*® ($M = 62.60$) and those who did ($M = 67.16$). Among students in nonTitle I schools, the mean for students who received *Open Court Reading*® was 4.5 points higher than for those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 19.618$, $df = 1, 997$, $p = .001$) between Title I students ($M = 54.82$) and nonTitle I students ($M = 62.60$), a difference in means of almost 8 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = 1.453$, $df = 1, 997$, $p = .228$) between the means of Title I students ($M = 64.76$) and nonTitle I students ($M = 67.16$), a difference of less than 2.5 points.

In summary, the tests for simple effects for both Title I and nonTitle I students showed that students who participated in *Open Court Reading*® had statistically significant higher means on reading than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, nonTitle I students had a statistically significant higher mean than Title I students. However, among students who

received *Open Court Reading*®, the difference between Title I and nonTitle I students diminished and was not statistically significant.

Table 36 shows the descriptive statistics for the vocabulary subtest scores by Title I and nonTitle I students and participation in *Open Court Reading*®.

Table 36
Mean Comparisons of Title I and NonTitle I Vocabulary Subtest Scores and Participation in Open Court Reading®

Title I Status	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Title I	No	54.95	22.09	245
	Yes	64.65	19.13	197
	Title I Total	59.27	21.35	442
NonTitle I	No	62.51	20.25	317
	Yes	67.61	19.31	242
	NonTitle I Total	64.72	19.99	559
Open Court Status	No	59.21	21.39	562
	Yes	66.28	19.26	439
Population Total		62.31	20.77	1001

Table 37 shows the findings of the two-way ANOVA for the NCE vocabulary subtest.

Table 37

Analysis of Variance for Vocabulary NCE Scores by Title I Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Title I Status	1	16.360	.001
Open Court Status	1	32.412	.001
Title I x Open Court	1	3.138	.077
Error	997		

As shown in Table 37, the interaction term for Title I status by Open Court status was not significant ($F = 3.138, df = 1, 997, p = .077$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of Title I status was significant ($F = 16.36, df = 1, 997, p = .001$) and, therefore, the null hypothesis for the main effect of Title I status was rejected. Students in nonTitle I schools had a higher mean ($M = 64.72$) on the vocabulary subtest than students in Title I schools ($M = 59.27$).

The main effect of Open Court status was also statistically significant ($F = 32.412, df = 1, 997, p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for vocabulary showed that students who received *Open Court Reading®* ($M = 66.28$) had a higher mean than students who did not receive *Open Court Reading®* ($M = 59.21$), a difference of 7 points.

Table 38 shows the descriptive statistics for the reading composite subtest scores by Title I and nonTitle I students and participation in *Open Court Reading®*.

Table 38

Mean Comparisons of Title I and NonTitle I Reading Composite Subtest Scores and Participation in Open Court Reading®

Title I Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Title I	No	55.37	22.09	245
	Yes	65.49	17.12	197
	Title I Total	59.88	20.63	442
NonTitle I	No	63.75	21.85	317
	Yes	68.13	19.63	242
	NonTitle I Total	65.65	21.01	559
Open Court Status	No	60.10	22.33	562
	Yes	66.95	18.57	439
Population Total		63.10	21.03	1001

Table 39 shows the results of the two-way ANOVA for the reading composite subtest NCE scores.

Table 39

Analysis of Variance for Reading Composite NCE Scores by Title I Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Title I Status	1	17.547	.001
Open Court Status	1	30.339	.001
Title x Open Court	1	4.751	.030
Error	997		

As shown in Table 39, the probability for the Title I status by Open Court status interaction term was statistically significant ($F = 4.751$, $df = 1, 997$, $p = .030$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students in Title I schools showed there was a significant difference ($F = 26.532$, $df = 1, 997$, $p = .001$) between the reading composite means of students who had not received *Open Court Reading*® ($M = 55.37$) and students who had participated in *Open Court Reading*® ($M = 65.49$). Among students in Title I schools, the mean for students who received *Open Court Reading*® was more than 10 points higher than the mean for students who did not.

Among students in nonTitle I schools, there was also a significant difference ($F = 6.246$, $df = 1, 997$, $p = .013$) between the reading composite means of students who did not participate in *Open Court Reading*® ($M = 63.75$) and those who did ($M = 68.13$). Among students in nonTitle I schools, the mean for students who received *Open Court Reading*® was 4.38 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 23.024$, $df = 1, 997$, $p = .001$) between Title I students ($M = 55.37$) and nonTitle I students ($M = 63.75$), a difference in means of over 8 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = 1.796$, $df = 1, 997$, $p = .181$) between the means of Title I students ($M = 65.49$) and nonTitle I students ($M = 68.13$), a difference of 2.64 points.

In summary, the tests for simple effects for both Title I and nonTitle I students showed that students who participated in *Open Court Reading*® had statistically significant higher means on reading composite than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, nonTitle I students had a statistically significant higher mean than Title I students. However, among students who received *Open Court Reading*®, the difference between Title I and nonTitle I students diminished and was not statistically significant.

Table 40 shows the descriptive statistics for the language subtest scores by Title I and nonTitle I students and participation in *Open Court Reading*®.

Table 40

Mean Comparisons of Title I and NonTitle I Language Subtest Scores and Participation in Open Court Reading®

Title I Status	Open Court Status	<i>M</i>	<i>SD</i>	<i>N</i>
Title I	No	57.60	22.09	245
	Yes	69.63	19.13	197
	Title I Total	62.96	21.35	442
NonTitle I	No	63.58	20.25	317
	Yes	71.28	19.31	242
	NonTitle I Total	66.92	19.99	559
Open Court Status	No	60.98	21.39	562
	Yes	70.54	19.26	439
Population Total		65.17	20.77	1001

Table 41 shows the findings of the two-way ANOVA for the NCE language subtest.

Table 41

Analysis of Variance for Language NCE Scores by Title I Status and Open Court Reading®

Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Title I Status	1	7.779	.005
Open Court Status	1	51.963	.001
Title I x Open Court	1	2.502	.114
Error	997		

As shown in Table 41, the interaction term for Title I status by Open Court status was not significant ($F = 2.502$, $df = 1, 997$, $p = .114$). Therefore, the null hypothesis for the interaction term was retained.

The main effect of Title I status was significant ($F = 7.779$, $df = 1, 997$, $p = .005$) and, therefore, the null hypothesis for the main effect of Title I status was rejected. Students in nonTitle I schools had a higher mean ($M = 66.92$) on the vocabulary subtest than students in Title I schools ($M = 62.96$).

The main effect of Open Court status was also statistically significant ($F = 51.963$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis for the main effect of Open Court status was rejected. A comparison of the means for vocabulary showed that students who received *Open Court Reading®* ($M = 70.54$) had a higher mean than students who did not receive *Open Court Reading®* ($M = 60.98$), a difference of almost 10 points.

Table 42 shows the descriptive statistics for the word analysis subtest scores by Title I and nonTitle I students and participation in *Open Court Reading*®.

Table 42

Mean Comparisons of Title I and NonTitle I Word Analysis Subtest Scores and Participation in Open Court Reading®

Title I Status	Open Court	<i>M</i>	<i>SD</i>	<i>N</i>
Title I	No	56.73	20.72	245
	Yes	72.59	21.34	197
	Title I Total	63.80	22.41	442
NonTitle I	No	62.24	22.34	317
	Yes	69.10	23.31	242
	NonTitle I Total	65.21	23.00	559
Open Court Status	No	59.84	21.80	562
	Yes	70.67	22.49	439
Population Total		64.59	22.74	1001

Table 43 shows the results of the two-way ANOVA for the word analysis subtest NCE scores.

Table 43

Analysis of Variance for Word Analysis NCE Scores by Title I Status and Open Court Reading® Status

Source	<i>df</i>	<i>F</i>	<i>p</i>
Title I Status	1	.513	.474
Open Court Status	1	64.858	.001
Title x Open Court	1	10.154	.001
Error	997		

As shown in Table 43, the probability for the Title I status by Open Court status interaction term was statistically significant ($F = 10.154$, $df = 1, 997$, $p = .001$). Therefore, the null hypothesis of no significant interaction was rejected. Because the interaction term was statistically significant, rather than address each main effect in isolation of the other factor, it was appropriate to follow-up with tests of simple effects.

The test of simple effects for students in Title I schools showed there was a significant difference ($F = 56.728$, $df = 1, 997$, $p = .001$) between the word analysis means of students who had not received *Open Court Reading®* ($M = 56.73$) and students who had participated in *Open Court Reading®* ($M = 72.59$). Among students in Title I schools, the mean for students who received *Open Court Reading®* was almost 16 points higher than the mean for those students who did not.

Among students in nonTitle I schools, there was also a significant difference ($F = 13.338$, $df = 1, 997$, $p = .001$) between the word analysis means of students who did not participate in *Open Court Reading®* ($M = 62.24$) and those who did ($M = 69.10$). Among students in nonTitle

I schools, the mean for students who received *Open Court Reading*® was almost 7 points higher than those who did not.

The test of simple effects for students who did not receive *Open Court Reading*® showed there was a significant difference ($F = 8.665$, $df = 1, 997$, $p = .003$) between Title I students ($M = 56.73$) and nonTitle I students ($M = 62.24$), a difference in means of 5.5 points. However, for those students who participated in *Open Court Reading*®, there was no significant difference ($F = 2.732$, $df = 1, 997$, $p = .099$) between the means of Title I students ($M = 72.59$) and nonTitle I students ($M = 69.10$), a difference of about 3.5 points.

In summary, the tests for simple effects for both Title I and nonTitle I students showed that students who participated in *Open Court Reading*® had statistically significant higher means on the word analysis subtest than students who did not participate. The tests of simple effects also showed that among students who did not participate in *Open Court Reading*®, nonTitle I students had a statistically significant higher mean than Title I students. However, among students who received *Open Court Reading*®, the difference between Title I and nonTitle I students diminished and was not statistically significant.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine what, if any, associations existed between the implementation of the *Open Court Reading*® program in kindergarten and students' reading achievement on the *Terra Nova* standardized achievement test in the first grade. The focus of the analysis was on five academic subsections of the first grade *Terra Nova* standardized achievement test. These subsections included: reading, vocabulary, reading composite, language, and word analysis. Test scores for each subsection were used to compare 2001 and 2002 test performance of students not receiving the *Open Court Reading*® program with 2003 and 2004 test results of students who did receive the program in kindergarten. Using analytical procedures, comparisons were made between participation and nonparticipation in the *Open Court Reading*® program, gender, special education status, ethnicity, and Title I and nonTitle I status of the school attended.

Summary of Findings

The analysis focused on six research questions. Independent variables involved in this study were the participation and nonparticipation in the *Open Court Reading*® program, gender, special education status, ethnicity, and Title I and nonTitle I status of the school attended. The primary dependent variables were the scores reported for the first-grade students on the five subsections as measured by the *Terra Nova* standardized assessment. The population consisted of 1,001 first-grade students who attended kindergarten in the school system participating in the study. Students enrolled in first grade during the 2001 and 2002 school year, who did not receive the *Open Court Reading*® program during kindergarten were included in the study. In addition, students enrolled in first grade during the 2003 and 2004 school years who did participate in *Open Court Reading*® during kindergarten were included. If students did not

attend kindergarten in the participating school system, their test scores were omitted from the study.

Research Question #1

What were the demographic characteristics of the first graders whose test scores were used in this study?

This study was comprised of 1,001 first-grade students who attended kindergarten in the participating school system. Of the population, 559 (55.8%) students attended a nonTitle I school and 442 (44.2%) students attended a Title I school. Of the students, 505 (50.4%) were male and 496 (49.6%) students were female. In the ethnicity category, 914 (91.3%) students were determined to be non-minority and 87 (8.7%) were classified as minority. The study included 852 (85.1%) students who did not receive special education services and 149 (14.9%) students who were designated to receive special education. The number of students who received *Open Court Reading*® in kindergarten was 439 (43.9%) and the number of students who did not receive *Open Court Reading*® in kindergarten was 562 (56.1%). For the population as a whole ($N = 1001$), language and word analysis had the highest averages, 65.17 and 64.59. Reading was the lowest average at 62.23.

Research Question #2

Did first graders who participated in *Open Court Reading*® in kindergarten have different scores on the *Terra Nova* in reading than first-grade students who did not participate in *Open Court Reading*® in kindergarten?

The results of the t test revealed that a statistically significant difference exists between students who received *Open Court Reading*® and those who did not on all five dependent variables. Students receiving the *Open Court Reading*® had higher means on each of the five subtests. The largest mean differences between students who had *Open Court Reading*® and

those who did not were in the language and word analysis that were 10 and 11 points higher. The other three tests had mean differences of approximately 7 points.

Research Question #3

Were there gender differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

The findings for the word analysis subtest showed there was no significant interaction between gender and *Open Court Reading*® status. The main effect of gender was significant with female students having a higher mean ($M = 66.80$) than male students ($M = 62.41$). The main effect of *Open Court Reading*® status was also significant: Students who had *Open Court Reading*® had a much higher mean on word analysis ($M = 70.67$) than students who did not have *Open Court Reading*® ($M = 59.84$).

The remaining four subtests all showed significant interaction for gender by *Open Court Reading*® status. Figures 1 through 4 illustrate the interaction between gender and *Open Court Reading*® status for reading, reading composite, vocabulary, and language.

The interaction between gender and *Open Court Reading*® status for reading is depicted in Figure 1.

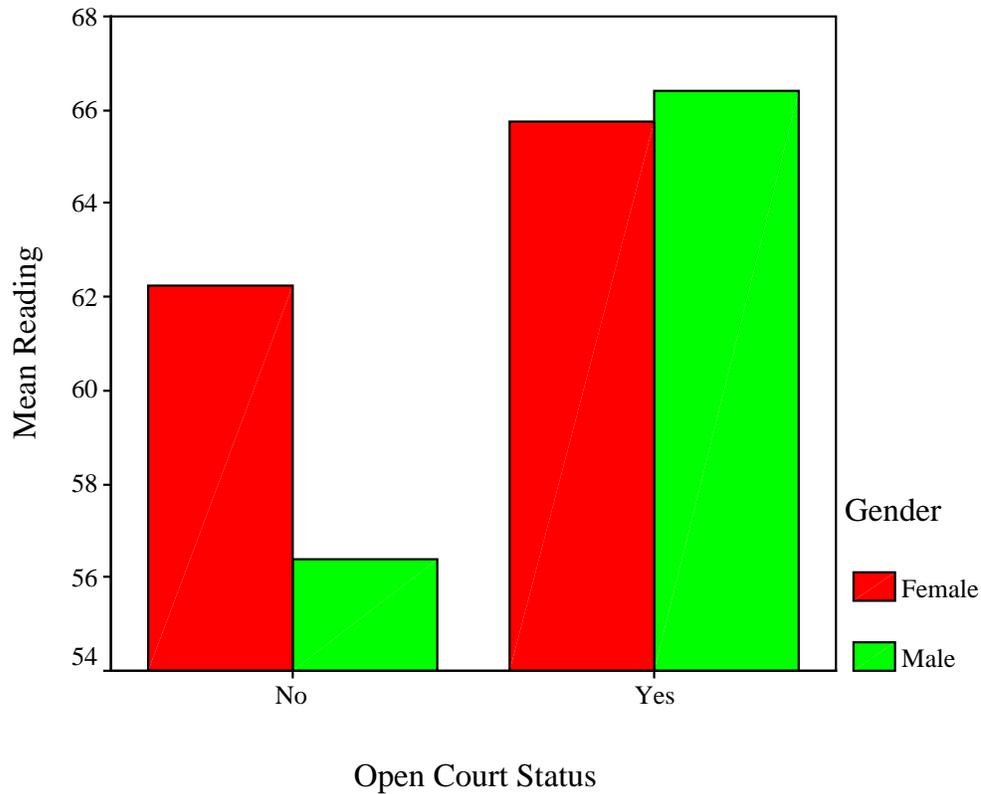


Figure 1. Bar Graph for Reading and Gender by Open Court Status Interaction

The tests for simple main effects showed that among females, there was no significant difference between the reading means of female students who did not participate in *Open Court Reading*® ($M = 62.22$) and female students who did participate ($M = 65.75$). However, male students who did not participate in *Open Court Reading*® had a statistically significant lower reading mean ($M = 56.37$) than males who participated ($M = 66.43$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between females ($M = 62.20$) and males ($M = 56.37$), but there was no significant difference between females ($M = 65.75$) and males ($M = 66.43$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between females and males

who had not participated in *Open Court Reading*® disappeared among students who did participate. In other words, the impact of *Open Court Reading*® was on male students.

The interaction between gender and *Open Court Reading*® status for vocabulary is depicted in Figure 2.

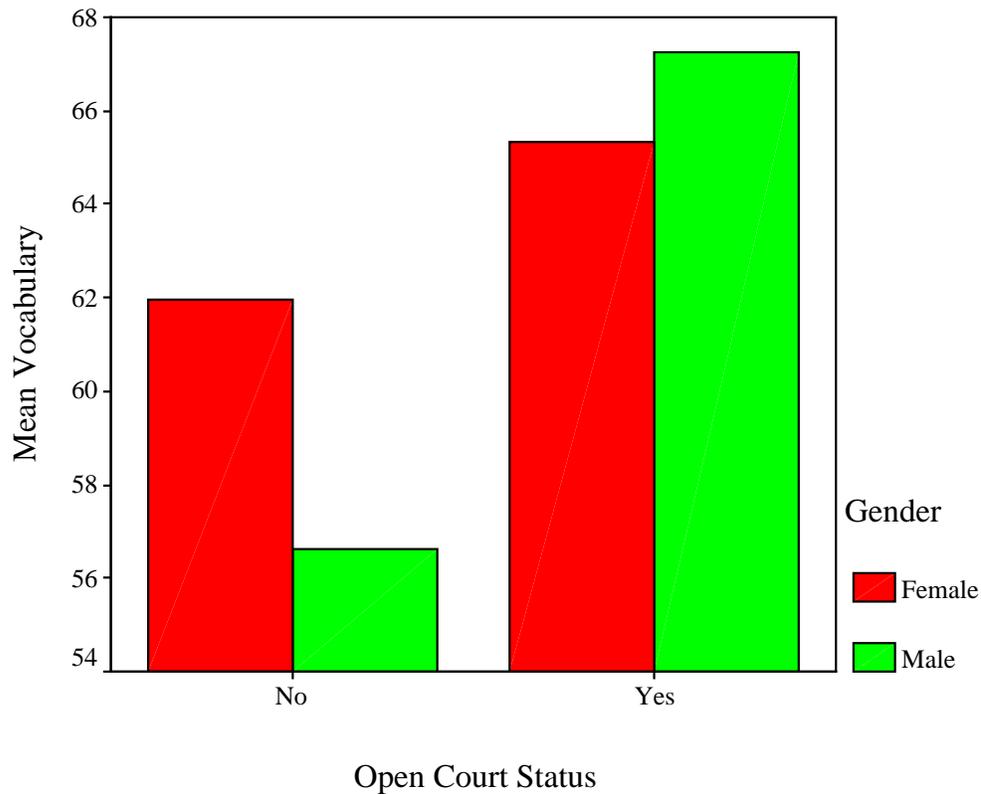


Figure 2. Bar Graph for Vocabulary and Gender by Open Court Status Interaction

The tests for simple main effects showed that among females, there was no significant difference between the vocabulary means of female students who did not participate in *Open Court Reading*® ($M = 61.96$) and female students who did participate ($M = 65.35$). However, male students who did not participate in *Open Court Reading*® had a statistically significant

lower vocabulary mean ($M = 56.62$) than males who participated ($M = 67.25$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between females ($M = 61.96$) and males ($M = 56.62$), but there was no significant difference between females ($M = 65.35$) and males ($M = 67.25$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between females and males who had not participated in *Open Court Reading*® disappeared among students who did participate. In other words, the impact of *Open Court Reading*® was on male students.

The interaction between gender and *Open Court Reading*® status for reading composite is depicted in Figure 3.

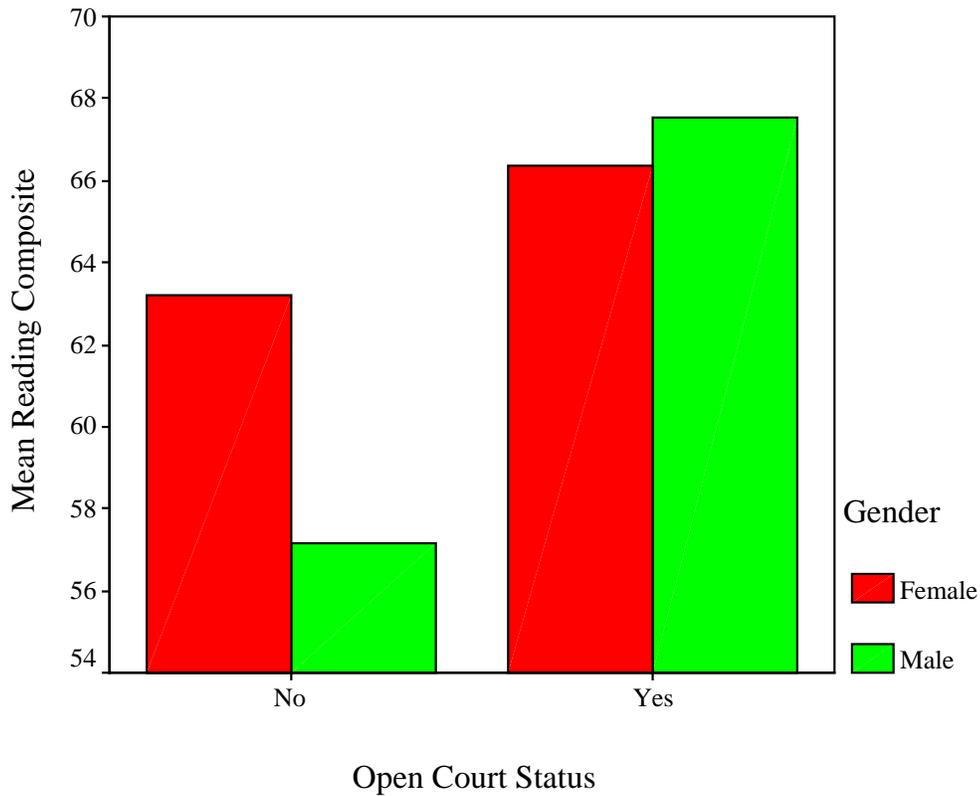


Figure 3. Bar Graph for Reading Composite and Gender by Open Court Status Interaction

The tests for simple main effects showed that among females, there was no significant difference between the reading composite means of female students who did not participate in *Open Court Reading*® ($M = 63.19$) and female students who did participate ($M = 66.35$). However, male students who did not participate in *Open Court Reading*® had a statistically significant lower reading composite mean ($M = 57.18$) than males who participated ($M = 67.56$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between females ($M = 63.19$) and males ($M = 57.18$), but there was no significant difference between females ($M = 66.35$) and males ($M = 67.56$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between females and males who had not participated in *Open Court Reading*® disappeared among students who did participate. In other words, the impact of *Open Court Reading*® was on male students.

The interaction between gender and *Open Court Reading*® status for language is depicted in Figure 4.

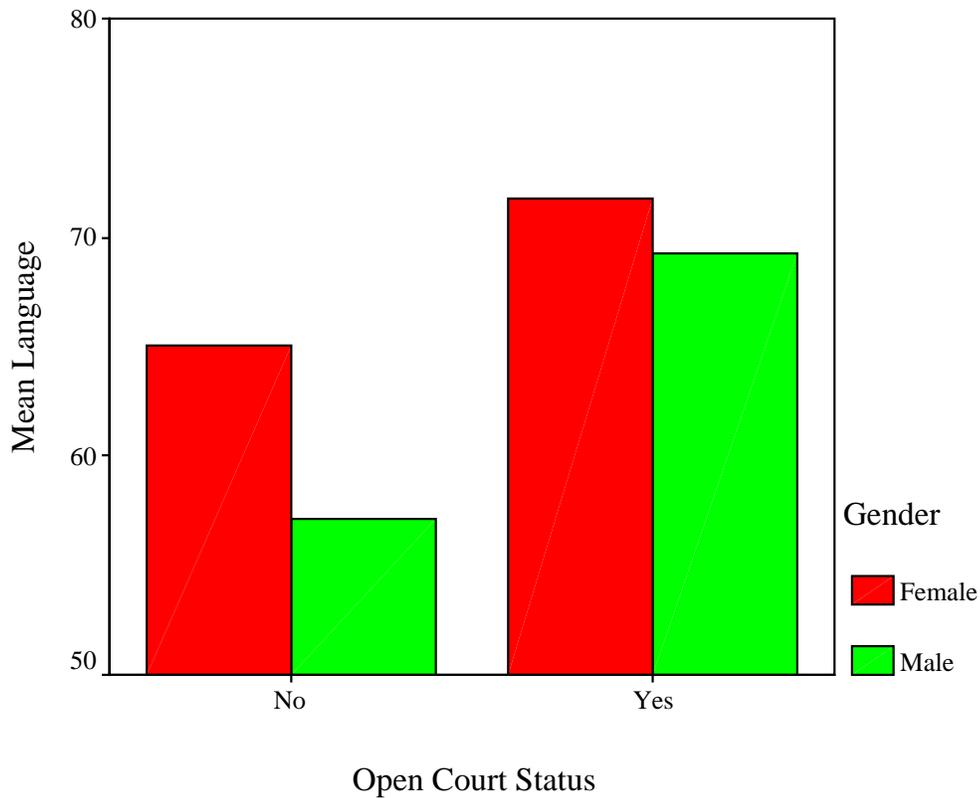


Figure 4. Bar Graph for Language and Gender by Open Court Status Interaction

The tests for simple main effects showed that among females, there was no significant difference between the language means of female students who did not participate in *Open Court Reading*® ($M = 65.09$) and female students who did participate ($M = 71.77$). However, male students who did not participate in *Open Court Reading*® had a statistically significant lower language mean ($M = 57.09$) than males who participated ($M = 69.27$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between females ($M = 65.09$) and males ($M = 57.09$) but there was no significant difference between females ($M = 71.77$) and males ($M = 69.27$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between females and males who had not participated in *Open Court Reading*® disappeared among

students who did participate. In other words, the impact of *Open Court Reading*® was on male students.

Research Question #4

Were there ethnicity differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

To analyze this question, students were divided into two groups: Non-minority and minority. For each of the five subtests, the interaction term for ethnicity by Open Court status was not significant. The main effect of ethnicity was significant because non-minority students had a higher mean than minority students on each of the subtests. Consequently, the main effect of Open Court status was also statistically significant. A comparison of the means for each subtest showed that students who received *Open Court Reading*® had a higher mean than students who did not receive the program.

Research Question #5

Were there special education status differences in the performance on the *Terra Nova* for first graders who received *Open Court Reading*® and for those who did not?

The findings for the language and word analysis subtests showed there was no significant interaction between special education status and *Open Court Reading*® status. The main effect of special education status was significant with students not receiving special education services having a higher mean ($M = 68.09$) than students who were receiving special education services ($M = 48.46$) on the language subtest. The main effect of *Open Court Reading*® status was also significant: Students who had *Open Court Reading*® had a much higher mean on language ($M = 70.54$) than students who did not have *Open Court Reading*® ($M = 60.98$). Likewise, for the word analysis subtest the main effect of special education status was significant with students not receiving special education services who had a higher mean ($M=67.68$) than students who did receive special education services ($M=46.90$). Also, of significance was the main effect of *Open*

Court Reading® status. Students receiving the *Open Court Reading*® program had a higher mean on word analysis ($M=70.67$) than students who did not have *Open Court Reading*® ($M=59.84$)

The interaction between special education status and *Open Court Reading*® status for reading is depicted in Figure 5.

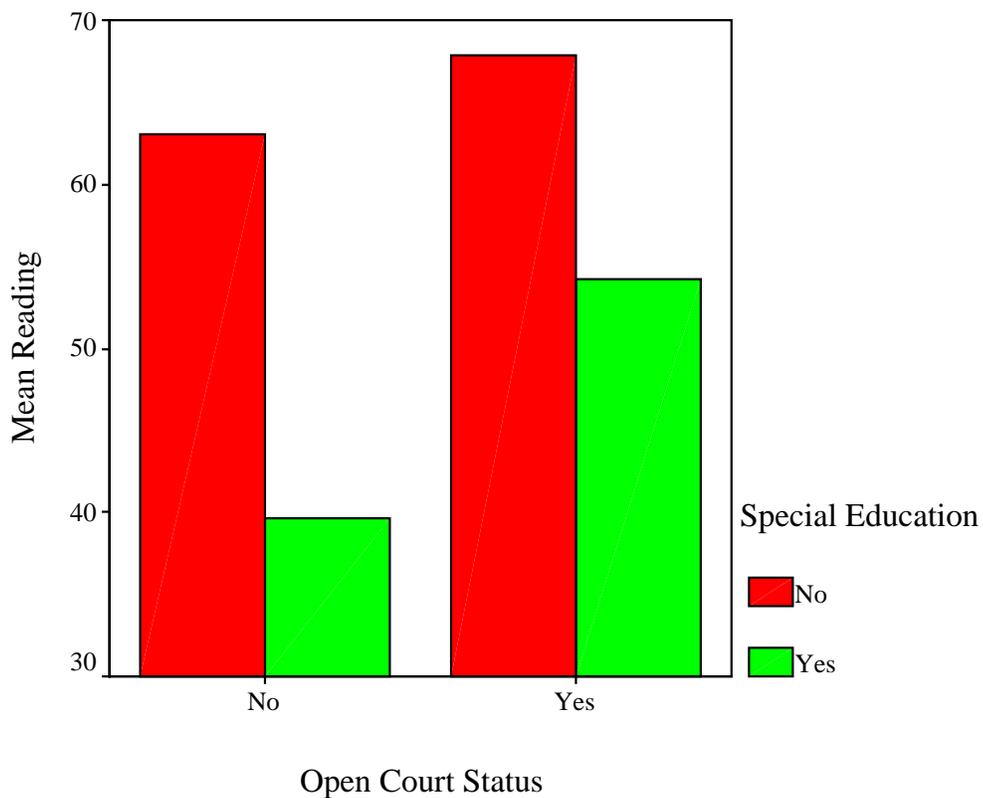


Figure 5. Bar Graph for Reading and Special Education Status by Open Court Status Interaction

The simple main effects tests showed that for students who did not receive special education services, there was a significant difference between the reading means of students who had not received *Open Court Reading*® ($M = 63.04$) and students who did participate ($M =$

67.85). Among students receiving special education services, those who did not participate in *Open Court Reading*® had statistically significant lower reading mean ($M = 39.63$) than students who participated ($M = 54.25$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students not receiving special education services ($M = 63.04$) and students receiving special education services ($M = 39.63$). There was still a significant difference between students not receiving special education services ($M = 67.85$) and students receiving special education services ($M = 54.25$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between students receiving and not receiving special education services who had not participated in *Open Court Reading*® lessened among students who did participate.

The interaction between special education status and *Open Court Reading*® status for vocabulary is depicted in Figure 6.

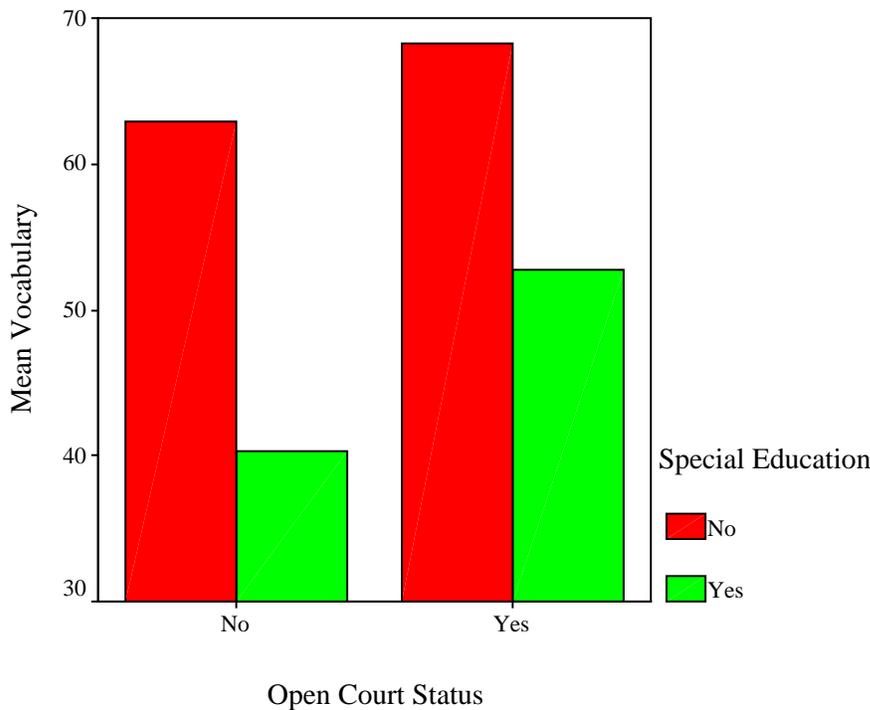


Figure 6. Bar Graph for Vocabulary and Special Education Status by Open Court Status Interaction

The simple main effects tests showed that for students who did not receive special education services, there was a significant difference between the vocabulary means of students who had not received *Open Court Reading*® ($M = 62.92$) and students who did participate ($M = 68.30$). Among students receiving special education services, those who did not participate in *Open Court Reading*® had statistically significant lower vocabulary mean ($M = 40.27$) than students who participated ($M = 52.77$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students not receiving special education services ($M = 62.92$) and students receiving special education services ($M = 40.27$). There was still a significant difference between students not receiving special education services ($M = 68.30$) and students receiving special education services ($M = 52.77$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between students receiving and not receiving special education services who had not participated in *Open Court Reading*® lessened among students who did participate.

The interaction between special education status and *Open Court Reading*® status for reading composite is depicted in Figure 7.

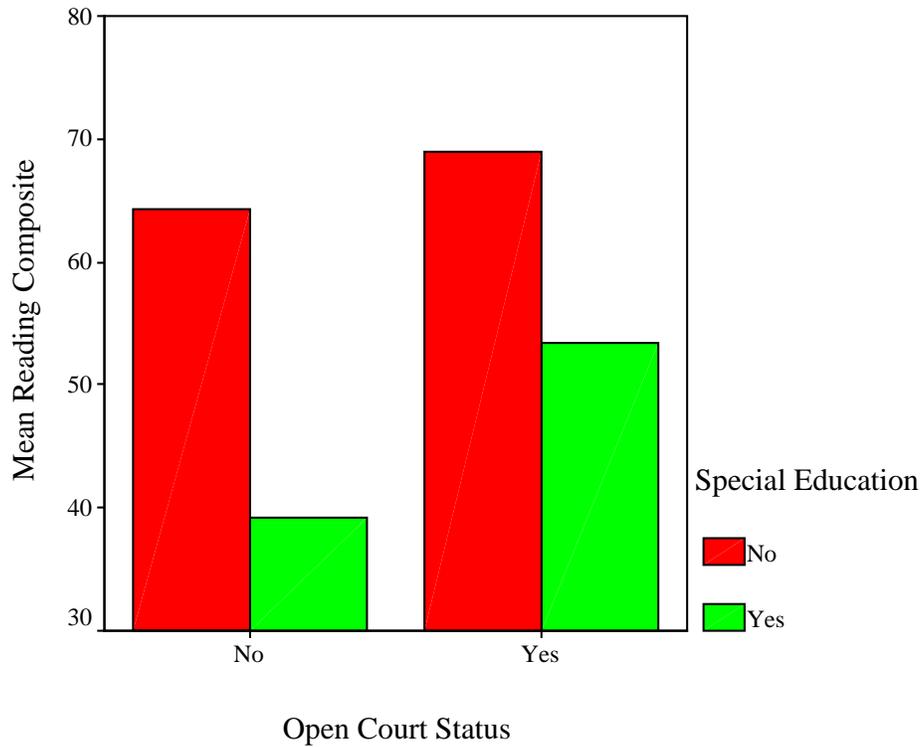


Figure 7. Bar Graph for Reading Composite and Special Education Status by Open Court Status Interaction

The simple main effects tests showed that for students who did not receive special education services, there was a significant difference between the reading composite means of students who had not received *Open Court Reading*® ($M = 64.20$) and students who did participate ($M = 68.95$). Among students receiving special education services, those who did not participate in *Open Court Reading*® had statistically significant lower reading composite mean ($M = 39.12$) than students who participated ($M = 53.49$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students not receiving special education services ($M = 64.20$) and students receiving special education services ($M = 39.12$). There was still a significant difference between students not receiving special education services ($M = 68.95$) and students receiving special education services ($M =$

53.49) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between students receiving and not receiving special education services who had not participated in *Open Court Reading*® lessened among students who did participate.

Research Question #6

Was there a difference in the performance of students receiving or not receiving *Open Court Reading*® and attending a Title I or nonTitle I school?

The findings for the vocabulary and language subtests showed there was no significant interaction between Title I status and *Open Court Reading*® status. The main effect of Title I status was significant with students attending a nonTitle I school having a higher mean ($M = 64.72$) than students who attended a Title I school ($M = 59.27$) on the vocabulary subtest. The main effect of *Open Court Reading*® status was also significant. Students who had *Open Court Reading*® had a higher mean on vocabulary ($M = 66.28$) than students who did not have *Open Court Reading*® ($M = 59.21$). Likewise, for the language subtest, the main effect of Title I status was significant with students attending a nonTitle I school with a higher mean ($M = 66.92$) than students who attended a Title I school ($M = 62.96$). Also, of significance was the main effect of *Open Court Reading*® status. Students receiving the *Open Court Reading*® program had a higher mean on language ($M = 70.54$) than students who did not have *Open Court Reading*® ($M = 60.98$).

The interaction between Title I status and *Open Court Reading*® status for reading is depicted in Figure 8.

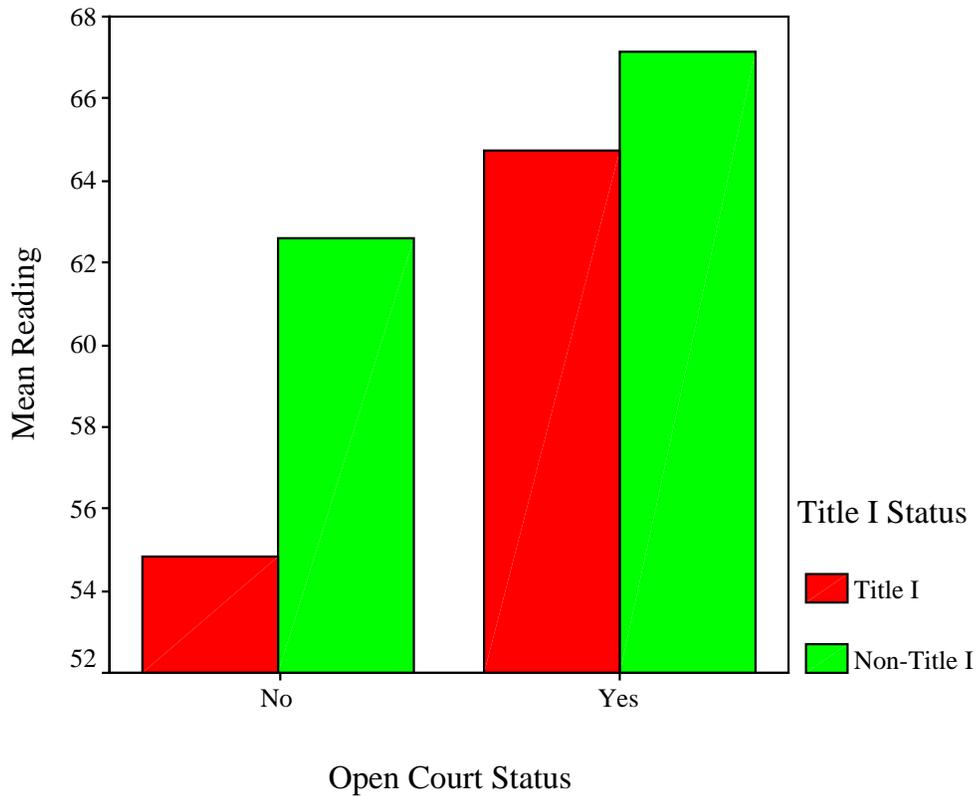


Figure 8. Bar Graph for Reading and Title I Status by Open Court Status Interaction

The simple main effects tests showed that for students in Title I schools, there was a significant difference between the reading means of students who had not received *Open Court Reading*® ($M = 54.82$) and students who did participate ($M = 64.76$). Among students in nonTitle I schools, those who did not participate in *Open Court Reading*® had statistically significant lower reading mean ($M = 62.60$) than students who participated ($M = 67.16$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students in a Title I school ($M = 54.82$) and students in a nonTitle school ($M = 62.60$). However, there was no significant difference between students in Title I schools ($M = 64.76$) and students in nonTitle I schools ($M = 67.16$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap

between students attending a Title I and nonTitle I school who had not participated in *Open Court Reading*® diminished among students who did participate.

The interaction between Title I status and *Open Court Reading*® status for reading composite is depicted in Figure 9.

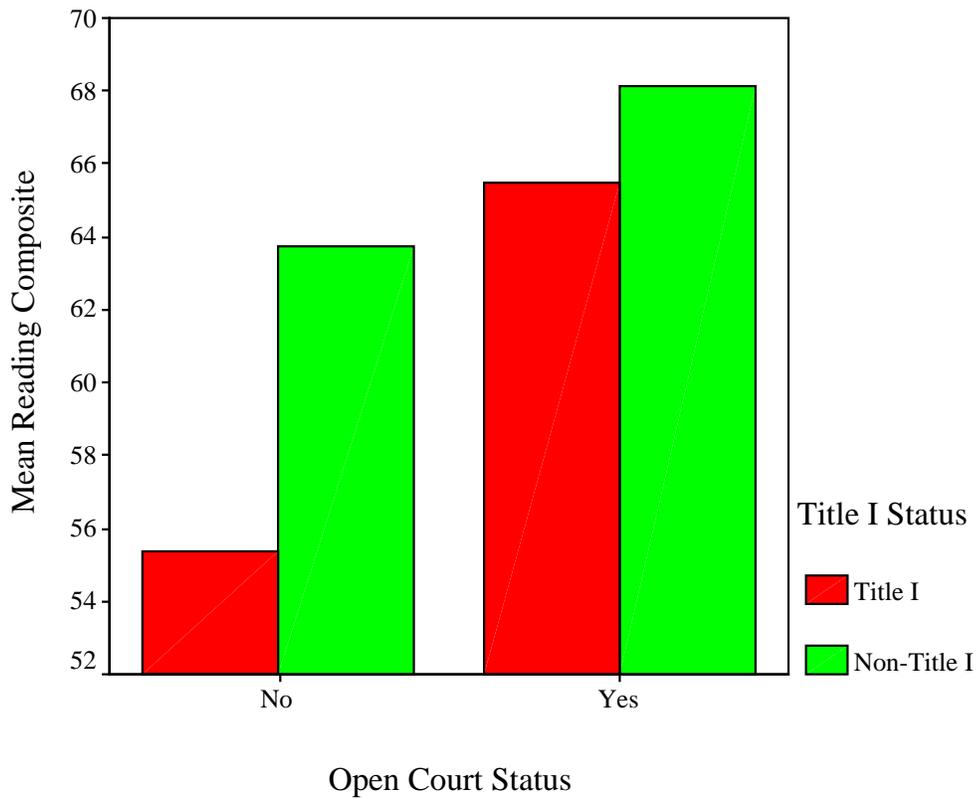


Figure 9. Bar Graph for Reading Composite and Title I Status by Open Court Status Interaction

The simple main effects tests showed that for students in Title I schools, there was a significant difference between the reading composite means of students who had not received *Open Court Reading*® ($M = 55.37$) and students who did participate ($M = 65.49$). Among students in nonTitle I schools, those who did not participate in *Open Court Reading*® had

statistically significant lower reading composite mean ($M = 63.75$) than students who participated ($M = 68.13$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students in a Title I school ($M = 55.37$) and students in a nonTitle school ($M = 63.75$). However, there was no significant difference between students in Title I schools ($M = 65.49$) and students in nonTitle I schools ($M = 68.13$) among students who had participated in *Open Court Reading*®. These findings show that the statistically significant gap between students attending Title I and nonTitle I school who had not participated in *Open Court Reading*® diminished among students who did participate.

The interaction between Title I status and *Open Court Reading*® status for word analysis is depicted in Figure 10.

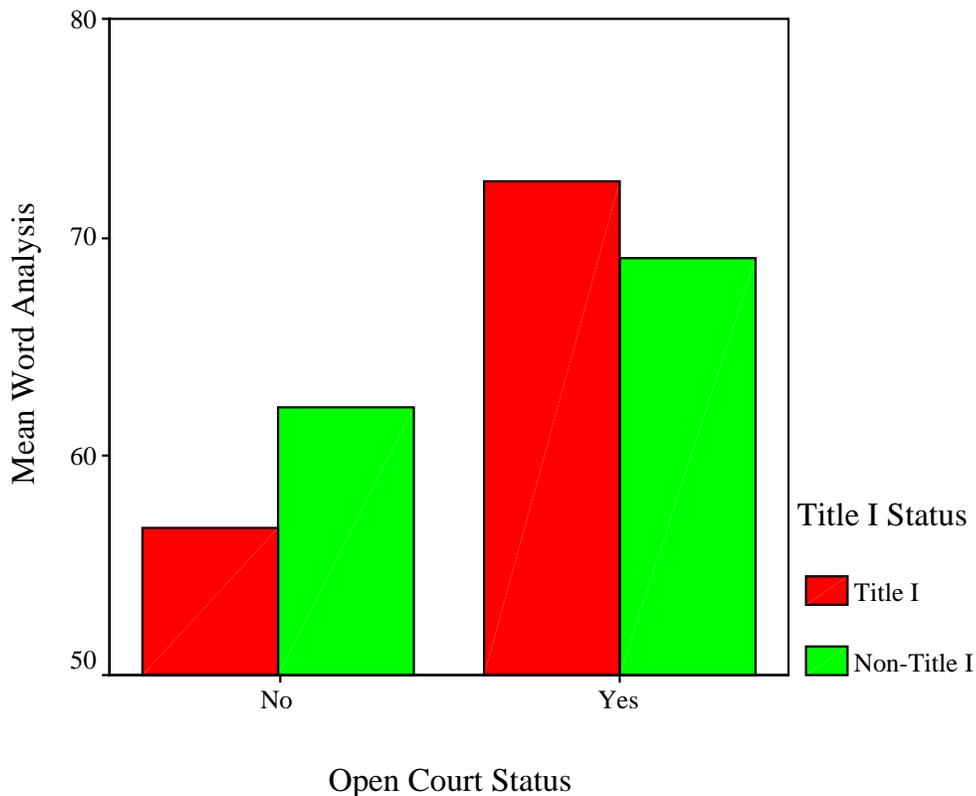


Figure 10. Bar Graph for Word Analysis and Title I Status by Open Court Status Interaction

The simple main effects tests showed that for students in Title I schools, there was a significant difference between the word analysis means of students who had not received *Open Court Reading*® ($M = 56.73$) and students who did participate ($M = 72.59$). Among students in nonTitle I schools, those who did not participate in *Open Court Reading*® had statistically significant lower word analysis mean ($M = 62.24$) than students who participated ($M = 69.10$). In addition, among students who had not participated in *Open Court Reading*®, there was a significant difference between students in a Title I school ($M = 56.73$) and students in a nonTitle I school ($M = 62.80$). However, there was no significant difference between students in Title I schools ($M = 72.59$) and students in nonTitle I schools ($M = 69.10$) among students who had participated in *Open Court Reading*®. The findings show that the statistically significant gap between students attending Title I and nonTitle I school who had not participated in *Open Court Reading*® diminished among students who did participate.

Conclusions

Based on the analysis and findings of this study, implementing the *Open Court Reading*® program in kindergarten appears to have been a successful step toward ensuring that all students become fluent readers by third grade. With the passage of the *No Child Left Behind* Act, it is necessary for school systems to use the most effective reading programs possible at the elementary level. The *Open Court Reading*® program appears to have reduced learning gaps that often emerge in the early grades when children are learning to read. The following conclusions emerged from this study:

Conclusion #1

Based on findings from the study, there appears to be a positive relationship between participation in *Open Court Reading*® in kindergarten and test performance in first grade. Noted

increases in mean NCE scores were observed on the reading, vocabulary, reading composite, language, and word analysis subtests.

Conclusion #2

Before the implementation of *Open Court Reading*® in kindergarten, females in first grade had higher means on reading subtests than male first graders. From the two years of test data analyzed after the implementation of *Open Court Reading*® in kindergarten, the learning gaps between females and males diminished and in some cases the males surpassed the females.

Conclusion #3

The implementation of *Open Court Reading*® in kindergarten does not appear to reduce differences in test performance between non-minority and minority students. It must be noted that the population of minority students was considerably lower than the population of non-minority students. This may have had an affect on the results of the findings.

Conclusion #4

Students with special needs who were exposed to *Open Court Reading*® in kindergarten appear to perform higher on the reading subtests of reading, reading composite, and vocabulary in the first grade. The differences between students who receive special education services and those who do not receive special education services in first grade seem to lessen with the incorporation of the *Open Court Reading*® program in kindergarten.

Conclusion #5

Students attending both Title I and nonTitle I schools appear to perform higher on first-grade reading tests if they participated in *Open Court Reading*® in kindergarten. According to the results of the reading, reading composite, and word analysis subtests, Title I students

tightened the gap with nonTitle I students after they participated in the *Open Court Reading*® program in kindergarten.

Recommendations for Practice

This study provided support to the claims of the SRA company regarding its early childhood reading program, *Open Court Reading*®. The goal of the *Open Court Reading*® program is for all first graders to possess the skills necessary to read authentic literature on grade level by the second half of the school year. The following are recommendations for practice:

1. The continuation of using the *Open Court Reading*® program in kindergarten in the school system that participated in the study.
2. Other school systems should consider the adoption of the *Open Court Reading*® program or other reading programs that incorporate both explicit phonics and comprehension instruction in kindergarten and first grades.
3. All school systems should consider the use of the *Open Court Reading*® program or other reading programs that are equally balanced with phonics and comprehension instruction in all elementary grade levels.

Recommendations for Further Research

The National Reading Panel (2000) stated that the most influential years for students to receive systematic phonics are kindergarten through sixth grades. The panel indicated that kindergartners who received systematic beginning phonics were more likely to experience success in reading and spelling words. The National Academy of Sciences' committee on Preventing Reading Difficulties in Young Children (National Research Council, 1998) found that the most effective method of teaching children to read is a mixed method using both a phonics and whole language approach. In addition, the committee relayed the importance of

children entering the first grade with a baseline of language and cognitive skills and a desire to learn to read.

Ensuring that all young children become fluent readers will continue to be a challenge for schools. In order to accomplish this daunting task, it is imperative that further research be implemented that evaluates reading programs as well as teaching methods and techniques. The following are recommendations for further research:

1. Replication of this study in another school system;
2. replication of this study using an outcome criterion other than the *Terra Nova* standardized assessment;
3. replication of this study using a larger population size and/or analyzing more than two years of data from kindergarten;
4. implementation of a longitudinal study evaluating the same students who participated in this study to determine their reading performance in upper grades, graduation rates, and their paths in life after 12th grade;
5. execution of studies using other kindergarten reading programs and their effects on students' success and performance;
6. implementation of a study regarding teacher training of the reading program and students' performance;
7. use a qualitative research approach to evaluate teachers', parents', administrators', and students' perceptions of the *Open Court Reading*® program;
8. replication of this study that evaluates the current kindergarten math program; and
9. implementation of a study that evaluates teachers' and schools' differences to identify strategies that could potentially produce better results.

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APPENDIX

Director's Letter

May 2, 2005

Dear Director of Schools,

As a student at East Tennessee State University, I am currently involved in my dissertation phase of the Educational Leadership and Policy Analysis doctoral program. My dissertation, *The Relationship Between Open Court Reading® in Kindergarten and Student Performance on Standardized Assessments in Reading*, is to determine the effect of kindergarten Open Court Reading and first grade standardized test scores.

I am seeking permission to access first grade Normal Curve Equivalent scores from the 2001, 2002, 2003, 2004 Terra Nova tests. The scores will be assigned a random number to prevent the identification of any student.

Thank you for your time and response to this request. If you have any questions, please feel free to contact me at xxxxx or by email at xxxxx. The results of this study will be available to you upon your request.

Sincerely,

Rachel Walk
First Grade Teacher
xxxxx Elementary

Permission is granted for Rachel Walk to utilize first grade *Terra Nova* scores of students who were tested in xxxxxxx system.

Signature

Date

VITA

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