DOES SETTING AFFECT ACHIEVEMENT OF STUDENTS WITH
DISABILITIES: COMPARING CO-TEACHING TO RESOURCE

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Sarah Yvonne Mote
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Does Setting Affect Achievement Of Students With Disabilities:
Comparing Co-teaching To Resource

By Sarah Mote

APPROVED:

COMMITTEE CHAIR

Connie McDonald, Ph.D.

COMMITTEE MEMBERS

Yvonne McCastle, Ed.D.

Jan Otter, Ph.D.

CHAIR, GRADUATE STUDIES

Scott B. Watson, Ph.D.
ABSTRACT

Sarah Mote. DOES SETTING AFFECT STUDENT ACHIEVEMENT: COMPARING CO-TEACHING TO RESOURCE. (Under the direction of Dr. Connie McDonald). School of Education, December, 2010).

This causal comparative study compared reading achievement of middle school students with disabilities (SWD) who were served in the resource class with the reading achievement of middle school SWD who were served in the co-teaching class. Reading achievement of SWD in grades six through eight was statistically analyzed to measure gains made by both groups of students. The learning outcomes were compared using reading assessment scores from the Georgia Criterion-Referenced Competency Test (CRCT) and student Lexile levels. The participants were 157 sixth through eighth grade SWD. The findings suggest that SWD may benefit equally from either instructional setting. Students from each setting made similar gains in reading achievement on the CRCT and in Lexile levels.

Keywords, co-teaching, middle school, reading instruction, resource, special education, achievement
Dedication

For the support, love, and patience of my family, I can only say thank you.

To my children, Danny and Dylan Mote, thank you for all of your support and love throughout this journey. I hope that I can be a model of the importance of life-long learning to you. I am proud of both of you and want you to know that you can achieve your dreams in life, no matter what they are.

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List of Abbreviations

Adequate Yearly Progress (AYP)
Analysis of Covariance (ANCOVA)
Georgia Criterion-Referenced Competency Test (CRCT)
Georgia Performance Standards (GPS)
Grindstone School District (GSD)
Individuals with Disabilities Education Act (IDEA)
Iowa Test of Basic Skills (ITBS)
Learning Disabilities (LD)
Literacy Passport Test (LPT)
Multivariate Analysis of Covariance (MANCOVA)
National Assessment of Educational Progress (NAEP)
No Child Left Behind (NCLB)
North Grindstone Middle School (NGMS)
South Grindstone Middle School (SGMS)
Students with Disabilities (SWD)
CHAPTER ONE: INTRODUCTION TO THE STUDY

The No Child Left Behind Act (NCLB) of 2001 and the Individuals with Disabilities Educational Act (IDEA) are two of the nation's most important federal laws relating to the education of children. While NCLB seeks to improve the education of all children, IDEA focuses on the individual child and seeks to ensure specialized services for children with disabilities. NCLB has forced schools to take a closer look at the students who struggle with academics. Under NCLB (No Child Left Behind [NCLB], 2001) the overall goal is for all students, regardless of category of disability or academic setting, to reach set proficiency standards in reading and math by the year 2014. NCLB (2001) expects schools to find ways to meet and exceed the educational standards for all students regardless of their category of disability or their academic program setting. This expectation prompted this research to examine the importance of the academic setting of special education students and the setting’s relationship to reading achievement.

Different delivery models of instruction for special education students have been implemented in schools in an attempt to meet the needs of the students who are served through special education programs. NCLB holds schools accountable for student proficiency by requiring all subgroups of students to reach the stated benchmark standards, known as Adequate Yearly Progress (AYP). Meeting AYP standards is a challenge that all schools across the nation must face.

This research examined two different delivery models used at the middle school level to provide instruction to students with special needs. The study specifically focused
on the co-teaching model and the resource model for students in grades six through eight. The research examined achievement levels of students who had been instructed in either the co-teaching class or the resource class for reading. The achievement scores from the state-mandated reading assessment, which was administered to all students, offered insight into whether delivery model influenced academic gains in reading. The research included 157 students in grades six through eight who were entitled to special education services based on the criteria established by state and federal special education regulations. The study examined academic setting of special education students and its relationship with student performance on the reading component of the Georgia Criterion-Referenced Competency Test (CRCT). The information obtained from this research helped to determine if there was a relationship between the reading achievement of middle school special education students and their educational placement within the Grindstone Creek School District during the 2008–2009 school year.

**General Background**

According to the results from the National Assessment of Educational Progress (NAEP) reading exam, struggling adolescent readers make up a significant portion of the U.S. school population (National Assessment of Educational Progress [NAEP] 2004, 2005). On the 2007 NAEP, 26% of eighth-graders could not read at the basic level. On the 2005 NAEP, 27% of twelfth-graders could not read at the basic level. What this means is when reading grade-appropriate text, they could not understand what they had read (NAEP, 2005). These adolescents could not extract the general meaning or make obvious connections between the text and their own experiences, or make simple
inferences from the text. Studies show that adolescents who are struggling readers are at high risk of dropping out of high school, graduating unprepared for college, and having limited opportunities in the workforce (National Center for Education Statistics, 2003).

Students who do not learn to read adequately in the primary grades typically have persistent reading difficulties throughout their school years (Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996). The way students are grouped for instruction may affect how they perceive themselves as learners. For example, students who are grouped homogeneously in a low-ability group may suffer from social stigmatization, low motivation, and lowered student expectations for academic success (Barr & Dreeban, 1991). Direct, explicit, and systematic instruction of critical reading skills is an important part of effective teaching. Since reading is the foundational skill for all learning, children with disabilities must receive targeted and effective instruction that addresses their core weaknesses in reading (Lloyd, 2005).

Students who struggle in reading are often placed in a special education program if they meet state eligibility criteria. Placement in the special education program allows a student to get help with instruction in a variety of settings. This research examined two different instructional environments. The study specifically focused on the co-teaching classroom and the resource classroom, two popular instructional settings for reading instruction for students in a middle school special education program. State mandated criterion-referenced assessment scores and Lexile reading levels of SWD (students with disabilities) were analyzed to determine which setting, co-teaching or resource, was more effective on student achievement.
According to the Georgia Department of Education (2008a), the CRCT measures how well a student has acquired the knowledge and skills taught in the state curriculum. The purpose of the test is (a) to ensure students are learning at their grade level, and (b) to provide data to teachers, schools, and school districts in order to make better instructional decisions. Georgia’s statewide curriculum, known as the Georgia Performance Standards (GPS), sets specific academic standards or expectations for all students in Georgia’s public schools. Students are not compared to each other but are measured on their achievement in meeting the standards. Student scores are reported according to three performance levels: Does Not Meet Expectations, Meets Expectations, and Exceeds Expectations. The CRCT also serves as an accountability measure and is part of the AYP requirements of the NCLB (Georgia Department of Education, 2008a).

The Georgia Department of Education (2008a) reported that the performance on the reading portion of the CRCT is linked to the Lexile scale, a national reading measure that matches students to appropriately challenging reading materials. Tens of thousands of books and millions of articles have Lexile measures, and hundreds of publishers assign a Lexile level to their materials. Also, all major standardized tests can report student reading scores in Lexiles (Lexile framework for reading, n.d., para. 2).

**The Problem Statement**

Educators face the challenge of deciding upon the most effective instructional environment for students who are receiving special education services. The Individuals with Disabilities Education Act (IDEA) is a federal law enacted in 1990 and reauthorized in 1997 (Individuals with Disabilities Education Act, [IDEA], 2004). It is designed to
protect the rights of SWD by ensuring that everyone receives a free and appropriate public education, regardless of ability. IDEA governs how states and public agencies provide early intervention, special education, and related services to more than 6.5 million eligible infants, toddlers, children, and youth with disabilities (U.S. Department of Education, 2009b). IDEA requires that a student with special needs receive instruction in the least restrictive environment (LRE) (Osborne & Dimattia, 1994). According to the Least Restrictive Environment Coalition’s definition, LRE is “the educational setting where a child with disabilities can receive a free and appropriate public education designed to meet his or her education needs while being educated with peers without disabilities in the general educational environment to the maximum extent appropriate” (Karten, 2005, p. 5). Current legislation implies that all service options should be considered before a student is removed from a general education classroom.

A student’s Individualized Educational Plan (IEP) committee determines the least restrictive educational setting for the student. An IEP committee usually consists of the parents or guardians, special and regular education teachers, at least one administrator, and possibly the student or other invited guests. This study analyzed the reading achievement for SWD served by the special education program. Results of student achievement for SWD instructed in a resource class setting were compared to the achievement results of SWD instructed in a co-teaching setting. The study examined achievement scores and reading levels of SWD in grades six through eight. The researcher designed the study to answer the following question:

Do middle school SWD who exhibit reading deficits and receive instruction in a
resource class show similar gains in reading achievement to students in the co-
teaching class?

Purpose of the Study

The purpose of this study was to compare the performance outcomes of SWD in
two instructional settings. The study gave a review of literature related to the skills
needed to read proficiently, a review of Response to Intervention (RTI), and a review of
the instructional placement for students who receive special education services. The
literature about NCLB (2001) reflected the importance of teaching the general curriculum
to SWD. This research defined and discussed the academic achievement of SWD and
provided the educational implications of the setting for instruction. Settings used for the
instruction of SWD were reviewed. In particular, this study completed an analysis on
two different instructional settings and their effects on closing gaps in achievement in
special education programs. A summary of the analysis included the performance scores,
as measured by the CRCT and Lexile levels, and discussed issues related to the analysis.
The comparison of the instructional models and their results indicated a further need for
studying the instructional placement to determine their effect on outcomes for SWD.

Research Questions and Null Hypotheses

In examining the CRCT scores and the Lexile levels from the CRCT from the
spring of 2008 and the spring of 2009, the current study attempted to answer the
following questions:

Research Question #1: Do differences in reading achievement measured by the
reading portion of the CRCT for SWD between co-teaching and resource classes depend
on grade level in grades 6, 7, and 8?

Null Hypothesis (H₀₁): There is not a statistically significant difference in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource classes by grade level in grades 6, 7, and 8.

Research Question #2: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Null Hypothesis (H₀₂): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD between the co-teaching and resource room classes across grade levels 6, 7, and 8.

Research Question #3: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD across learning environments in grades 6, 7, and 8?

Null Hypothesis (H₀₃): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD across learning environments in grades 6, 7, and 8.

Research Question #4: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Null Hypothesis (H₀₄): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD who
participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Research Question #5: Do differences in reading achievement measured by Lexile scores of SWD between co-teaching and resource classes depend on grade level in grades 6, 7, and 8?

Null Hypothesis (H_{05}): There is not a statistically significant difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource classes depending on grade level in grades 6, 7, and 8.

Research Question #6: Is there an average difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Null Hypothesis (H_{06}): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource room classes across grade levels 6, 7, and 8.

Research Question #7: Is there an average difference in reading achievement measured by Lexile scores of SWD among grade levels between the co-teaching and resource setting in grades 6, 7, and 8?

Null Hypothesis (H_{07}): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD among grade levels between the co-teaching and resource setting in grades 6, 7, and 8.

Research Question #8: Is there an average difference in reading achievement measured by Lexile scores of SWD who participated in a co-teaching class as compared
to SWD who participated in the resource class within grades 6, 7, and 8?

Null Hypothesis (H₀₈): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Professional Significance of the Study

The focus of this research was to examine the academic aspects of SWD receiving special education services for reading instruction. This research focused on whether a student’s placement in the resource class or the co-teaching class for reading contributed to the student’s achievement in reading and reading abilities. Student instruction in both settings focused on grade level Georgia Performance Standards for reading. High expectations for learning, coupled with high levels of academic support, have been consistently related to more positive student outcomes (Wang, Haertel, & Walberg, 1994). In the present research, it was determined whether students made more progress in reading resource classes or reading co-teaching classes or if there is was no significant difference at all. The No Child Left Behind Act of 2001 and its requirements for accountability have supported standards for all students served in the public school setting, including those with disabilities.

This research investigated whether or not a child with a disability is academically affected by educational placement for reading instruction. According to Moller (1999), children's rich perceptions of the reading process and of themselves as readers can guide educators as they support children in becoming strong, positive, and lasting readers.
Conlon, Zimmer-Gembeck, and Creed (2006) found that knowledge of children’s attitudes and perceptions towards reading provided important additional information when evaluating reading skills of early adolescents. A student’s class placement may enhance or detract from his or her growth in achievement. According to Lynch (2002), children’s self-perceptions as readers are significantly related to their reading achievement. Furthermore, continuing to build the knowledge base with learning disabled students will help to ensure the most appropriate interventions for all students with learning problems.

Whitener’s (2007) study discussed the research on perspectives of students in special education and how those perspectives can influence program development and characteristics. Research on co-teaching classes versus resource classes was examined, as well as student perceptions, student perception accuracy, and student involvement in their special education programs. Whitener (2007) found that comparison of opinions and feelings between students served through a co-teaching model or a resource model indicated relatively few differences in perceptions and opinions regarding their involvement in their special education programs. There were also few differences in their feelings about their classes, their views on accommodations, and their attitudes towards their teachers.

**Overview of Methodology**

Middle school SWD receiving instruction in a resource class or a co-teaching class in a rural public school district in north Georgia during the 2008–2009 school year were the research participants for the study. The students received reading instruction on
a daily basis from a highly qualified special education teacher. In addition, the students in the co-teaching setting also received support and instruction from a highly qualified regular education reading teacher. According to the Georgia Department of Education (2009a), NCLB highly qualified teacher requirements refer specifically to the qualifications and certification of teachers who are assigned to teach core academic content courses. Certified special education teachers are highly qualified to offer expertise in teaching SWD and to provide opportunities for those students to be successful academically in inclusive classroom settings or in pull-out, resource delivery models. IDEA and NCLB now require that all teachers, including special education teachers, provide evidence that they are highly qualified and certified in the content subjects that they teach. Special education teachers may meet the highly qualified requirements by meeting the certification requirements to teach the core academic subjects at the required cognitive level and by being assigned to teach the content area listed on their certificates (Georgia Department of Education, 2009a).

As required by the Quality Basic Education Act of 1985, Georgia must maintain a curriculum that specifies what students are expected to know in each subject and grade. These are called the Georgia Performance Standards. The state’s curriculum is a guideline for instruction that helps teachers, students, and parents know what topics must be covered and mastered for a particular course. The curriculum establishes the minimum standards that must be taught in all classes. Students in both the co-teaching classes and the resource classes were taught according to these standards (Georgia Department of Education, n.d.).
As required by the Georgia Department of Education, students were given the CRCT in the spring of 2008 and the spring of 2009. All students were tested according to the guidelines set forth by the Georgia Department of Education. Reading scores and Lexile levels for all students were obtained from the 2008 and 2009 CRCT reports of the students. A causal comparative research design was used to examine CRCT reading scores and Lexile scores to quantitatively determine if students’ reading outcomes differ based upon the type of setting. The data was then analyzed to quantitatively determine if there was a significant difference in student gains in reading achievement based upon placement for instruction. The data was analyzed using a statistical analysis software program called SAS 9.2, a software system for data management and analysis.

**Definitions of Key Terms**

*Co-teaching setting*: Classroom where two (or more) educators or other certified staff share instructional responsibility for a single group of students primarily in a single classroom or workspace. The co-teaching class contains SWD and students who do not have disabilities (Sileo, 2003).

*Criterion-Referenced Competency Test (CRCT)*: An assessment given annually to students in the state of Georgia. It was designed to assess student acquisition of knowledge and skills which are set forth in the state’s curriculum (Georgia Department of Education Testing Division, 2006).

*Individuals With Disabilities Education Act (IDEA)*: A law ensuring services to children with disabilities throughout the nation. IDEA governs how states and public agencies provide early intervention, special education and related services to more than

*Least restrictive environment (LRE)*: The requirement that students with disabilities must be educated in the least restrictive environment in which they can succeed with support. This can include general education classrooms, special classes, special schools, home instruction, and instruction in hospitals and institutions (IDEA, 2004). Co-teaching proponents contend that for most students, this environment is the general education classroom (Friend & Bursuck, 1999).

*Lexile Score*: A standard score that correlates students’ reading abilities with difficulty of texts. The Lexile translates into the level of books students can read with 75% comprehension. A sixth grader who reads proficiently will have a Lexile score between 800–1000. A seventh grader who reads proficiently will have a Lexile score between 850–1050. An eighth grader who reads proficiently will have a Lexile score between 900–1100 (Georgia Department of Education, 2009c).

*No Child Left Behind Act (NCLB)*: A reform of the Elementary and Secondary Education Act, which was enacted in 1965. It is based on four basic principles: stronger accountability for results, increased flexibility and local control, expanded options for parents, and proven teaching methods (U.S. Department of Education, 2009b).

*Performance Standards*: Guidelines for education that provide clear expectations for instruction, assessment, and student work. They define the level of work that demonstrates achievement of the standards. The performance standards isolate and identify the skills needed to problem-solve, reason, communicate, and make connections
Performance Levels: A range of scores that defines a specific level of performance as articulated in the Performance Level Descriptors of the CRCT. Each student receives a scale score and a performance level designation (e.g., does not meet standard, meets standard, or exceeds standard) when assessed on a state-mandated assessment (Georgia Department of Education, 2009b).

Resource setting: Classrooms where a special education program can be delivered to a student with a disability. The instructional setting for the student who qualifies for either a special class or regular class placement but needs some special instruction in an individualized or small group setting for a portion of the day (Friend & Bursuck, 1999).

Students with disabilities (SWD): Students with a disability who may need special instruction to meet his or her educational goals (NAEP, 2007).

Summary

Student performance expectations, as outlined by NCLB (2001), have focused a spotlight on the achievement of all students, including the subgroup labeled as SWD. Because of these expectations, research leading to the use of evidence-based practices is critical to educators working with SWD. This non-experimental, quantitative research study compared the effects of a co-teaching model of instruction to the effects of a resource classroom model of instruction on the academic achievement of middle school SWD. Achievement scores of sixth, seventh, and eighth grade students who qualified under IDEA (2004) as students with a disability were analyzed to determine differences in gains toward the mastery of the state standards in reading and the difference in gains in
reading levels of the students.

Section 2 of this study reviews the literature related to this study. Section 3 reviews the methodology utilized in this study. The data analysis and findings are discussed in Section 4, and Section 5 reviews recommendations for practice as well as recommendations for future studies.
CHAPTER TWO: REVIEW OF THE LITERATURE

A major goal of reading comprehension research has been to identify effective reading strategies that increase children’s comprehension (National Reading Panel [NRP], 2000). Recent educational initiatives have emphasized the critical role of early reading instruction in the prevention of reading difficulties. The identification and use of effective interventions is of critical concern in schools where illiteracy and academic failure are high. Given current high expectations for student achievement, it is imperative that validated interventions containing effective instructional features are used to increase student achievement in reading skills. Currently in the United States, 12% of the student population or 6.8 million children have been identified with disabilities (U.S. Department of Education, 2009a). This literature review includes several components critical to the discussion of the academic achievement of middle school SWD.

Extensive searches, utilizing the ERIC database, Academic Search Premier, and EBSCO Host, were conducted in peer-reviewed journals, professional texts, dissertations, and public policy related to special education and how students learn to read. Particular attention was placed on the skills needed to read proficiently, on RTI, and on the best instructional placement for students who receive special education services.

Theoretical Framework

There are numerous theories of reading. The traditional view, which focused on the printed form of a text, was the beginning of reading theories. In the traditional view of reading, beginning readers acquire a set of ordered sub-skills that sequentially build
toward comprehension ability (Tracey & Morrow, 2006.) Later, the theories moved to the cognitive view that enhanced the role of background knowledge in addition to what appeared on the printed page.

Constructivism is a theory of learning that emphasizes the active construction of knowledge by individuals (Woolfolk, 1998). This theory substantiates that the process of making inferences is central to the learning process. The constructivist approach allows the reader to use meta-cognitive strategies to acquire a more extensive understanding of the material he is reading. He is using existing knowledge as a foundation on which to build new knowledge. Comprehending involves the reader, the text, and the context. The reader actively constructs meaning as he interacts with the text. The proficient reader does not decode but selects the most productive cues to predict text that will follow (Woolfolk, 1998).

Tompkins (2006) noted that Piaget described learning by students to be an ongoing occurrence between cognitive structures and the interaction and adaptation to the environment. Piaget called these cognitive structures schemata. Schema provides the structure on which comprehension is formed (Tompkins, 2006). Piaget claimed that new information is organized with prior knowledge. The personal connection made with the text plays an important role throughout the reading process. Proficient readers actively search for and construct meaning in a fluent manner (Tompkins, 2006). The schemata that students possess can be the foundation to link new ideas and expand knowledge. Concept development is organized around schema and includes not only semantic knowledge, but also associations of time, place, context, and emotion. The speed of
encoding and retrieval of information from memory allows the reader to be proficient and fluent (Fresch, 2008).

Rasinski and Mraz (2008) have found that the reader’s prior knowledge about the topic enables compensation for poor word-level skills. Low-level readers are less able to employ automatic word decoding. Because of a lack of experience in using a decoding process, compensation is made by the reader to attempt a different strategy employing the meaning of words. The focus shifts from decoding the words to guessing words that would make sense in the context of the passage (Kuhn et al., 2006). The reader uses a combination of text and schemata in this process. The focus shifts from letters to words to meaning or from meaning to words and then letters. These processes take place interactively with the text. The constructivist theory supports the teaching of reading strategies in addition to decoding skills (Rasinski & Mraz, 2008). The Piagetian perspective of reading acquisition places focus on a child's stages of development and reflects on the concepts of reading and writing as the child has constructed them (McGee & Richgels, 1996). McGee and Richgels (1996) state, "Children’s concepts of reading and writing are shaped more by what they accomplished in preceding developmental stages than by their simply imitating adults' behavior or following adults' directions” (p. 10).

The schema theory of reading, described by Piaget, also correlates with the cognitively based view of reading. Rumelhart (2004) has described schemata as "building blocks of cognition" which are used in the process of interpreting sensory data, in retrieving information from memory, in organizing goals and sub goals, in allocating
resources, and in guiding the flow of the processing system. With constructivism, students are allowed opportunities to construct knowledge out of their experiences and learn by doing. The constructivist view of learning holds that learning takes place through internal mechanisms that are often unobservable to the external views (Tracey & Morrow, 2006).

Constructivism has been applied directly to the study of reading as an explanation of the way in which readers construct messages, or comprehend, during the reading process (Anderson & Pearson, 1984). In the constructivist perspective, learning often results from a hypothesis-testing experience by the individual. For example, a child might not know what a word is when she is reading. According to the constructivist view, she may make a guess as to what the word is. She will try the word. If the word sounds correct she will continue reading. If the word does not sound correct, she will revise her guess and try another word.

Similar to constructivism, the socio-cultural theory explains that students extract meaning from text based on their cultural and social backgrounds (Vygotsky, 1978). Lev Vygotsky, a Russian psychologist, established the social constructivist theory. Vygotsky believed students could develop cognitive and learning skills with the support of education. Education helps students construct the psychological functions necessary to move to the next step. Vygotsky (1986) held that the ultimate aim of instruction is to help students attain self-directedness and independence in learning. Vygotsky believed that as students interacted and received support, they would begin to master literacy concepts. He believed that students developed more quickly when they worked with
someone who was more proficient than them. He believed that people created mental tools, or “tools of the mind”, to broaden their mental abilities, which assisted people as they thought, concentrated, and recalled (Bodrova & Leong, 2007). Vygotsky taught that teachers should connect the knowledge students have with the knowledge they need to have. Vygotsky’s zone of proximal development defines the gap in knowledge (Bacon, 2005). The zone refers to a continuum of behaviors not as a certain point on a scale (Bodrova & Leong, 2007). Vygostsky’s (1986) zone is the difference between the mental age of students, also referred to as the actual developmental level, and the level that can be attained with assistance. It is the level of development of a student’s intellectual function that has been determined using various tests that students complete independently (Vygotsky, 1978). Proximal refers to the fact that the zone is limited to the behaviors that will arise in the near future and to behaviors that will appear at any point but have not yet surfaced (Bodrova & Leong, 2007).

Vygotsky’s use of the zone of proximal development discusses the relationship between learning and development (Bodrova & Leong, 2007). It refers to the abilities that have not developed but are in the process of developing (Vygotsky, 1978). The zone of proximal development, which focuses on what students can achieve, is an important link between instruction and development (Vygotsky, 1987).

According to Vygotsky (1986), the zone of proximal development changes as students achieve higher levels of thinking. Students’ development continually adjusts zones, so students are able to learn more difficult concepts and skills. Vygotsky (1987) teaches that it is essential not to focus on what was accomplished previously but to look
ahead to what can be achieved in the future. Teachers are instructing to students’ weaknesses if students are given problems they can complete without assistance. When this happens, teachers hold students’ learning back, instead of using the zone of proximal development to direct students to new skills (Vygotsky, 1986).

Scaffolding instruction as a teaching strategy originates from Lev Vygotsky’s theory (Meyer, 1993). Use of scaffolded instruction provides a means for personalizing support to adapt to diverse needs of the students. Scaffolding occurs as teachers support students. Teachers offer the exact amount of support students need to be successful at a task by carefully observing and working with students. Scaffolding involves teachers giving a great deal of support to students in the beginning and then lessening the support as students move toward independence. The basic features of scaffolded instruction are co-participation, social interaction between teachers and students, titration of assistance by instructor, and fading of teacher support to gradually transfer responsibility for learning to students (Meyer, 1993). The aim of scaffolding is for students to achieve independent task performance. Teachers play an important part in directing learning during its initial stages through explicit modeling and feedback. They consciously provide support with an aim of “fading out” gradually so that responsibility for learning and task performance is eventually transferred to students (Puntambekar & Hubscher, 2005). In order for students to be as successful as possible, the scaffold fades away and a new one is put in place to assist in the next phase of learning (Harland, 2003). Scaffolding learning experiences may be used to support and improve the performance of students before, during, and after reading. Such experiences may help students develop essential
skills for understanding, gain meaning from text, and help raise their performance on reading comprehension assessments.

Ultimately, readers utilize the metacognition theory while reading. As first described by Flavell (1979), metacognitive knowledge refers to knowledge about cognition and is similar in structure and function to other kinds of knowledge in long-term memory. This knowledge is usually about person, task, and strategy variables and their interactions. Readers analyze their cognitive processes and employ the necessary strategies that enable them to find meaning in text. According to the metacognitive theory, students gain knowledge about when and where to use particular strategies for learning or for problem solving (Flavell, 1979). Metacognition is an important concept in cognitive theory. It consists of two basic processes occurring simultaneously: monitoring your progress as you learn, and making changes and adapting your strategies if you perceive you are not doing so well (Winn & Snyder, 1996). Ridley, Schutz, Glanz, and Weinstein (1992) reported, "Metacognitive skills include taking conscious control of learning, planning and selecting strategies, monitoring the progress of learning, correcting errors, analyzing the effectiveness of learning strategies, and changing learning behaviors and strategies when necessary" (p. 295).

Flavell (1979) describes it as follows: "Metacognition refers to one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data" (p. 907). Flavell (1979) argued that metacognition explains why children of different ages deal with learning tasks in different ways. Caverly, Nicholson, and Radcliffe (2004) conducted research that
determined that as children get older they demonstrate more awareness of their thinking processes.

**Reading Development**

A necessary element in skilled reading is automaticity (Kuhn et al., 2006). Autonomy refers to the capacity to read without actively thinking about it. The reader builds automatic word recognition through extensive exposure to print. Practice with basic sight words and an orthographic pattern allows the student to become less focused on laborious letter-to-letter decoding. Word recognition practice leads to allowing students the opportunity to build automaticity with reading. The automaticity frees the reader to retrieve word meanings, which attributes to comprehension of the text (Kuhn et al., 2006).

Reading should be so effortless and autonomous that the student performs the task unconsciously to the point that when print is evident, he is compelled to read. Proficient reading takes place without intention and without interfering with comprehension. Reading involves the successful coordination of concurrent processing (Walczyk, 2000). Poor comprehension may be explained by the reader investing too much thought into the decoding aspects of reading (Harn, Stoolmiller & Chard, 2008). Reading fluency development is a critical prerequisite to being able to comprehend (Griffith & Rasinski, 2004).

Learning to read is a complex task. Students must coordinate many cognitive processes to read accurately and fluently. Readers must be able to apply their alphabetic knowledge to decode unfamiliar words and to remember how to read words they have
read before. They must also monitor their word recognition skills to make sure that the word they read fits the meaning of the context (NRP, 2000).

The National Reading Panel (NRP) identified five essential components of reading that children must be taught in order to learn to read. These components are: (a) phonemic awareness, (b) phonics, (c) reading fluency, (d) vocabulary development, and (e) reading comprehension (NRP, 2000). Each of the five components will be outlined in this review.

First, children must be taught to hear sounds in words and to understand that words are made up of the smallest parts of sound, or phonemes (NRP, 2000). The NRP (2000) reports that phonemic awareness is the ability to recognize and use individual sounds to create words. Instruction in reading must include helping students to develop phonemic awareness. Early readers can show they have phonemic awareness in several ways, including recognizing which words in a set of words begin with the same sound, isolating and saying the first or last sound in a word, combining or blending the separate sounds in a word to say the word, and breaking or segmenting a word into its separate sounds (Strickland & Schickedanz, 2004).

The NRP (2000) declares that reading instruction must next guide students to understand phonics. The teaching of phonics is an approach to reading instruction that teaches students the principles of letter-sound relationships, how to sound out words, and exceptions to the principles. Before children learn to read print, they need to become more aware of how the sounds in words work. They must understand that words are made up of speech sounds, or phonemes. The NRP (2000) reports that children need to
be taught the sounds individual printed letters and groups of letters make. Knowing the relationships between letters and sounds helps children to recognize familiar words accurately and automatically, and "decode" new words. Decoding is the ability to apply knowledge of letter-sound relationships, including knowledge of letter patterns, and to correctly pronounce written words (NRP, 2000). Understanding this relationship gives children the ability to recognize familiar words quickly and to figure out words they have not seen before. Although children may sometimes figure out some of these relationships on their own, most children benefit from explicit instruction in decoding (Mathes, 2008).

The majority of children seem to become proficient decoders regardless of how they are taught, but there are still many students that are not (NRP, 2000). Direct, explicit, and systematic instruction of critical skills is an important part of effective teaching of reading. Many studies confirm that if a student leaves first-grade behind their peers in reading, the chance of ever catching up is very slim. If a child is still behind at the end of grade 3, the chance of catching up without very intensive intervention is 0% (Mathes, 2008).

The NRP (2000) also reports that students must also be supported in increasing their ability to read fluently (Griffith & Rasinski, 2004). The NRP (2000) reports that this is the ability to read a text accurately and quickly. Children must learn to read words rapidly and accurately in order to understand what is read. When fluent readers read silently, they recognize words automatically (Pukulski & Chard, 2005). When fluent readers read aloud, they read effortlessly and with expression. Readers who are weak in fluency read slowly, word by word, focusing on decoding words instead of
comprehending meaning. It is important for students to be competent and fluent readers before they leave middle school (Kuhn et al., 2006). Their reading sounds natural, as if they are speaking. Salinger (2003) noted, “Competent readers take charge of their learning, participate fully in society, and enhance their lives through the pursuit of new information and new experiences.” Students who struggle with fluency often have difficulty with comprehension (NRP, 2000).

Fluency is important because it provides a bridge between word recognition and comprehension. Pikulski and Chard (2005) indicate that because fluent readers do not have to concentrate on decoding words, they can focus their attention on what the text means. They can make connections among the ideas in the text and their background knowledge. In other words, fluent readers recognize words and comprehend at the same time. Less fluent readers, however, must focus their attention on figuring out the words, leaving them little attention for understanding the text (Pikulski, and Chard, 2005).

Shippen, Houchins, and Steventon (2003) assert, “Lack of fluent reading tends to lower a student’s motivation to continue to read” (p.175). Limited reading practice restricts a student’s vocabulary knowledge and comprehension, which results in poor academic achievement and undeveloped literacy skills (Shippen, Houchins & Steventon, 2003).

According to the NRP (2000), vocabulary development is also a necessary component of reading instruction. Children need to actively build and expand their knowledge of written and spoken words, what they mean, and how they are used. Students also need instruction in reading comprehension strategies. Rizopoulos and Wolpert (2004) found that students must have the opportunity to acquire strategies to
understand, remember, and communicate what is read in order to learn to read. Children need to be taught comprehension strategies, or the steps good readers use to make sure they understand text. Students who are in control of their own reading comprehension become purposeful, active readers. Rizopoulos and Wolpert (2005) report that literacy skills help children learn to function independently. Being able to read helps children foster relationships, develop self-esteem, and interact with society.

The identification and use of effective reading strategies is of critical concern in schools that teach struggling readers, including SWD. Given current high expectations for student achievement, it is imperative that validated interventions containing effective instructional features are used to increase student achievement for SWD. According to the NAEP (2007), 8.7 million children in grades 4-12 read below grade level. In addition, close to 70% of eighth-graders read below the proficient level, and 25% fail to read at the most basic level. Morris, Bloodgood, Lomax, and Perney (2003) discovered that, “Students who finish third grade one or more years behind in basic reading skills are at risk in an educational system, which from fourth grade on demands grade level reading ability” (p. 94). Struggling middle school readers who continue to lag behind in reading enter secondary schools with the same reading deficiencies.

**History of Special Education Legislation**

Special education legislation began in 1965 with the Elementary and Secondary Education Act of 1965 according to Fletcher, Lyon, Fuchs, and Barnes (2007). This law provided the legal foundation for future laws focusing on special education. In 1965 and 1966, Elementary and Secondary Education Act amendments were passed which
established grants for the education of student with disabilities. In 1968, legislation was passed that brought additional amendments that expanded special education services.

During the 1970’s, further changes to the law occurred. In 1970, The Education of the Handicapped Act was implemented. This act included grant programs for school districts and discretionary programs. In 1974, the Education of the Handicapped Act Amendment was passed in order to address an appropriate education. In 1975, Public Law (P.L.) 94-142, the Education of all Handicapped Children Act, was passed. It put in place many of the provisions that are the basis for current special education laws and regulations. This legislation established the right to a free and appropriate public education and individual education plans, and mandated the placement of children with disabilities in the least restrictive environment (LRE). P.L. 94–142 also established due process rights and funding to help with the cost of special education services. Additional amendments were passed through the 1980s and 1990s that added transition to work programs, early interventions services for infants, and assistive technology devices and services for student with disabilities. The law is currently enacted as the IDEA as amended in 1997.

In 1997, the reauthorizations of IDEA expanded the law mandating access to the general education curriculum for all students. In 2002, NCLB was implemented and IDEA was again reauthorized in 2004. These laws address the learning of students who receive special education services. NCLB mandates that all children, including the majority of SWD, must be proficient in state standards by the 2013-2014 school year. This law requires that achievement scores from each subgroup, such as English language
learners, special education students, minorities, and children in low socioeconomic status households, be disaggregated to ensure that all students are proficient in grade level standards.

**Response to Intervention (RTI)**

On December 3, 2004, President Bush signed the IDEA into law (IDEA, 2004). The revised law is different from the original version in at least one important respect. While educators previously used IQ-achievement discrepancy to identify children with learning disabilities (LD), they now may use RTI (Fuchs & Fuchs, 2006). The purpose of RTI is not only to provide early intervention for students who are at risk for school failure, but also to develop more valid procedure for identifying students with reading disabilities (Gerstan & Dimino, 2006). RTI will help to eliminate students qualifying for special education when a lack of appropriate instruction is the problem rather than a learning disability (Fuchs & Fuchs, 2006).

Much of RTI assessment is progress monitoring. Such information assists practitioners' efforts both to design early intervention and to identify special-needs children (Fuchs & Fuchs, 2006). The increasing implementation of RTI affects all students, those in general and special education (Murawski & Hughes, 2009). RTI is a method through which educators can identify students with learning disabilities while supporting students who are struggling academically in the general education classroom with a three-tier model.

In Tier I of the three-tier model, all students are provided with a scientifically based program in the general education classroom and are assessed at least three times a
year on an established benchmark (Fuchs & Fuchs, 2007). Once students fall below a predetermined point on a benchmark, they are referred to Tier II in which specific intensive instruction is provided beyond the general curriculum (Vaughn & Roberts, 2007). This means that identified students would be provided concentrated instruction that is more intensive and individually focused than that of the general reading curriculum. According to Fuchs and Fuchs (2007), if a child fails to respond to this intensive instruction, it is recommended that educators continue the instruction for a longer period in Tier II or move the child to Tier III. Fuchs and Fuchs (2007) estimate that 5% of the school population will fall into this third, long-term intensive tier in which students may remain for months or even years. The length of the Tier III intervention is determined by the significance of the child’s needs and his response to the Tier III intervention. It is this third tier that becomes what is now called special education (Fuchs & Fuchs, 2007).

It is important to emphasize that RTI is not a special education program. The RTI model adds support to the general education classroom using a problem-solving model, where decisions are made on a student-by-student basis (Bryant & Barrera, 2009). As RTI becomes the standard model for identifying special education students, special attention should be paid to reading instructional practices for older students who have not had the opportunity for early intervention, especially middle school students who will be graduating with the mandates of the NCLB that require them to be proficient in state standards. Fox, Carta, Strain, Dunlap, and Hemmeter (2010) indicate that RTI is a systematic decision-making process that has gained widespread popularity as a problem-
solving framework for organizing tiers of evidence-based interventions in the context of ongoing progress monitoring. RTI’s increasing implementation affects all teachers and students, in both general and special education (Murawski & Hughes, 2009).

**Students with Disabilities**

There are many disabilities covered under the umbrella of special education. Special education encompasses learning disabilities, mental retardation, autism, emotional or behavior problems, physical disabilities, blindness, deafness, developmental delays, speech deficits, and other health impairments. Each one of these eligibilities has its own unique characteristics that require specialized teaching (Georgia Department of Education, 2009c). SWD generally are expected to achieve the same success as other learners, so there is an increased emphasis on educating them in the general education setting. Also, it is important to note that these students deserve teachers who have the ability, confidence, and skills to work with such a diverse group of needs all at the same time (Friend & Cook, 2007).

Federal and state law places rigorous regulations on special education programs in order to ensure the quality of education received by special needs students. Special education programs are monitored carefully by the U.S. Department of Education. Most updated information from the National Center for Education Statistics (U.S. Department of Education, 2009a), reports that in 2006, 40% of the children that received special education services in grades K-12 were learning disabled (LD). A learning disability is defined as any range of conditions that affect a person’s ability to learn new information (McCoach, Kehle, Bray, & Siegle, 2001). Even though learning disabled students
function in the average range of intelligence, students with a learning disability are often unable to function in a normal classroom because of difficulties in processing information. Research demonstrates different findings on social functioning and academic growth for students with learning disabilities (Vaughn and Klinger, 1998; Benton and Aaron, 2003). Many perceive that students with learning disabilities who are placed in the general education setting will have a more positive self-perception (Donaldson and Halsey, 2007). Wilson and Michaels (2006) report that special education students thought that co-taught English classes gave them a unique opportunity to gain access to the general education curriculum and develop literacy skills. Alternately, Vaughn and Klinger (1998) found that many students with LD prefer to receive specialized instruction outside of the general education classroom for part of the school day. They also noted that there are also many students who view full-time co-teaching as a successful and necessary means for meeting their educational and social needs.

Bentum and Aaron (2003) examined the long-term effects of instruction on the reading achievement of children diagnosed as learning disabled and were taught in resource rooms. The study examined the consequences of resource room instruction on the cognitive level (IQ) of children identified as having reading disabilities. Results of their study indicated that (a) LD resource room instruction did not improve word recognition or reading comprehension skills of children with LD, (b) students experience a significant decline in spelling scores after receiving instruction for 3 or 6 years, and (c) the children also showed a decline in verbal IQ scores after receiving LD instruction for 6 years. Bentum and Aaron (2003) concluded that current LD resource room placement
and instruction do not appear to have any significant effect on reading skills.

Elbaum (2002) found in a meta-analysis of 38 studies comparing self-concept of students with LD who received instruction in less restrictive environments versus more restrictive settings that there was no overall association between self-concept and educational placement for students in the regular class versus the resource class.

Not only do students labeled as LD demonstrate reading difficulties that cause them to need the support of the special education program for reading instruction, but students with behavioral or emotional problems have often missed crucial instruction in the primary grades and may demonstrate problems in reading. The National Center for Education Statistics (U.S. Department of Education, 2009a) reports that in 2006, 7% of the children receiving special education services were labeled as emotional behavioral disabled (EBD). Wangsgard (2008) validates that a significant number of middle school students with EBD struggle with reading. Less is known about the reading deficits of students with EBD than their behavioral needs. Wangsgard (2008) advocates that limited research exists on reading instruction at the middle school level for students with EBD or how to effectively intervene and address the reading needs of this unique population. She (2008) revealed that students with EBD, who were struggling readers, did not have several of the necessary reading skills identified in the literature in order to be effective readers. Even though researchers are developing effective academic interventions for students with EBD, research is currently limited in specific areas of academic mastery such as reading instruction (Ryan, Reid & Epstein, 2004).

Over the last three decades, federal law has changed significantly in regard to
standards that play a large role in how students with and without disabilities are educated. Tremendous pressure has been put on school districts and state agencies to address the performance and acquisition of grade level skills for all students to be proficient in state performance standards by 2013–2014 (Hardman & Dawson, 2008). Educators are now being held accountable for the performance of all students (NCLB, 2001). This is why it is important to examine all aspects of special education and especially the placement of SWD.

Hardman and Dawson (2008) believe that in the 21st-century United States, access to education for every child on an equal basis is national policy. Federal policy supporting the development of a standards-driven education system strongly influenced educational reform for SWD. Hardman and Dawson (2008) advocate that implicit in IDEA is the concern about the possibility that although SWD have access to education, it is insufficient to generate the valued outcomes of employment, independence, and community involvement that were in the original intent and spirit of the law.

**Placement**

Discussions about where SWD should be instructed have received more attention and generated more controversy than any other issue concerning the education of SWD, including how or what these students should be taught (Fuchs & Fuchs, 1994). Special education setting options include a continuum of placements ranging from the least restrictive, or inclusion, to the most restrictive, or seclusion. Whitener (2007) validates that at the least restrictive end of the continuum are the students who are fully integrated into a regular education classroom. These students receive no additional services
compared to their regular education peers. Next along the continuum is co-teaching where students are in regular education classes but receive additional services from an aide or resource teacher. Further along the continuum, students are included in regular education, but are provided services from a special education teacher in a resource class for a part of the day. At the segregated end of the continuum are students who are in separate classrooms, but share some of the same facilities as the regular education students. At the end of the continuum, students can be educated in a completely separate classroom with no interaction with regular education students (Whitener, 2007).

Special education services are designed to help meet the unique needs of children with disabilities in the least restrictive environment. Improving educational experiences for children with disabilities is an essential element for both IDEA and NCLB. To effectively meet these standards, SWD in Georgia must be exposed to and held accountable for the GPS. Ultimately, the Individualized Education Program (IEP) team’s aim is for SWD to be educated in the general classroom with supplementary aids and services to the maximum extent possible. SWD are to be educated with children who are nondisabled to the maximum extent possible. Special education services are provided at no cost to parents. They include services that are provided in the classroom, the home, hospitals, institutions, physical education, travel training, and vocational education (Georgia Department of Education, 2007).

IDEA (2004) mandates that students be served in the LRE that can provide them appropriate educational support. The co-teaching general education classroom setting is often referred to as inclusion. NCLB (2001) directs schools to be accountable for
meeting academic achievement standards in reading and math for grades 3–8. Two common instructional settings for SWD found in middle schools are the resource room and the co-teaching room.

Regardless of where services are being provided, there is an expectation that SWD continue to have access to the GPS for their grade level and that teachers maintain high expectations of their performance in meeting the standards.

**Resource.** In the resource setting, special needs students may receive a specially designed curriculum or the regular curriculum within a separate classroom. P.L. 94–142 (Osborne & Dimattia, 1994) requires all children be educated in the LRE, therefore many students are mainstreamed into the regular classroom for a significant part of their school day. While some students with special needs participate in the resource room program, regular students may be aware that some students leave the room for special help in elementary school or receive instruction in a small class setting during middle and high school. Regular students may also be aware that some students receive modifications on classroom assignments. The extent to which students are aware of the resource room and its perceived role in the school has not been systematically investigated. Special needs students’ knowledge and understanding of the resource room may influence their self-perception and their attitude toward involvement in the class content (Donaldson and Halsey, 2007). An increasing number of parents, professionals, and policymakers have raised concerns about the appropriateness of educating SWD in settings that are separate from the general education classroom (Fuchs & Fuchs, 1994). The resource classroom is a service delivery option for many SWD.
SWD, like all students, deserve to have teachers who are trained to deal with their specific disabilities and teachers who are trained in implementing strategies that will address individual learning needs. The resource room typically consists of a highly-qualified special education teacher, a paraprofessional to assist SWD, and ten or fewer students. Donaldson and Halsey (2007) found from their research that most struggling students have negative views about remedial reading and have feelings that their reading will not improve.

Bonfiglio, Daly, Persampieri, and Andersen (2006) completed an experimental analysis of the effects of reading interventions in a small group reading instruction context. Their study examined the effects of several combinations of instructional and motivational interventions on oral reading fluency in the context of small group reading instruction. The results of their research were discussed in terms of effective instructional components in small group instruction for reading.

In a study conducted by Vaughn, Moody, and Schumm (1998) the researchers examined reading instruction and grouping practices provided for students with learning disabilities by special education teachers in the resource room. Results indicated that teachers primarily provided whole group reading instruction to relatively large groups of students and little differentiated instruction or material were provided despite the wide range of reading abilities of the students. Will (1986) stated that the “pull-out” model of teaching students with learning problems has failed in many instances to meet the education needs of struggling readers and has actually, unknowingly, been a barrier to the student’s success. Klinger and Vaughn (1999) found that some parents of students with
LD have concerns that their children frequently experience academic difficulties and need instructional accommodations that set them apart from their classmates. In the resource model teachers are able to provide students with instruction that allows them to drill the students on particular skills that students may have difficulties completing in the regular education classroom (Kluth, 2003).

In reviewing the literature, there are mixed findings about the benefits of the resource room setting. There is some evidence that typical public school intervention for children with reading disabilities can most accurately be characterized as not improving students’ reading skills. McKinney (1990) found that resource room placements for children with reading disabilities produced no gains in word-level reading skills relative to nondisabled readers during a 3-year period in elementary school. The children actually experienced a decline on a comprehension assessment. There are a number of reviews and meta-analyses that consistently report little or no benefit for students when they are placed in special education settings (Madden & Slavin, 1983). Conley, Ghavami, Von Ohlen, and Foulkes (2007) examined the self-esteem of students who were emotionally disturbed, students who were learning disabled, and students who were in regular education classrooms. They found that students who were emotionally disturbed or learning disabled and received instruction in a resource class had lower self-esteem than did students in regular education classes. Students who are grouped homogeneously in a low-ability group may suffer from social stigmatization, low motivation, and lowered student expectations for academic success (Barr & Dreeban, 1991).

Co-teaching. Co-teaching is a service delivery option. It is a model through
which students with IEPs receive some or all of their specialized instruction and related services within the general education classroom. In the co-teaching or inclusion classroom, students can be integrated into a traditional classroom setting while having access to a special education teacher or a paraprofessional for extra support, individualized help, and modifications. The regular middle school classroom with a co-teacher can have up to 28 students with two certified teachers. In the co-teaching setting, the special education teacher collaborates with the regular education teacher to provide an educationally challenging curriculum for all of the students in the class. Co-teaching has been used synonymously with inclusion, collaboration, teaming, team teaching, even though each of those terms is unique.

According to recent trends in special education, co-teaching between special education teachers and general education teachers is beneficial for SWD in gaining access to the general education curriculum (Rea, McLaughlin, & Walther-Thomas, 2002; Scruggs, Mastropieri, & McDuffie, 2007).

Rea et al. (2002) conducted a quasi-experimental study comparing inclusive and noninclusive settings for students with specific learning disabilites in two middle schools focusing on their academic performance, attendance, and behavior. Academic performance was measured using the Iowa Test of Basic of Skills (ITBS) standard scores in the subtests of reading, math, science, and social studies and the Literacy Passport Test (LPT). The LPT was the state proficiency test that contained subtests of reading, language arts, and math. Their study revealed no significant difference between the two groups in all subtests on the LPT. In contrast, the statistical data on the student
performance on the ITBS subtests found “students with LD receiving inclusive special education services achieved higher standard scores on the language and mathematics subtests than students with LD receiving pullout special education services” (p. 216).

According to Wiener and Tardif (2004), children in more inclusive placements had more positive social and emotional functioning. Children receiving in-class support were more accepted by peers, had higher self-perceptions of mathematic competence, and fewer problem behaviors than children receiving resource room support. They also reported that children in inclusion classes had more satisfying relationships with their best school friends, were less lonely, and had fewer problem behaviors than children in self-contained special education classes.

Burstein, Sears, Wilcoxen, Cabello, and Spagna (2004) suggested that “inclusive practices were viewed as not only benefiting SWD but contributing to a caring and supportive school environment for all students and faculty” (p. 105).

Cole (2006) reported there are educational, social, and economic benefits for including SWD in the general education curriculum. Cole also reported educational benefits for both SWD and students without disabilities in the area of improved academic achievement.

Vaughn and Klinger (1998) found that students liked the inclusion classroom because they thought it was better for making friends and they valued the support provided by the special education teachers in the general education classroom. They also found that most SWD were unsure how they were placed in their classes. According to Little and Dieker (2009), co-teaching enables schools to meet mandates for
accountability, teacher quality, and equal access for SWD. Affleck, Madge, Adams, and
Lowenbraun (1988) demonstrated that the integrated classroom for students with special
needs was more cost-effective than the resource program, even though achievement in
reading, math, and language remained basically the same in the two service delivery
models.

Mainstream classrooms have been strongly recommended for years as the
preferred placement for many exceptional children (Edgar & Hayden, 1982). P.L. 94–
142 (Osborne and Dimattia, 1994) requires school districts to provide a continuum of
alternative placement so that, to the maximum extent appropriate, children receiving
special education can interact with their non-special education peers. Madge, Affleck,
and Lowenbraun (2001) found that students who have learning disabilities are less
accepted by their regular education peers than are non-special education students. They
also found that special education students also select each other as preferred peers more
than would be expected.

Spencer (2005) found that co-teaching requires some big paradigm shifts for
everyone concerned, but it can be said that the special educator's role has changed more
than the general educator's role. He suggests that the general educator is still expected to
be in the classroom and carry the curriculum, but the special educator in a true co-
teaching model does not have a separate classroom anymore. Magiera and Zigmond
(2005) found that general education teachers spent significantly less time with SWD
when the special education teacher was present. In addition, SWD received significantly
more individual instruction when the special education teacher was present. However,
these differences were of limited practical significance.

Summary

Most of the studies of co-teaching classes and resource classes have focused on the perceptions of teachers and students. These studies generally found that students had a positive response to co-teaching. The missing piece in the comparison of the co-teaching and resource room was the academic outcomes for students. Local school districts are using their own measures to demonstrate that students’ achievement and behavior improves in co-taught classes, but more formal research that directly addresses these key issues was sorely needed. Reith and Polsgrove (1998) stated that, “it is not enough to merely place SWD in general class settings without providing appropriate training, materials, and support to them and their teachers. To do so surely invites their failure” (p. 257). Participation in the regular curriculum (a) provides students with exposure to higher order thinking skills such as problem solving, (b) enables them to develop collaborative skills, and (c) engenders a sense of responsibility and self-esteem (Rosenberg, Sindelar, & Hardman, 2004).

This literature review has given an in-depth examination of reading theories, reading development, the history of special education legislation, RTI, and the educational placement of SWD in order to create a picture for the need for research in the area of special education achievement.
CHAPTER THREE: METHODOLOGY

Overview of the Study

Co-teaching class is often suggested as a service delivery model for SWD who receive special education services for reading instruction. In the co-teaching setting, a general and special education teacher share responsibility for teaching a heterogeneous group of students in a general education classroom. Resource class is another often suggested service delivery model for SWD who receive special education services in reading. In the resource class, a special education teacher is responsible for educating a class of students with special needs in a small group setting. The academic achievement of SWD in reading from these two settings was compared during this study. Reading is a critical skill that students need to master. If students are struggling with reading skills at the middle school level, they need to receive instruction in the class setting that would be the most beneficial for them. The purpose of this study was to make a close examination of the achievement of SWD who were in either the co-teaching setting or the resource setting for reading instruction. Initially, the MANCOVA was considered a potential analysis method, but it was found to be an inappropriate method, which will be further discussed in chapter 4. This study ultimately used the ANCOVA procedures to compare the achievement of students from both settings.

NCLB (2001) directs schools to be accountable for meeting academic achievement standards in reading and math for grades 3–8. The purpose of this research was to determine whether middle school SWD benefitted more from reading resource or reading
co-teaching classes. Chapter 3 will include a description of the study, the research
design, description of the research participants, description of data gathering methods,
instrumentation, sampling procedures, and data analysis procedures.

**Research Questions**

In examining CRCT scores and Lexile levels from the CRCT from the spring of
2008 and the spring of 2009, the current study attempted to answer the following
questions:

Research Question #1: Do differences in reading achievement measured by the
reading portion of the CRCT for SWD between co-teaching and resource classes depend
on grade level in grades 6, 7, and 8?

Research Question #2: Is there an average difference in reading achievement
measured by the reading portion of the CRCT for SWD between co-teaching and
resource room classes across grade levels 6, 7, and 8?

Research Question #3: Is there an average difference in reading achievement
measured by the reading portion of the CRCT for SWD across learning environments in
grades 6, 7, and 8?

Research Question #4: Is there an average difference in reading achievement
measured by the reading portion of the CRCT for SWD who participated in a co-teaching
class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Research Question #5: Do differences in reading achievement measured by Lexile
scores of SWD between co-teaching and resource classes depend on grade level in grades
Research Question #6: Is there an average difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Research Question #7: Is there an average difference in reading achievement measured by Lexile scores of SWD among grade levels between the co-teaching and resource setting in grades 6, 7, and 8?

Research Question #8: Is there an average difference in reading achievement measured by Lexile scores of SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

The Research Context

Demographic information was available for the 2008–2009 school year and was included in this report. The study took place in a public school district in north Georgia that contained approximately 6800 students during the 2008–2009 school year. Grindstone School District (GSD) consisted of eight elementary schools, two middle schools, one ninth-grade academy, and one high school. The sixth grades were not located on the same campus as the seventh and eighth grades, but were considered part of the middle schools for funding reporting purposes. The GSD population of students in the school district consisted of 3% Asian, 2% black, 20% Hispanic, 4% multiracial, and 71% Caucasian. In the population of students in the district, 51% were eligible for free or reduced meals, 14% had disabilities, 8% were Limited English Proficient, and 1% were in the Migrant program. In 2009, GSD had 340 high school graduates. All of the schools
in the district were accredited by the Southern Association of Colleges and Schools (Governor’s Office of Student Achievement, n.d.). The school district was located in a small rural county of approximately 43,000 people (U.S. Census Bureau, 2009). Sixth through eighth grade SWD who received special education support for reading and took the CRCT in the spring of 2009 were involved in the study. Two middle schools were included in the study including grades six, seven, and eight. One middle school, South Grindstone Middle School (SGMS), did not meet AYP for spring 2008 CRCT testing. SGMS did meet AYP during spring 2009 CRCT testing. As a part of NCLB requirements, AYP is an accountability measure the state of Georgia uses for every public school and school system to use as a measure for meeting the standards. Meeting AYP indicates that the school is meeting academic achievement as measured by statewide assessments (The Governor’s Office of Student Achievement, n.d.). School demographics for the 2008-2009 school year for each middle school are listed below.

North Grindstone Middle School (NGMS) had a population of 763 students. The NGMS population of students consisted of 2% Asian, 1% Black, 7% Hispanic, 3% Multiracial, and 87% Caucasian. In the population of students in the school, 43% were eligible for free-reduced meals, 17% had disabilities, 0.1% were Limited English Proficient, and 0% were in the Migrant program. NGMS had 17% of the students in the special education program.

SGMS had a population of 768 students. The SGMS population of students consisted of 5% Asian, 3% Black, 33% Hispanic, 4% Multiracial, and 55% Caucasian. In the population of students in the school, 59% were eligible for free-reduced meals,
19% had disabilities, 8% were Limited English Proficient, and 1% were in the Migrant program. SGMS had 19% of the students in the special education program.

The SWD population was assessed using the CRCT at the end of each school year. The Lexile level was determined from the CRCT. Student CRCT and Lexile levels were analyzed to measure achievement for these students. The groups of students were referred to in this research according to the class in which they received instruction during the study. There were two groups in the study: the co-teaching group and the resource group. Co-teaching is two or more professionals that co-plan, co-instruct, and co-assess a diverse group of students in the regular education setting. Resource classes usually have a smaller number of students than co-teaching classes and have only one certified teacher. Both resource classes and co-teaching classes in this study provided instruction based on the Georgia Performance Standards. The Georgia Performance Standards are the content that the state mandates to be taught and is the content that is assessed on the CRCT (Georgia Department of Education, n.d.).

Descriptions of the two settings were generated to document similarities and differences between the two programs. Existing service delivery models were verified through teacher planning documents, students’ IEP (Individualized Education Plans), and teacher and student schedules. This review of data revealed and validated various program variables, such as type and intensity of special education services, skills areas addressed, number of SWD in the general education classroom, number of students in the resource classes, and teacher and paraprofessional staffing patterns. Special education teachers who taught the students and the middle school special education
coordinators reviewed the setting descriptions and summaries to substantiate their accuracy.

Eighteen special education teachers served the SWD in this study. All but one teacher had taken two or more teacher preparations courses in reading. Four teachers held specialist’s degrees, eight held master’s degrees, and six held bachelor’s degrees. Years of experience teaching varied from three to 27. All teachers were highly qualified in special education reading content. Sixteen of the teachers were female and two were male.

Teachers were involved in curriculum planning and team planning. The county mandated grade level curriculum planning meetings each nine weeks so that the teachers from both schools could meet and plan for instruction. All 18 special education teachers were included in the curriculum planning meetings. During these meetings, teachers discussed curriculum concerns, classroom management, instructional strategies, and student progress. Also, during these meetings the curriculum map for the content area of reading was reviewed as needed. Common assessments, benchmark assessments, and units of instruction were created. Teachers from both schools and from both settings were required to teach the grade level Georgia Performance Standards for reading and follow the grade level curriculum maps. Other less formal contact took place while passing in the halls or during lunch breaks. During individual planning time, co-teachers met frequently to plan academic content, presentation format, practice activities, and evaluation procedures. Special education teachers also met to coordinate their work, collaborate on challenging cases and issues, exchange information, and share successes.
Co-teaching in the general education classrooms took a variety of forms. Sometimes teachers took turns presenting the content. One teacher instructed while the other circulated to observe and monitor student progress. One teacher may have used remediation material with students who did not master the skills or concepts initially and required additional instruction. Sometimes teachers divided the class into two groups and taught the lesson parallel, or taught the lesson and then swapped groups. These approaches allowed for small group instruction within the general education classroom.

Instructional methods used in the resource class were very similar. Resource classes consisted of one special education teacher who worked with a small group of identified students to remediate academic weaknesses in reading. Classes that had more than seven students also had a paraprofessional. None of the resource classes had more than ten students. Instructional models included small group opportunities, lecture, monitoring completion of work, cooperative learning groups, independent study, and differentiated assignments based on ability level. Both settings used a variety of instructional teaching strategies.

**Research Participants**

This research study began in the fall of 2008 with participants entering sixth, seventh, and eighth grade in the Grindstone School District. The participants were students who received special education services in reading for the entire 2008–2009 school year. The student participants were included in the state mandated CRCT assessments. Students were placed in co-teaching or resource classes upon the recommendation of their teachers and the IEP committees from the previous year. The
number of students in each group varied only slightly; there were 80 co-teaching students and 77 resource students receiving support for reading at the middle school level in the GSD.

There were many disabilities covered under the umbrella of SWD. Special education encompassed learning disabilities, mental retardation, autism, emotional or behavioral problems, physical disabilities, blindness, deafness, developmental delays, speech deficits, and other health impairments. Participants in the research met eligibility requirements for at least one of these categories in order to be eligible for special education services.

**Instruments Used in Data Collection**

**Criterion-referenced competency test (CRCT).** The CRCT assessment was mandated by the Georgia Department of Education for grades 1–8 in 2008 and 2009. The CRCT is a criterion-referenced test comprising the areas of reading, English/language arts, math, science, and social studies. Students take the test each year in the spring. The reading portion of the CRCT has been linked to the Lexile scale, a national reading measure allowing students, parents, and teachers to choose books on appropriate reading levels (Georgia Department of Education, 2008a).

There are several objectives of the CRCT. The CRCT is used to provide a valid measure of the educational services provided by educators in Georgia (Georgia Department of Education Testing Division, 2006). The CRCT is also used to determine if students have acquired the knowledge and skills that are part of the state standards. The scores of the CRCT offer information about the students, classes, schools, school
systems, and the state. The test results are used as an accountability tool when
determining if a school makes AYP as required by NCLB (2001). The results from the
CRCT can also be utilized to determine students’ strengths and weaknesses (Georgia
Department of Education, 2008a).

The CRCT is aligned to the GPS. Student achievement is measured by how well
students attain the information and skills at their grade level. Students are not evaluated
against other students but are assessed on their ability to meet the standards set by the
state. These academic standards are for every student enrolled in a public school in
Georgia. Students may receive a score of (a) does not meet expectations, (b) meets
expectations, or (c) exceeds expectations based on their performance level. Third, fifth,
and eighth grade students must score at the meets expectations level or higher on the
reading portion of the CRCT to be promoted to the next grade. The scores that do not
meet the standard are below 800; ones that meet the standard are between 800 and 849;
one that exceed the standard are at least 850 and above (Georgia Department of
Education, 2008a). All students in the state of Georgia public school grades 1-8 are
assessed with the CRCT except for students with modifications in an IEP for alternative
assessment. Students involved in alternative testing were not included in this study.
Only students who participated in CRCT testing were included in this study. SWD were
tested following modifications in their IEPs.

Administration of the CRCT must follow certain guidelines. The Georgia
Department of Education requires that the CRCT test materials be kept in locked storage
except during the administration. The CRCT must be administered by a certified teacher
and is a secure instrument that must be signed out and returned to a secure location daily (Georgia Department of Education, 2008b).

The CRCT for each school year is given during the spring testing window established by the state. All schools involved in the study took the reading portion on the same day. About one month after the test materials were returned to the testing contractor, the school received a report of students who did not meet the standard in reading and math. Approximately two weeks later, the school district received individual student reports (Georgia Department of Education Assessment and Accountability Division, 2008).

Students were tested on a different content area each day. The CRCT administration guide required that the reading portion be given on the first day. Each content area had two sections. Students were provided with a minimum of 45 minutes to complete each section of the test, with 70 minutes as the maximum time allowed. Many of the students in this study may have had additional time to complete the test if needed as an accommodation of their IEP, which is still considered a standard administration.

CRCT scores are reported in terms of raw scores, scaled scores, and performance levels. Components of the test assessing the Georgia Performance Standards have a range of 650-900. Riverside Publishing (Georgia Department of Education, 2006), the test publisher, has data to support the reliability and validity of the test as used for a measure of student achievement. Field testing is used to determine whether items on the CRCT are valid and reliable measures of what students know and can do. Questions are also evaluated for bias and fairness (Georgia Department of Education, 2007). Only after
items have been field tested and approved by Georgia educators do they appear on an operational test form.

Reliability refers to the consistency and dependability of the data. A reliable measure, if repeated a second time, will give the same results as the first time. Cronbach’s alpha was used to measure the CRCT’s reliability. Cronbach’s alpha measures the internal consistency over the responses to a set of items measuring an undimensional trait (Burns and Grove, 2005). As a first index of instrument of reliability for the Georgia CRCT, Cronbach’s alpha coefficient measured the internal consistency of reliability, which indicated how well all of the items in the assessment measured one single underlying ability. The reliability coefficient expressed the consistency of test scores as the ratio of true scores variance to observed test score variance. The alpha value represented the estimated average correlation between the possible split combinations of the test. Table 1 includes the alpha coefficients for grades six, seven, and eight in the 2009 Reading CRCT. The second statistical index utilized to describe the test score reliability for the CRCT involves the standard error measurement (SEM). The SEM is an index of the random variability in test scores in raw units (The Georgia Department of Education, 2008b). The Georgia Department of Education reports that the CRCT is both reliable and valid (Georgia Department of Education Assessment and Accountability Division, 2008).
Table 1

Reliability Coefficients (Cronbach’s Alpha) for Reading by Grade Level

<table>
<thead>
<tr>
<th>Grade</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0.88</td>
</tr>
<tr>
<td>7</td>
<td>0.86</td>
</tr>
<tr>
<td>8</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Reading is reported for purposes of AYP determination as a combination of the reading and English/language arts scores (Georgia Department of Education Assessment and Accountability Division, 2008). Math and reading are the critical content areas since these areas are used for student and school achievement decisions. Reading performance was considered in this study.

Performance level descriptors are used to help determine if students are meeting the standard set by the state. The performance level descriptors for sixth grade reading standards follow. Students who receive the “does not meet the standard” have trouble in the application of their reading skills. They may find it difficult to locate and use information from the text to respond to questions. They are limited in their reading strategies and vocabulary skills. Students who receive “meets the standard” can generally apply reading skills appropriately. They typically understand much of what they read and at times can go beyond the literal meaning of text. They apply some effective reading strategies and vocabulary skills while reading. Students can interpret most literal and some non-literal meanings of words and phrases. Students who received the “exceeds” standard are consistent in the application of their reading skills. They typically have a clear understanding of what they read and can go beyond the literal
meaning of text. They read critically by examining, interpreting, and evaluating text information. These students apply a variety of effective reading strategies and vocabulary skills (Georgia Department of Education, 2008b).

The performance level descriptors for seventh grade reading follow. Students who received the “does not meet” standard have a limited understanding of what they read. They tend to focus on the literal or basic meaning of a passage. Students at this level need additional assistance and practice with reading a variety of materials, both fiction and nonfiction. Students who earned the “meets” standard understand what they read. Most are able to think beyond the literal meaning of what they read. They locate, recall, and use information from reading to correctly answer questions. Students who received the “exceeds” standard have a clear understanding of what they read and are able to think beyond the literal meaning of the material. They are able to examine, interpret, and understand the meaning behind what is stated in writing (Georgia Department of Education, 2008b).

The performance level descriptors for eighth grade reading standards follow. Students who received the “does not meet” standard are inconsistent in the application of their reading skills. They read for a general understanding of text. Students primarily interpret literal meanings of words and phrases. Students who received the “meets” standard generally apply reading skills appropriately. They typically understand much of what they read and at times can go beyond the literal meaning of text. They attempt to read critically by analyzing the text. Students can interpret literal and non-literal meanings of most words and phrases. Students who received the “exceeds” standard
have a clear understanding of what they read and can go beyond the literal meaning of text. They read critically by interpreting, analyzing, and evaluating the text. They apply a variety of effective reading strategies and vocabulary skills (Georgia Department of Education, 2008b).

**Lexile framework.** Lexile, also known as the Lexile score or Lexile measure, is a standard score that matches a student’s reading ability with difficulty of text material. The Lexile level of a student is an educational tool that links text and readers under a common metric. Lexiles allow educators to forecast the level of comprehension a reader is expected to experience with a particular text. A Lexile is a standard score developed by MetaMetrics (2007) that matches a student’s reading ability with difficulty of text material. The Lexile range for a student may be used to select instructional support materials on the student's level in order to make the content more accessible. As part of the data analysis process, schools may use Lexiles to set goals, measure the effectiveness of instruction, and measure individual and group growth over time (Georgia Department of Education, 2009d).

The Lexile Framework for Reading provides a common developmental scale for matching reader ability and text difficulty. Lexile scale measures are easily compared since differences in Lexile measures have the same meaning from one test to another and as such represent equal differences in ability, unlike other types of measures (e.g., raw scores or percentiles) (MetaMetrics, Inc., 2007).

The ability to understand text relies on the purpose for reading, the reader’s ability, and the text being read. Students read for entertainment, to acquire information,
and to complete a task. Reading is affected by students’ prior knowledge, reading ability, interest level, and developmental appropriateness. The readability of text is linked to text difficulty, support provided, and quality. The Lexile Framework concentrates on reader ability and text difficulty (MetaMetrics, Inc., 2007).

Lexile measures were the most commonly used measure for reading level at the time of the study. Lexile measures are centered around semantic difficulty, or word frequency, and syntactic complexity, or sentence length. Decades of research revealed these two features were good indicators of text difficulty. The relationship of these two features is important in developing a single Lexile measure for each text. The Lexile Framework combines the measurements of word frequency and sentence length into an algebraic equation. The equation, otherwise known as the Lexile equation, indicates the semantic and syntactic complexity of the passage. The equation can be applied to reading comprehension test items so texts and reading test scores can be reported in Lexiles (Lennon & Burdick, 2004). A Lexile can be interpreted as the level of book that a student can read with 75% comprehension. Experts have identified 75% comprehension level as offering the reader a certain amount of comfort and yet still offering a challenge. Lexile scores range between approximately beginning reader (BR) and 1700 (Lexile framework for reading, n.d.). Lexile levels are a tool for targeting instruction and improving achievement across grade levels and content areas.

In order to assess students in their mastery of content areas the Lexile level can be very helpful. The Lexile score can be used to link students to instructional resources that correspond to their reading abilities. These links expose students to the state standards,
but they are able to read and comprehend the material because it is at each student’s readability level. The scale on the Lexile Framework never changes (MetaMetrics, Inc., n.d.). The Lexile framework is currently being used in the majority of the states. This is helpful because student achievement is being measured by a consistent measurement system. Even if students take a different assessment or move to another school or district, the Lexile remains the same (MetaMetrics, Inc., n.d.).

The Lexile Analyzer is the software program that is used to assess the Lexile level of the student. The Lexile Analyzer calculates the readability of books and test items. The Lexile Analyzer determines word frequency and sentence length from entire text. The Lexile Analyzer takes out portions of the text during the calibration process and compares these slices to the nearly 600 million word Lexile body. After analyzing each portion of the text, all the portions are averaged to determine the Lexile measure of the text (Lennon & Burdick, 2004).

Validity refers to the degree that an instrument measures what it states to measure (Ary, Jacobs, Razavieh, & Sorenson, 2006). Construct validity is the most significant piece of validity since the Lexile Framework evaluates a skill. Lexile measures are compared to other measures of reading comprehension and text difficulty in order to assess the construct validity of the Lexile Framework. The Lexile Framework for Reading has been connected to the CRCT. For the 16,363 students in first through sixth grades the correlation between the CRCT and Lexile Measure was 0.72 to 0.88 (MetaMetrics, Inc., 2007).
Procedures

In order to complete the research study, a specific course of action was followed. Permission was obtained from the superintendent of the school system and the director of special education of the school system to complete the research study. Next, the Institutional Review Board of Liberty University approved the study.

Then, a request was submitted to the school district’s technology department for a de-identified list of students that were served in the resource class or the co-teaching class while in the sixth, seventh or eighth grade during the 2008-2009 school year. This list of students was sent directly to Pioneer RESA (Regional Educational Service Agency), the agency that maintains the county’s test data storage system. The researcher then sent a request to Pioneer RESA’s data analysis department for the purpose of collecting descriptive data and student achievement data, while maintaining confidentiality of student records. Pioneer RESA then provided the researcher with a report that contained all of the reading CRCT data, Lexile levels, performance levels, and demographic data for the middle school participants. The report included unique arbitrary numbers for each student in order to maintain confidentiality of participants.

Data was then analyzed by the researcher to determine if SWD had higher achievement scores and reading levels after one year in the co-teaching class or if they had higher achievement scores and reading levels after one year in the resource setting. Students who withdrew during the year, entered in mid-year, or did not receive special education support for reading were removed from the study.
Design of the Study

The design for this study was a causal comparative design. This type of study describes the differences in variables that occur naturally between two or more cases, subjects, or units of study. Quantitative research studies are research problems that require a description of trends or an explanation of the relationship between variables (Creswell, 2003). For this investigation of the relationship between the co-teaching setting and the resource setting, the comparative quantitative application represented the most appropriate research framework.

In applying the quantitative comparison design, measureable data was collected to determine the relationship between the independent variable, the setting for delivery of instruction; and the dependent variable, student achievement. This study employed numerical data used to identify the relationship between variables of setting and student achievement. In this approach, the researcher lacked researcher control of the variables. The research was gathered from a search of archival records. Procedures for confidentiality were implemented and utilized throughout the data collection process. The study took place in pre-existing educational settings. CRCT reading scores were examined for the 2007–2008 and the 2008–2009 school year to measure growth and to compare achievement. Lexile levels are for the 2007–2008 and the 2008–2009 school year and were used to compare achievement of students in both groups. The CRCT was given in the spring of 2008 and again in the spring of 2009. The scores that were examined were the scores of all of the SWD in grades sixth through eighth in the GSD who received special education support in reading. The scores were then statistically
analyzed to establish if SWD make greater gains in a co-teaching classroom for reading or in a resource classroom for reading at the middle school level. For the purposes of this study, data was collected for students in grades six through eight at two middle schools.

**Data Analysis Procedures**

The two reading portions of the CRCT yield a total reading scale score and a Lexile level. Most SWD are assessed using this test as well as all regular education students. The data for the study was provided electronically from the technology department of the school system and Pioneer RESA. The participants of the study were sixth, seventh or eighth grade SWD who received special education services in the co-teaching or resource class for reading instruction over a one-year period. Participants were not randomly assigned and were students of the Grindstone School District. The student achievement data were summarized using descriptive statistics such as means and standard deviations. Only students who had two years of consecutive achievement data were included in the analyses. Descriptive statistics were provided for all students in the study.

Initially, the MANCOVA (multivariate analysis of covariance) was considered a potential analysis method. Preliminary analyses demonstrated that the model assumptions for the multivariate model were not tenable. The MANCOVA approach was not deemed to be appropriate for the current analysis. This is further discussed in chapter 4.

Next, the ANCOVA (analysis of covariance) was completed on the total data for grades 6, 7, and 8 in order to adjust for differences in the quantitative variable.
ANCOVA is a merger of ANOVA (analysis of variance) and regression for continuous variables. ANCOVA tests whether certain factors have an effect on the outcome variable after removing the variance for which quantitative predictors (covariates) account. The inclusion of covariates can increase statistical power because it accounts for some of the variability.

After the ANCOVA was completed on the combined data for grades 6, 7, and 8, the data was then tested by grade level. The ANCOVA was performed on data for each grade level independently in order to determine if there was a statistically significant difference in the achievement by grade level. The ANCOVA was also completed for main effects for environment by grade level and an analysis of simple effects contrasting the co-teaching and resource room environments was performed.

The ANCOVA was based on several statistical assumptions. The first assumption was that the dependent variable was scaled and that it was relatively normally distributed. However, slight deviations from normality are not considered serious violations. A third statistical assumption was that the groups being compared had equal variances. Finally, the most critical assumption was homogeneity of regression slopes. In other words, the assumption was that the correlation between the covariate (first set of scores) and the dependent variable (second set of scores) was the same for both groups (Mertler & Vannatta, 2005). Statistical significance was determined based on an alpha of ≤ .05.

The use of the ANCOVA methodology minimized initial group inequality through the use of the previous achievement data. To test the hypotheses, the mean achievement scores from the CRCT for each group for each year were compared to the previous year’s
scores to measure gains or losses in previous achievement scores between the groups. Also, Lexile levels from the spring of 2009 from each group were compared to the previous year to measure gains or losses. The goal of this study was to determine if there was a statistically significant difference in the achievement scores of SWD taught in the co-teaching class as compared to SWD taught in the resource class. In the context of this study, the ANCOVA was performed using the Spring 2008 test scores as baseline data or covariates and the Spring 2009 scores as dependent or criterion variables. The independent variable was the setting. The dependent variable was student achievement. The mean ANCOVA adjusted Lexile level score was also determined for each group in order to determine if there was a significant difference in the growth of reading levels of either group. When using ANCOVA tests, the researcher attempted to answer four basic assumptions: (a) normal distribution of the dependent variable, (b) independence of subjects, (c) equal variances of groups, and (d) equal regression slopes. Through the use of the ANCOVA method, specifically including the previous year’s achievement scores for CRCT and Lexile, each student served as his own control. Therefore, the effects of potential confounding variables on student achievement such as economically disadvantaged, gender, disability, and ethnicity were minimized.

**Ethical Considerations**

Data utilized in this study were retrieved through preexisting documentation from Georgia Department of Education CRCT results. The researcher abided by all federal, state, and local rules of confidentiality and procedures guidelines related to working with SWD and ethics for educational research. An application for research approval was
submitted to Liberty University’s Institutional Review Board to ensure that this study was in compliance with institutional regulations and with professional standards of conduct and practice as described by the Code of Federal Regulations for the Protection of Human Subjects. The researcher’s application to the Institutional Review Board received approval.

Summary

In conclusion, this chapter detailed the methodology and design, research procedures, instruments used in the study, null hypotheses, and description of the data collection and analysis procedures, including reliability and validity of the data instrument, the Georgia CRCT. This chapter detailed the ethical considerations involved with this study and a discussion of the Institutional Review Board compliance. For the remainder of the study, Chapter 4 details the findings of the study while Chapter 5 discusses the results, implications, and recommendations for further investigation.
CHAPTER FOUR: RESULTS

The purpose of the study was to determine if SWD at the middle school level had greater gains in achievement for reading in resource classes or in the co-teaching classes as measured by the CRCT and student Lexile levels. The study examined archival data to determine if either of the settings outperformed the other setting in increasing learning outcomes. The researcher used descriptive and statistical methods to analyze data to determine the extent to which the two instructional service delivery models affected learning outcomes of SWD. Participants were 157 sixth, seventh, and eighth graders who had been administered the CRCT for two consecutive years in the middle schools in Grindstone School District.

This causal comparative study compared two groups of students: the students who received reading instruction in the co-teaching setting and the students who were taught reading in the resource setting. The independent variable for the study was the environment where the student was instructed in reading, and the dependent variables were the students’ achievement scores on the CRCT and their Lexile levels. This study sought to answer the following question:

Do middle school SWD who exhibit reading deficits and receive instruction in a resource class show similar gains in reading achievement to students in the co-teaching class?

The remainder of this chapter presents demographics, data analysis procedures, results for each research question, and a summary of the results.

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Demographics

Descriptive statistics for grade level, gender, ethnicity, economically disadvantaged, special education disability, and schools were computed for each environment. As Table 2 demonstrates, 157 students were involved in the study. This table demonstrates that the number of students in the co-teaching and resource settings for this study were almost equivalent. There were 80 co-teaching students and 77 resource students.

Table 2

*Frequency Table of Environment by Grade Level*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Co-teaching</th>
<th>Resource</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>6th grade</td>
<td>21</td>
<td>26.25</td>
<td>37</td>
</tr>
<tr>
<td>7th grade</td>
<td>22</td>
<td>27.50</td>
<td>24</td>
</tr>
<tr>
<td>8th grade</td>
<td>37</td>
<td>46.25</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.00</td>
<td>77</td>
</tr>
</tbody>
</table>

Table 3 contains a description of the participants in terms of gender. The groups in the study were not initially equivalent because of differences in gender.

Table 3

*Frequency Table of Environment by Gender*

<table>
<thead>
<tr>
<th></th>
<th>Co-teaching</th>
<th>Resource</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Female</td>
<td>31</td>
<td>38.75</td>
<td>11</td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
<td>61.25</td>
<td>66</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.00</td>
<td>77</td>
</tr>
</tbody>
</table>
Table 4 contains a description of the participants by ethnicity. This table demonstrates that there were very low numbers of students in some sub-groups. There were low to null sample sizes of certain populations. This limits the statistical analyses that could be performed using ethnicity as an explanatory variable. Results indicated that during the 2008–2009 school year in the Grindstone School District middle schools that a large majority of the students were Caucasian students in both the co-teaching (79%) and resource settings (64%).

Table 4

*Frequency Table of Environment by Ethnicity*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Co-teaching</th>
<th></th>
<th>Resource</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Asian</td>
<td>2</td>
<td>2.50</td>
<td>1</td>
<td>1.30</td>
<td>3</td>
<td>1.91</td>
</tr>
<tr>
<td>Black</td>
<td>1</td>
<td>1.25</td>
<td>2</td>
<td>2.60</td>
<td>3</td>
<td>1.91</td>
</tr>
<tr>
<td>Hispanic</td>
<td>14</td>
<td>17.50</td>
<td>23</td>
<td>29.87</td>
<td>37</td>
<td>23.57</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>0</td>
<td>0.00</td>
<td>2</td>
<td>2.60</td>
<td>2</td>
<td>1.27</td>
</tr>
<tr>
<td>Caucasian</td>
<td>63</td>
<td>78.75</td>
<td>49</td>
<td>63.64</td>
<td>112</td>
<td>71.34</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.00</td>
<td>77</td>
<td>100.00</td>
<td>157</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 5 demonstrates that almost 71% of the students in the special education program for reading at the middle school level met the criteria for economically disadvantaged. Economically disadvantaged is defined (U.S. Dept of Education, 2010) as students in schools determined to be eligible to participate in the Free Lunch Program under the National School Lunch Act. In the resource reading setting, 80% of the students were economically disadvantaged; 62% of the students in the co-teaching reading setting were economically disadvantaged. A larger percentage of the students in
the resource group were economically disadvantaged which does indicate that there was a disparity between groups in economic standing.

Table 5

*Frequency Table of Environment by Economically Disadvantaged*

<table>
<thead>
<tr>
<th></th>
<th>Co-teaching</th>
<th>Resource</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Economically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disadvantaged</td>
<td>48</td>
<td>61.54</td>
<td>61</td>
</tr>
<tr>
<td>Not Economically</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disadvantaged</td>
<td>30</td>
<td>38.46</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100.00</td>
<td>76</td>
</tr>
</tbody>
</table>

*Note.* Economic information was not disclosed for three students.

Table 6 provides the breakdown of students by their disability and the setting in which they were served. Subgroups indicated a low or null percentage of students in some disability categories. However, there was a similar percentage of learning disabled students in both groups which makes up the majority of students included in the study.
Table 6

*Frequency of Environment by Disability*

<table>
<thead>
<tr>
<th></th>
<th>Co-teaching</th>
<th>Resource</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Autism</td>
<td>5</td>
<td>6.25</td>
<td>1</td>
</tr>
<tr>
<td>EBD</td>
<td>6</td>
<td>7.50</td>
<td>9</td>
</tr>
<tr>
<td>LD</td>
<td>50</td>
<td>62.50</td>
<td>50</td>
</tr>
<tr>
<td>MID</td>
<td>1</td>
<td>1.25</td>
<td>4</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>0</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>OHI</td>
<td>18</td>
<td>22.50</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.00</td>
<td>74</td>
</tr>
</tbody>
</table>

*Note.* Type of disability was not disclosed for three students.

Table 7 provides the breakdown of students by environment in the two middle schools. The table demonstrates a larger number of students receiving special education services for reading at SGMS than at NGMS. SGMS had 61% of the total co-teaching students involved in the study. SGMS had 62% of the total resource students involved in the study. There were 97 students at SGMS receiving reading instruction in a special education program. There were 60 students receiving reading instruction in a special education program at NGMS. The table indicates that the percentage of students in each environment at each school is about the same.
Table 7

*Frequency of Environment by School*

<table>
<thead>
<tr>
<th>School</th>
<th>Co-teaching</th>
<th>Resource</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>NGMS</td>
<td>31</td>
<td>38.75</td>
<td>29</td>
</tr>
<tr>
<td>SGMS</td>
<td>49</td>
<td>61.25</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.00</td>
<td>77</td>
</tr>
</tbody>
</table>

**Data Analysis**

Descriptive statistics and inferential statistics were conducted in order to test each research hypothesis. Once the student scores were compiled from historical data for the two years, the results were entered in Microsoft Excel and uploaded into SAS 9.2 for analysis. Data was then analyzed to determine if there was a statistical difference in achievement scores and reading levels depending upon the students’ placement in resource classrooms or in co-teaching classrooms. Statistical significance was determined by setting the significance level to .05 prior to the analysis.

**MANCOVA.** Initially, because both reading and Lexile CRCT scores were of interest and both variables were quantitative in nature, a multivariate approach to the analysis was considered. However preliminary analyses demonstrated that the model assumptions for the multivariate model (specifically, the multivariate analysis of covariance or MANCOVA) were not tenable. As a result, separate univariate ANCOVA (analysis of covariance) were used in order to evaluate the research hypotheses.

Specifically, the MANCOVA model requires a number of model assumptions to be met in order to provide valid statistical results (Sharma, 1996; Huberty & Olejnik,
2006). The model requires (a) multivariate normality for the within-class data response vectors, (b) the equality of covariance matrices, (c) the independence of observations, (d) linearity among the covariate(s) and the response variables, and (e) the equality of multivariate regression slopes. The inferential analysis began by performing a preliminary analysis in order to assess these model assumptions and ultimately the appropriateness of the MANCOVA model.

The preliminary analysis began by assessing multivariate normality for the within-class response vectors by performing Mardia’s test for multivariate skewness and kurtosis for each of the six classes delineated by crossing environment (co-teaching vs. resource) by grade level (6, 7, 8). Results of these tests are displayed in Table 8. Table 8 demonstrates that of the six groups under consideration, four were essentially multivariate normal with two borderline cases. Specifically, data for the eighth co-teaching group obtained a marginally significant multivariate skewness test value, $k = 9.194, p = .056$. Furthermore, the eighth grade resource cohort obtained a marginally significant multivariate kurtosis test value, $k = 1.834, p = .067$. Both of these are borderline cases and provide evidence of lack of model fitness for the MANCOVA approach.
Table 8

_Mardia’s Test for Multivariate Skewness and Kurtosis_

<table>
<thead>
<tr>
<th>Grade</th>
<th>Environment</th>
<th>Effect Sample Size</th>
<th>Mardia’s Skewness Kappa</th>
<th>p</th>
<th>Mardia’s Kurtosis Kappa</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Co-teaching</td>
<td>21</td>
<td>6.584</td>
<td>0.1596</td>
<td>0.977</td>
<td>0.3287</td>
</tr>
<tr>
<td>6</td>
<td>Resource</td>
<td>37</td>
<td>4.695</td>
<td>0.3200</td>
<td>0.806</td>
<td>0.4203</td>
</tr>
<tr>
<td>7</td>
<td>Co-teaching</td>
<td>22</td>
<td>6.207</td>
<td>0.1842</td>
<td>-0.771</td>
<td>0.4404</td>
</tr>
<tr>
<td>7</td>
<td>Resource</td>
<td>24</td>
<td>2.148</td>
<td>0.7085</td>
<td>-1.329</td>
<td>0.1837</td>
</tr>
<tr>
<td>8</td>
<td>Co-teaching</td>
<td>37</td>
<td>9.194</td>
<td>0.0564</td>
<td>-0.745</td>
<td>0.4564</td>
</tr>
<tr>
<td>8</td>
<td>Resource</td>
<td>16</td>
<td>6.823</td>
<td>0.1455</td>
<td>1.834</td>
<td>0.0667</td>
</tr>
</tbody>
</table>

Multivariate normality was further investigated by plotting the sample squared Mahalanobis distance values against the chi-squared theoretical quantiles using a series of chi-squared plots (see Figure 1) (Sharma, 1996). Plots for sixth grade co-teaching, seventh grade co-teaching, and eighth grade co-teaching and resource cohorts show substantial deviations from multivariate normality in terms of single and multiple multivariate outliers. This provides more evidence to conclude that the multivariate model was not appropriate.
Next, the assumption of equal covariance matrices was assessed. Results from Bartlett’s modification of the likelihood ratio test for the equality of covariance matrices demonstrated that the covariance matrices were not equal at the $\alpha = .05$ level, $X^2_{(15)} = 576.01, p < .0001$. At this point a preponderance of evidence was obtained that indicated that the multivariate approach was not appropriate due to model assumptions violations. As a result, separate univariate ANCOVA models were used to analyze the data.

**ANCOVA.** ANCOVA (Analysis of Covariance) for CRCT reading scores and for Lexiles by environment were performed for all SWD in a co-teaching setting and in a resource setting. The ANCOVA was conducted to determine if the performance
difference between the two groups was statistically significant. The ANCOVA statistically controlled for initial differences, thereby neutralizing any inequality and lending to the evidence that the groups being compared were equivalent. This was an appropriate test because it examined the overall relationship between the dependent variable (e.g., 2009 reading scores and 2009 Lexile scores) and the independent variable (e.g., environment) after controlling for the covariate (e.g., 2008 reading scores and 2008 Lexile scores). Baseline assessment scores for the groups were used as covariates in determining significance of the gains demonstrated by each group (Ary et al, 2006).

In order to test for univariate normality for each dependent variable, Levene’s test was conducted on the data presented in the study. Levene's test is an inferential statistic used to assess the equality of variances in different samples (Stevens, 1996). Results of the assessment of normality and Levene’s test are provided below for each model separately.

In addition to the analysis by environment, grade level data (sixth, seventh, and eighth) were analyzed separately using ANCOVA to determine if there were any significant differences by grade level. The remainder of this chapter will focus on answering the eight research questions.

**Research Questions 1 - 4 Results**

Research Question #1: Do differences in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource classes depend on grade level in grades 6, 7, and 8?

Null Hypothesis ($H_{01}$): There is not a statistically significant difference in reading
achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource classes by grade level in grades 6, 7, and 8.

Research Question #2: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Null Hypothesis (H_{02}): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD between the co-teaching and resource room classes across grade levels 6, 7, and 8.

Research Question #3: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD across learning environments in grades 6, 7, and 8?

Null Hypothesis (H_{03}): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD across learning environments in grades 6, 7, and 8.

Research Question #4: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Null Hypothesis (H_{04}): There is not a statistically significant average difference in reading achievement measured by the reading portion of the CRCT for SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8.
**CRCT.** In examining the CRCT scores from the spring of 2008 and the spring of 2009, it is important to understand the CRCT scale scores and performance levels.

CRCT scores are reported as scale scores and performance levels as shown in Table 9. Results can be consistently and meaningfully interpreted through the interpretive guide that is distributed with all tests results (Georgia Department of Education, 2008b). CRCT scores are generally structured to range from 650 to 900 or above (Georgia Department of Education, 2008b). Variations in test characteristics and student performance from one administration to the next may result in different upper limits for each grade and content area.

Table 9

**CRCT Scale Score Ranges and Performance Levels**

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>DNM</th>
<th>ME</th>
<th>EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Scale Score</td>
<td>Below 800</td>
<td>800 - 849</td>
<td>850 or more</td>
</tr>
</tbody>
</table>

*Note.* Does not meet expectation (DNM), meets expectations (ME), and exceeds expectations (EE) are the codes used to indicate whether or not a student has mastered the standards for the subject area.

Table 10 includes the state and system CRCT reading mean scores and standard deviations (Georgia Department of Education, 2010). These scores were significantly above the Grindstone School District SWD mean reading scores. This table demonstrates that the mean scores for GSD students in both settings were significantly lower on the CRCT when compared to both the state mean score and the system mean score for 2009. This emphasizes the need to determine what works best for SWD in order to provide them with the very best instruction possible.

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Table 10

2009 Comparison of State, System, and SWD CRCT Reading Scale Scores

<table>
<thead>
<tr>
<th>Grade</th>
<th>Test Group</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>State of Georgia</td>
<td>120575</td>
<td>833.96</td>
<td>27.82</td>
</tr>
<tr>
<td>6</td>
<td>Grindstone District</td>
<td>509</td>
<td>831.37</td>
<td>25.57</td>
</tr>
<tr>
<td>6</td>
<td>SWD Resource</td>
<td>37</td>
<td>805.08</td>
<td>19.79</td>
</tr>
<tr>
<td>6</td>
<td>SWD Co-teaching</td>
<td>21</td>
<td>812.23</td>
<td>10.21</td>
</tr>
<tr>
<td>7</td>
<td>State of Georgia</td>
<td>120985</td>
<td>825.45</td>
<td>22.25</td>
</tr>
<tr>
<td>7</td>
<td>Grindstone District</td>
<td>468</td>
<td>828.19</td>
<td>22.11</td>
</tr>
<tr>
<td>7</td>
<td>SWD Resource</td>
<td>24</td>
<td>793.66</td>
<td>14.58</td>
</tr>
<tr>
<td>7</td>
<td>SWD Co-teaching</td>
<td>22</td>
<td>803.23</td>
<td>16.9</td>
</tr>
<tr>
<td>8</td>
<td>State of Georgia</td>
<td>121229</td>
<td>833.54</td>
<td>25.07</td>
</tr>
<tr>
<td>8</td>
<td>Grindstone District</td>
<td>477</td>
<td>838.6</td>
<td>27.63</td>
</tr>
<tr>
<td>8</td>
<td>SWD Resource</td>
<td>16</td>
<td>797.56</td>
<td>9.01</td>
</tr>
<tr>
<td>8</td>
<td>SWD Co-teaching</td>
<td>37</td>
<td>816.27</td>
<td>14.03</td>
</tr>
</tbody>
</table>


ANCOVA by Environment. Table 11 provides the descriptive statistics for CRCT reading scale scores for each environment for the 2008 and 2009 school years. Data from the spring 2008 administration of the CRCT was used as a baseline assessment (covariate) in this study. The students in the co-teaching group had a 2008 CRCT reading scale score mean of 808.76. In the spring of 2008, the students in the resource setting had a mean CRCT reading scale score of 793.70.

The 2009 administration of the CRCT served as a post-test in this study. The 2009 CRCT reading scale score for the co-teaching setting was 811.63. The 2009 CRCT reading scale score for the resource setting was 799.96.
Table 11

*Descriptive Statistics of CRCT Reading Scale Scores by Environment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>FY08 Lexile Scores</th>
<th>FY09 Lexile Scores</th>
<th>Resource FY08 Lexile Scores</th>
<th>Resource FY09 Lexile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-teaching</td>
<td>80</td>
<td>80</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>FY08</td>
<td>80</td>
<td>80</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>FY09</td>
<td>80</td>
<td>80</td>
<td>77</td>
<td>77</td>
</tr>
<tr>
<td>SD</td>
<td>144.82</td>
<td>148.83</td>
<td>143.93</td>
<td>142.34</td>
</tr>
<tr>
<td>Minimum</td>
<td>455.00</td>
<td>580.00</td>
<td>310.00</td>
<td>375.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>1170.00</td>
<td>1180.00</td>
<td>955.00</td>
<td>1120.00</td>
</tr>
</tbody>
</table>

Figures 2 and 3 present histograms of the 2008 and 2009 CRCT reading scores by environment. The data were graphed as a histogram with a normal curve to assess the range and the degree to which the data were distributed normally. Variables were determined to be normally distributed before data analysis was performed. These figures provide evidence that no univariate outliers are present in the data.
Figure 2. Histogram of 2008 CRCT reading scale scores by environment.
Table 11 and Figures 2 and 3 demonstrate that the CRCT reading scores are unimodal and approximately symmetric when analyzed or viewed by environment. Therefore, the data were nearly normal and the normality assumption of the analysis of covariance was met. Table 11 also demonstrates that the standard deviation of reading by year for the different environments were approximately equal.

Figure 4 is a scatter plot of the 2008 and 2009 CRCT reading scores by environment. Figure 4 indicates that within both the co-teaching environment and the resource environment as the 2008 scores increased there was a linear increase in the 2009 scores at the same rate. The Pearson correlation coefficients were found to be similar ($r_{CT} = .51$, $r_R = .53$) and provided further evidence that this assumption of equal variance
was met. According to the scatter plot the relationship within the groups is essentially the same. This would indicate that growth in reading skills is similar in either environment.

**Figure 4.** Scatter plot of 2008 and 2009 CRCT reading scale scores by environment.

The ANCOVA was completed to determine if there was a significant difference in reading gains as measured by the reading portion of the CRCT for middle school SWD who participated in a co-teaching class as compared to middle school SWD who participated in the resource class. Table 12 and Table 13 indicate that there were no statistically significant differences in adjusted means for reading scores detected between co-teaching and resource instructional environments as measured by the CRCT at the $\alpha = .05$ level, $F(1,154) = 2.37, p = .126$. Partial Omega squared ($\omega^2$) indicated that only 0.87% of the variation in 2009 reading scores was explained by instructional environment.
after initial reading ability (2008 reading scores) was controlled. For the CRCT scores, Levene’s test for the equality of variances was found to be non-significant at the \( \alpha = .05 \) level, \( F(1,155) = 1.36, p = .245 \). This provides additional evidence that the ANCOVA assumption of equal variances has been met.

Table 12

**ANCOVA Summary for 2009 CRCT Reading Scale Scores**

<table>
<thead>
<tr>
<th></th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>FValue</th>
<th>ProbF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY08 Reading Score (Pretest)</td>
<td>1</td>
<td>10762.14</td>
<td>10762.14</td>
<td>57.14</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Environment</td>
<td>1</td>
<td>447.01</td>
<td>447.01</td>
<td>2.37</td>
<td>0.126</td>
</tr>
<tr>
<td>Error</td>
<td>154</td>
<td>29003.50</td>
<td>188.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>156</td>
<td>45103.57</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13

**Adjusted Means & 95% Confidence Intervals for 2009 CRCT Reading Scale Scores**

<table>
<thead>
<tr>
<th></th>
<th>Adjusted Mean</th>
<th>95% Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95% Confidence Intervals</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Co-teaching</td>
<td>807.74</td>
<td>804.54</td>
</tr>
<tr>
<td>Resource</td>
<td>804.00</td>
<td>800.73</td>
</tr>
</tbody>
</table>

Figure 5 is a visual representation that there was no statistically significant difference in adjusted means for CRCT reading scores detected between co-teaching and resource instructional environments as measured by the CRCT. This figure provides additional evidence to conclude that the null hypothesis must not be rejected. There is not enough evidence to suggest that either the co-teaching or the resource environment was more effective on student achievement as measured by the CRCT.
Figure 5. Plot of ANCOVA CRCT reading scale score adjusted means and confidence intervals by environment.

**ANCOVA by Environment and Grade Levels.** After completing the analysis on the data for all SWD in co-teaching and resource groups, the data was then analyzed by grade level in order to determine whether there were differences in student achievement by grade level. Table 14 demonstrates a comparison of the sixth, seventh, and eighth grade CRCT reading scale scores for 2008 and 2009 CRCT.
Table 14

*Descriptive Statistics of CRCT Reading Scale Scores by Environment and Grade Level*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Environment</th>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Co-teaching</td>
<td>FY08 Reading Scale Score</td>
<td>21</td>
<td>809.14</td>
<td>15.57</td>
<td>775</td>
<td>839</td>
</tr>
<tr>
<td>6</td>
<td>Co-teaching</td>
<td>FY09 Reading Scale Score</td>
<td>21</td>
<td>812.24</td>
<td>10.22</td>
<td>798</td>
<td>841</td>
</tr>
<tr>
<td>6</td>
<td>Resource</td>
<td>FY08 Reading Scale Score</td>
<td>37</td>
<td>791.19</td>
<td>19.95</td>
<td>756</td>
<td>839</td>
</tr>
<tr>
<td>6</td>
<td>Resource</td>
<td>FY09 Reading Scale Score</td>
<td>37</td>
<td>805.08</td>
<td>19.8</td>
<td>764</td>
<td>850</td>
</tr>
<tr>
<td>7</td>
<td>Co-teaching</td>
<td>FY08 Reading Scale Score</td>
<td>22</td>
<td>805.55</td>
<td>12.89</td>
<td>780</td>
<td>831</td>
</tr>
<tr>
<td>7</td>
<td>Co-teaching</td>
<td>FY09 Reading Scale Score</td>
<td>22</td>
<td>803.23</td>
<td>16.9</td>
<td>774</td>
<td>833</td>
</tr>
<tr>
<td>7</td>
<td>Resource</td>
<td>FY08 Reading Scale Score</td>
<td>24</td>
<td>799.21</td>
<td>12.91</td>
<td>777</td>
<td>828</td>
</tr>
<tr>
<td>7</td>
<td>Resource</td>
<td>FY09 Reading Scale Score</td>
<td>24</td>
<td>793.67</td>
<td>14.59</td>
<td>767</td>
<td>816</td>
</tr>
<tr>
<td>8</td>
<td>Co-teaching</td>
<td>FY08 Reading Scale Scores</td>
<td>37</td>
<td>810.46</td>
<td>15.81</td>
<td>763</td>
<td>845</td>
</tr>
<tr>
<td>8</td>
<td>Co-teaching</td>
<td>FY09 Reading Scale Scores</td>
<td>37</td>
<td>816.27</td>
<td>14.03</td>
<td>780</td>
<td>838</td>
</tr>
<tr>
<td>8</td>
<td>Resource</td>
<td>FY08 Reading Scale Score</td>
<td>16</td>
<td>791.25</td>
<td>11.58</td>
<td>774</td>
<td>809</td>
</tr>
<tr>
<td>8</td>
<td>Resource</td>
<td>FY09 Reading Scale Scores</td>
<td>16</td>
<td>797.56</td>
<td>9.01</td>
<td>783</td>
<td>822</td>
</tr>
</tbody>
</table>

Figures 6 and 7 present histograms of the 2008 and 2009 CRCT reading scores by environment for the sixth grade. Figures 8 and 9 present histograms of the 2008 and 2009 CRCT reading scores by environment for the seventh grade. Figures 10 and 11 present histograms of the 2008 and 2009 CRCT reading scores by environment for the eighth grade. The data were graphed as a histogram to assess the range and the degree to
which the data were distributed normally. Variables were determined to be unimodal and roughly symmetric and therefore nearly normally distributed before data analysis was performed. These figures provide evidence that no outliers were present in the data.

Figure 6. Histogram of 2008 CRCT reading scale scores by environment for sixth grade.
Figure 7. Histogram of 2009 CRCT reading scale scores by environment for sixth grade.
Figure 8. Histogram of 2008 CRCT reading scale scores by environment for seventh grade.
Figure 9. Histogram of 2009 CRCT reading scale scores by environment for seventh grade.
Figure 10. Histogram of 2008 CRCT reading scale scores by environment for eighth grade.
Figure 11. Histogram of 2009 CRCT reading scale scores by environment for eighth grade.

**Full ANCOVA Model.** With the ultimate goal of addressing the research hypotheses and the immediate goal of assessing the model assumption of the equality of regression slopes, a preliminary full ANCOVA model was fit to the data using previous year’s CRCT reading scores as a covariate and student grade level as a blocking variable in order to minimize confounding sources of variance. Moreover, environment (co-teaching or resource) was specified as the main variable explanatory of interest. Finally, these preliminary models included all two-way interactions and the three-way interaction as well. The three-way interaction was found to be not statistically significant at the $\alpha =$ 90
Therefore, the assumption of the equality of regression slopes for the six different groups under consideration was found to be met.

The model was further reduced by systematically evaluating each of the three lower order interaction terms one at a time, confirming that its effect was not statistically significant, then removing the term in question and refitting the model. Table 15 summarizes the results from this process.

Table 15

Summary of the Manual Backward Selection Process for CRCT Reading Scale Scores:

Nonsignificant Interaction Terms Removed From the Full Model

<table>
<thead>
<tr>
<th>Source</th>
<th>ndf</th>
<th>ddf</th>
<th>$f$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRCT<em>ENVIRONMENT</em> GRADE</td>
<td>2</td>
<td>145</td>
<td>1.35</td>
<td>0.263</td>
</tr>
<tr>
<td>CRCT*ENVIRONMENT</td>
<td>1</td>
<td>147</td>
<td>0.66</td>
<td>0.419</td>
</tr>
<tr>
<td>CRCT*GRADE</td>
<td>2</td>
<td>148</td>
<td>1.52</td>
<td>0.223</td>
</tr>
<tr>
<td>ENVIRONMENT*GRADE</td>
<td>2</td>
<td>150</td>
<td>2.62</td>
<td>0.076</td>
</tr>
</tbody>
</table>

**Final ANCOVA Model.** Table 16 indicates the final ANCOVA model for the CRCT scores obtained an eta-squared of .452, indicating that the model was explaining 45.2% of the variation in CRCT scores. Furthermore, this amount of variance explained was found to be statistically significant at the $\alpha = .05$ level, $F(4,152) = 31.36, p < .0001$.

The final model consisted of the 2008 CRCT scores as a statistically significant covariate, $F(1,152) = 71.09, p < .0001$; the two main effects for environment and grade level, and the two-way interaction for environment and grade level, which was found to be not significant at $\alpha = .05$ level, $F(2,150) = 2.62, p = .076$. In keeping with best practices concerning the specification of factorial analyses with significant interactions terms, the
main effects were retained in the model even though they were not statistically significant (Montgomery, 2005). Furthermore, while present in the model, the main effects for environment by grade level should not be directly interpreted due to the significant interaction of these effects. Instead, analysis of simple effects contrasting the co-teaching and resource room environments was performed by specifying focus tests. Results of these tests are summarized in Table 16.

Table 16

*Summary of Simple Effects Analysis Contrasting Co-teaching vs. Resource at Each Grade Level as Measured by 2009 CRCT Reading Scale Scores*

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Bonferroni adjusted p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>-2.79</td>
<td>3.64</td>
<td>-0.77</td>
<td>1</td>
<td>0.444</td>
<td>&gt;.999</td>
</tr>
<tr>
<td>7th Grade</td>
<td>6.05</td>
<td>3.75</td>
<td>1.61</td>
<td>1</td>
<td>0.109</td>
<td>0.326</td>
</tr>
<tr>
<td>8th Grade</td>
<td>8.06</td>
<td>3.98</td>
<td>2.03</td>
<td>1</td>
<td>0.044</td>
<td>0.133</td>
</tr>
</tbody>
</table>

Because multiple comparisons were being made (in this case, three), the Bonferroni methods was used to adjust the p-values of the focus tests in Table 16 in order to control Type I error rates. These results demonstrate that no statistically significant differences were detected between the co-teaching and resource room environments at each of the three grade levels. Group means, standard deviations, and 95% confidence intervals for the group means are presented in Table 17. Further more, results of the simple effects analysis are graphically summarized in Figure 12.
Figure 12 is a visual representation that there was no statistically significant difference in adjusted means for CRCT reading scores detected between co-teaching and resource instructional environments as measured by the CRCT when separated by grade level. This figure provides additional evidence to conclude that the null hypotheses must not be rejected. To further support this decision, three separate focus tests were performed in order to statistically compare co-teaching and resource room instruction at each grade level. These results were adjusted for multiple comparisons by applying the Bonferroni p-value adjustment in order to control the Type I error rate. The focus test results were presented in Table 16. Results demonstrate that there is no statistically significant difference in co-teaching and resource when separated by grade level as measured by the CRCT. There was not enough evidence to suggest that either the co-teaching or the resource environment was more effective on student achievement as measured by the CRCT when separated by grade level.

Table 17

Adjusted Group Means & Confidence Intervals for 2009 CRCT Reading Scale Scores by Environment and Grade Level

<table>
<thead>
<tr>
<th>Environment</th>
<th>Grade</th>
<th>Adjusted M</th>
<th>SD</th>
<th>LL</th>
<th>UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-teaching</td>
<td>6</td>
<td>807.93</td>
<td>10.22</td>
<td>802.40</td>
<td>813.46</td>
</tr>
<tr>
<td>Co-teaching</td>
<td>7</td>
<td>800.92</td>
<td>16.90</td>
<td>795.57</td>
<td>806.26</td>
</tr>
<tr>
<td>Co-teaching</td>
<td>8</td>
<td>811.24</td>
<td>14.03</td>
<td>806.97</td>
<td>815.50</td>
</tr>
<tr>
<td>Resource</td>
<td>6</td>
<td>810.73</td>
<td>19.80</td>
<td>806.42</td>
<td>815.03</td>
</tr>
<tr>
<td>Resource</td>
<td>7</td>
<td>794.87</td>
<td>14.59</td>
<td>789.77</td>
<td>799.96</td>
</tr>
<tr>
<td>Resource</td>
<td>8</td>
<td>803.17</td>
<td>9.01</td>
<td>796.81</td>
<td>809.54</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval, LL = lower limit, UL = upper limit.
Figure 12. Plot of ANCOVA 2009 CRCT reading scale score adjusted means and confidence intervals by environment and grade levels.

**Research Questions 5 - 8 Results**

Research Question #5: Do differences in reading achievement measured by Lexile scores of SWD between co-teaching and resource classes depend on grade level in grades 6, 7, and 8?

Null Hypothesis (H₀₅): There is not a statistically significant difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource classes depending on grade level in grades 6, 7, and 8.

Research Question #6: Is there an average difference in reading achievement
measured by Lexile scores of SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Null Hypothesis (H_{06}): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD between co-teaching and resource room classes across grade levels 6, 7, and 8.

Research Question #7: Is there an average difference in reading achievement measured by Lexile scores of SWD among grade levels between the co-teaching and resource setting in grades 6, 7, and 8?

Null Hypothesis (H_{07}): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD among grade levels between the co-teaching and resource setting in grades 6, 7, and 8?

Research Question #8: Is there an average difference in reading achievement measured by Lexile scores of SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Null Hypothesis (H_{08}): There is not a statistically significant average difference in reading achievement measured by Lexile scores of SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Lexile. A Lexile, sometimes called a Lexile Measure, is a standard score that matches a student’s reading ability with the difficulty of textual material. Students in grades 1–12 typically score in a range from Beginning Reader (BR) to 1700L. Student Lexile scores for this study ranged from 310 to 1180. Scores were spread across the
range of levels and the scores spanned over three grade levels.

**ANOVA by Environment.** In order to address the Lexile research questions, the Lexile data was first analyzed for the entire middle school SWD population. After those results were reported each grade was analyzed separately in order to determine if there were any significant differences by grade.

Table 18 provides the descriptive statistics for Lexile scores for each environment for the 2008 and 2009 school years. The 2008 Lexile scores were used as baseline scores (covariate) in this study. The students in the co-teaching group had a 2008 Lexile score mean of 800.50 while the 2008 Lexile score mean for the resource groups was 642.27. The 2009 Lexile mean score for the co-teaching group was 880.50 and was 745.13 for the resource group.
Table 18

*Descriptive Statistics of Lexile Scores by Environment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-teaching FY08 Lexile Scores</td>
<td>80</td>
<td>800.50</td>
<td>144.82</td>
<td>455</td>
<td>1170</td>
</tr>
<tr>
<td>FY09 Lexile Scores</td>
<td>80</td>
<td>880.50</td>
<td>148.83</td>
<td>580</td>
<td>1180</td>
</tr>
<tr>
<td>Resource FY08 Lexile Scores</td>
<td>77</td>
<td>642.27</td>
<td>143.93</td>
<td>310</td>
<td>955</td>
</tr>
<tr>
<td>FY09 Lexile Scores</td>
<td>77</td>
<td>745.13</td>
<td>142.34</td>
<td>375</td>
<td>1120</td>
</tr>
</tbody>
</table>

Figure 13 and Figure 14 present histograms of the 2008 and 2009 Lexile scores by environment. The data were graphed as a histogram with a normal curve to assess the range and the degree to which the data were distributed normally. Variables were determined to be normally distributed before data analysis was performed. These figures provide evidence that no outliers were present in the data.
Figure 13. Histogram of 2008 Lexile scores by environment.
Figure 14. Histogram of 2009 Lexile scores by environment.

Table 18 and Figures 5 and 6 demonstrate that the Lexile scores are unimodal and approximately symmetric when analyzed or viewed by environment. Therefore, the data were nearly normal and the normality assumption of the analysis of covariance was met. Table 18 also demonstrates that the standard deviation of Lexile levels by year for the different environments were approximately equal. Therefore, the assumption of equal variances of the ANCOVA was met.

Figure 15 is a scatter plot of the 2008 and 2009 Lexile scores by environment. This figure demonstrates a similar trend as the previous scatter plot. Figure 6 indicates that within both the co-teaching environment and the resource environment, as the 2008 Lexile scores increased there was a linear increase in the 2009 Lexile scores for both
groups at the same rate. The correlation coefficients were found to be similar ($r_{CT} = .65$, $r_R = .62$) and provide further evidence that this assumption of equal variances was met. According to the scatter plot the relationship within the groups was the same. This indicated that growth in Lexile scores was similar in both environments.

Figure 15. Scatter plot of 2009 and 2008 Lexile scores by environment.

ANCOVA for Lexile scores by environment was performed. Table 19 and Table 20 demonstrate that the assumption of homogeneous regression slopes was tested and deemed met at the $\alpha = .05$ level, $F(1,153) = 0.20, p = .659$. From the data, it can be concluded that the equal regression slopes assumption of ANCOVA was met. For the Lexile scores, Levene’s test for the equality of variances was found to be non-significant at the $\alpha = .05$ level, $F(1,155) = 0.20, p = .654$. This too provides additional evidence that
the ANCOVA assumption of equal variances was met.

No statistically significant difference in adjusted means in Lexile scores was detected between co-teaching and resource instructional environments at the $\alpha = .05$ level, $F(1,154) = 2.79, p = .097$. Partial $\omega^2$ indicates that only 1.13% of the variation in FY09 Lexile Scores is explained by instructional environment after initial ability (2008 Lexile Scores) was controlled. Table 19 demonstrates that the effect of the environment made no significant difference on student achievement. Furthermore, Table 19 presents the traditional ANCOVA-type summary table of the decomposition of the sum of squares (SS) for each of the effects. The confidence intervals, which overlap in Table 20, further support the conclusion to fail to reject the null hypothesis.

Table 19

<table>
<thead>
<tr>
<th>ANCOVA Summary Table for 2009 Lexile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>$df$</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>FY08 Lexile Score</td>
</tr>
<tr>
<td>Environment</td>
</tr>
<tr>
<td>Error</td>
</tr>
<tr>
<td>Corrected Total</td>
</tr>
</tbody>
</table>

Table 20

<table>
<thead>
<tr>
<th>Adjusted Means &amp; 95% Confidence Intervals for 2009 Lexile Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted M</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Co-teaching</td>
</tr>
<tr>
<td>Resource</td>
</tr>
</tbody>
</table>

Figure 16 is a visual representation that further supports the evidence that there is
not a significant difference of student achievement according to instructional environment. There was a 34-point difference in the adjusted mean between the groups, however the confidence interval overlap is almost 20 points. Therefore, these results do not allow us the ability to rule out sampling error as an alternative explanation for the difference that was observed. Although the 34-point difference was observed, according to CRCT Interpretation Guide (2009), a Lexile is a standard score that matches a student’s reading ability with the difficulty of textual material. Students in grades 1–12 score in a range from Beginning Reader (BR) to 1700L. Therefore, a 34-point discrepancy is not significant.

![Figure 16. Plot of 2009 Lexile score adjusted means and confidence intervals by environment.](image)

**ANCOVA by Environment and Grade Levels.** In order to further analyze
whether there were differences in student achievement by grade level the data was
analyzed by grade level. Table 21 demonstrates a comparison of the sixth, seventh, and
eighth grade Lexile reading scale scores for 2008 and 2009 achievement data.

Table 21

*Descriptive Statistics of Lexile Scores by Environment and Grade Level*

<table>
<thead>
<tr>
<th>Grade</th>
<th>Environment</th>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Co-teaching</td>
<td>FY08 Lexile Score</td>
<td>21</td>
<td>723.10</td>
<td>121.63</td>
<td>455</td>
<td>955</td>
</tr>
<tr>
<td>6</td>
<td>Co-teaching</td>
<td>FY09 Lexile Score</td>
<td>21</td>
<td>791.67</td>
<td>88.89</td>
<td>670</td>
<td>1040</td>
</tr>
<tr>
<td>6</td>
<td>Resource</td>
<td>FY08 Lexile Score</td>
<td>37</td>
<td>582.70</td>
<td>155.74</td>
<td>310</td>
<td>955</td>
</tr>
<tr>
<td>6</td>
<td>Resource</td>
<td>FY09 Lexile Score</td>
<td>37</td>
<td>729.59</td>
<td>171.28</td>
<td>375</td>
<td>1120</td>
</tr>
<tr>
<td>7</td>
<td>Co-teaching</td>
<td>FY08 Lexile Score</td>
<td>22</td>
<td>733.86</td>
<td>112.23</td>
<td>510</td>
<td>955</td>
</tr>
<tr>
<td>7</td>
<td>Co-teaching</td>
<td>FY09 Lexile Score</td>
<td>22</td>
<td>823.64</td>
<td>139.68</td>
<td>580</td>
<td>1070</td>
</tr>
<tr>
<td>7</td>
<td>Resource</td>
<td>FY08 Lexile Score</td>
<td>24</td>
<td>679.17</td>
<td>112.59</td>
<td>485</td>
<td>930</td>
</tr>
<tr>
<td>7</td>
<td>Resource</td>
<td>FY09 Lexile Score</td>
<td>24</td>
<td>745.42</td>
<td>121.01</td>
<td>525</td>
<td>930</td>
</tr>
<tr>
<td>8</td>
<td>Co-teaching</td>
<td>FY08 Lexile Scores</td>
<td>37</td>
<td>884.05</td>
<td>130.67</td>
<td>490</td>
<td>1170</td>
</tr>
<tr>
<td>8</td>
<td>Co-teaching</td>
<td>FY09 Lexile Scores</td>
<td>37</td>
<td>964.73</td>
<td>137.72</td>
<td>610</td>
<td>1180</td>
</tr>
<tr>
<td>8</td>
<td>Resource</td>
<td>FY08 Lexile Score</td>
<td>16</td>
<td>724.69</td>
<td>95.54</td>
<td>580</td>
<td>870</td>
</tr>
<tr>
<td>8</td>
<td>Resource</td>
<td>FY09 Lexile Scores</td>
<td>16</td>
<td>780.63</td>
<td>88.67</td>
<td>640</td>
<td>1020</td>
</tr>
</tbody>
</table>

Figures 17 and 18 present histograms of the 2008 and 2009 Lexile reading scores
by environment for the sixth grade. Figures 19 and 20 present histograms of the 2008
and 2009 Lexile reading scores by environment for the seventh grade. Figures 21 and 22
present histograms of the 2008 and 2009 Lexile reading scores by environment for the eighth grade. The data were graphed as a histogram with a normal curve to assess the range and the degree to which the data were distributed normally. Variables were determined to be normally distributed before data analysis was performed. These figures provide evidence that no outliers were present in the data.

![Histogram of 2008 Lexile scores by environment for sixth grade.](image)

*Figure 17. Histogram of 2008 Lexile scores by environment for sixth grade.*
Figure 18. Histogram of 2009 Lexile scores by environment for sixth grade.
Figure 19. Histogram of 2008 Lexile scores by environment for seventh grade.
Figure 20. Histogram of 2009 Lexile scores by environment for seventh grade.
Figure 21. Histogram of 2008 Lexile scores by environment for eighth grade.
**Figure 22.** Histogram of 2009 Lexile scores by environment for eighth grade.

**Full ANCOVA Model.** With the ultimate goal of addressing the Lexile research hypotheses and the immediate goal of assessing the model assumption of the equality of regression slopes, a preliminary full ANCOVA model was fit to the data using previous year’s Lexile reading scores as a covariate and student grade level as a blocking variable in order to minimize confounding sources of variance. Moreover, environment (co-teaching or resource) was specified as the main variable explanatory of interest. Finally, these preliminary models include all two-interactions and the three interaction as well. The three-way interaction was found to be not statistically significant at the $\alpha = .05$ level, $F(2,145) = 1.34, p = .266$. Therefore, the assumption of the equality of regression slopes
for the six different groups under consideration was found to be met.

The model was further reduced by systematically evaluating each of the three lower order interaction terms one at a time, confirming that its effect was not statistically significant, then removing the term in question and refitting the model. Table 22 summarizes the results from this process.

Table 22

Summary of the Manual Backward Selection Process for Lexile Scores: Nonsignificant Interaction Terms Removed From the Full Model

<table>
<thead>
<tr>
<th>Source</th>
<th>ndf</th>
<th>ddf</th>
<th>f</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEXILE<em>ENVIRONMENT</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADE</td>
<td>2</td>
<td>145</td>
<td>1.34</td>
<td>0.266</td>
</tr>
<tr>
<td>LEXILE*GRADE</td>
<td>2</td>
<td>147</td>
<td>0.34</td>
<td>0.709</td>
</tr>
<tr>
<td>LEXILE*ENVIRONMENT</td>
<td>1</td>
<td>149</td>
<td>1.15</td>
<td>0.285</td>
</tr>
</tbody>
</table>

**Final ANCOVA Model.** The final ANCOVA model for the Lexile scores obtained an eta-squared of .5350, indicating that the model was explaining 53.50% of the variation in Lexile scores. Furthermore, this amount of variance explained was found to be statistically significant at the $\alpha = .05$ level, $F(6,150) = 28.77, p < .0001$. The final model consisted of the 2008 Lexile scores as a statistically significant covariate, $F(1,150) = 72.22, p < .0001$; the two main effects for environment and grade level, and the two-way interaction for environment and grade level, which was also found to be significant at $\alpha = .05$ level, $F(2,150) = 6.27, p = .0133$. In keeping with best practices concerning the specification of factorial analyses with significant interactions terms, the main effects were retained in the model even though they were not statistically significant.
(Montgomery, 2005). Furthermore, while present in the model, the main effects for environment by grade level should not be directly interpreted due to the significant interaction of these effects. Instead, analysis of simple effects contrasting the co-teaching and resource room environments was performed by specifying focus tests. Results of these tests are summarized in Table 23.

Table 23

**Summary of Simple Effects Analysis Contrasting Co-teaching vs. Resource at Each Grade Level as Measured by 2009 Lexile Scores**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>Bonferroni adjusted p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6th Grade</td>
<td>-22.44</td>
<td>32.04</td>
<td>-0.70</td>
<td>1</td>
<td>0.485</td>
<td>&gt;.999</td>
</tr>
<tr>
<td>7th Grade</td>
<td>45.30</td>
<td>33.13</td>
<td>1.37</td>
<td>1</td>
<td>0.174</td>
<td>0.521</td>
</tr>
<tr>
<td>8th Grade</td>
<td>88.18</td>
<td>35.21</td>
<td>2.50</td>
<td>1</td>
<td>0.013</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Because multiple comparisons were being made (in this case, three), the Bonferroni methods was used to adjust the p-values of the focus tests in Table 23 in order to control Type I error rates. These results demonstrate that statistically significant differences only exist at the eighth grade level with students taught in a co-teaching environment scoring 88.18 points higher on average than their resource room taught peers, \( t(150) = 2.50, p = .040 \). Adjusted group means, standard deviations, and 95% confidence intervals for the group means are presented in Table 24. Furthermore, results of the simple effects analysis are graphically summarized in Figure 23.
Table 24

Adjusted Group Means & Confidence Intervals for Lexile Scores by Environment and Grade Level

<table>
<thead>
<tr>
<th>Environment</th>
<th>Grade</th>
<th>Adjusted Mean</th>
<th>SD</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-teaching</td>
<td>6</td>
<td>791.55</td>
<td>88.89</td>
<td>743.48 - 839.61</td>
</tr>
<tr>
<td>Co-teaching</td>
<td>7</td>
<td>817.04</td>
<td>139.68</td>
<td>770.05 - 864.02</td>
</tr>
<tr>
<td>Co-teaching</td>
<td>8</td>
<td>867.72</td>
<td>137.72</td>
<td>825.06 - 910.38</td>
</tr>
<tr>
<td>Resource</td>
<td>6</td>
<td>813.98</td>
<td>171.28</td>
<td>772.80 - 855.17</td>
</tr>
<tr>
<td>Resource</td>
<td>7</td>
<td>771.74</td>
<td>121.01</td>
<td>726.36 - 817.12</td>
</tr>
<tr>
<td>Resource</td>
<td>8</td>
<td>779.55</td>
<td>88.67</td>
<td>724.48 - 834.61</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval, LL = lower limit, UL = upper limit.

Figure 23 is a visual representation that there was no statistically significant difference in adjusted means for Lexile reading scores detected between co-teaching and resource instructional environments as measured by the Lexile when separated by grade level, except at the eighth grade. This figure provides additional evidence to conclude that the null hypothesis must be rejected because of the eighth grade. There is evidence to suggest that the co-teaching environment was more effective on student achievement as measured by the Lexile at the eighth grade level.
Summary of the Results

The results of this study indicated that the co-teaching group only minimally outperformed the resource group with regard to their mean CRCT reading scale scores and Lexile scores. Initially, the MANCOVA was considered a potential analysis method. The multivariate normality was assessed and found to be questionable. Also, the covariate matrices were not found to be equivalent. Because these are both assumptions of the MANCOVA model, the MANCOVA approach was not deemed to be appropriate for the current analysis and two separate univariate analyses were performed instead.
The data was first analyzed with all three grades of data in the same set. The first univariate analysis utilized the ANCOVA with environment as the variable and grouped all SWD into either the co-teaching group or the resource group. After completing the first analysis, the data was then further analyzed by grade level. The second univariate analysis utilized the ANCOVA and included two variables, environment and grade level. This analysis was completed for each grade level (sixth, seventh, and eighth) separately. The analysis of covariance (ANCOVA) was used to consider the baseline scores as factors for each group, making it possible to examine the sixth, seventh, and eighth grade test scores to determine if either setting had a significant effect on student achievement. Histograms were constructed in order to show the shape of the distribution for each group of students by environment. Scatter plots were used to demonstrate that there was a positive correlation between the growth in CRCT and Lexile levels for each year. The results for the null hypotheses indicated that the differences in growth in reading performance on the CRCT were not statistically significant. However, the results indicated that the differences in growth in reading performance in Lexile levels for the eighth grade were significant. The co-teaching group outperformed the resource group in achievement using Lexile scores. Therefore, null hypotheses 1 through 4 for the CRCT must fail to be rejected since there is no significant difference the in achievement gains of students in the co-teaching setting as compared to the scores of students in the resource setting, as revealed through the statistical analysis of the Georgia CRCT scores.

Hypotheses 6 and 7 must fail to be rejected because there was not a statistically significant average difference in reading achievement measured by Lexile scores of SWD
among and across grade levels between the co-teaching and resource setting in grades 6, 7, and 8. However, hypothesis 5 and hypothesis 8 must not fail to be rejected because of the significant difference made in achievement gains by the eighth grade co-teaching group in Lexile scores.
CHAPTER FIVE: SUMMARY AND DISCUSSION

Introduction

NCLB (2001) proposes that all children will be on grade level by the year 2014. Federal and state law places rigorous regulations on special education programs in order to ensure the quality of education received by special needs students. Special education programs are monitored carefully by the U.S. Department of Education. In addition, P.L. 94-142 requires all children to be educated in the least restrictive environment.

Student gains depend on many factors including the characteristics and needs of a particular student. Effective teaching strategies and an individualized approach are critical components of student success. What works for one student may not necessarily work for another student.

Numerous studies and articles have examined many aspects of performance outcomes for SWD and the importance of having access to the general curriculum. At the same time, numerous studies and articles have examined the need for struggling readers to receive intensive remediation in reading skills and strategies that may not be available in the middle school regular education class. Fuchs and Fuchs (1994) reported that one of the largest controversies concerning SWD is where the students should be instructed and how and what these students should be taught. They also reported that stakeholders have raised concerns about educating SWD in settings that are separate from the general education classroom. The grouping of students for instruction may affect how they perceive themselves as learners.
Different settings offer different opportunities for teaching and learning. Co-teaching classes and resource classes are the two primary education environments for SWD currently being used for instructional purposes. In the co-teaching setting, students can be integrated into a traditional classroom setting while having access to a special education teacher for extra support and individualized help and modifications. The regular education classroom provides SWD with access to students who do not have disabilities, access to the same curriculum and books, and access to instruction from a general education teacher whose training and expertise is very different than that of a special education teacher. Wiener and Tardif (2004) found in their study that children in more inclusive environments had more positive social and emotional functioning. According to Edgar and Hayden (1982), education in the general education classroom has been strongly recommended for years as the preferred placement for many exceptional children. In addition, some research (Affleck et al., 1988) has indicated that placing SWD in the regular education class was more cost-effective than the resource program, even though achievement in reading, math, and language remained basically the same in either setting.

The resource setting allows for more individualized instruction because there is a smaller teacher-student ratio. There is also pacing of instruction and remediation as needed in the resource room. Students have the opportunity to learn the same content as the general education class but in different ways or on a different schedule.

Students who struggle with decoding skills require strategies that will improve their reading abilities. Effective interventions are necessary in schools where illiteracy
and academic failure are high. For success in meeting content-area course expectations in middle and secondary schools, students must master basic literacy skills. Schools must ensure that struggling readers receive proper reading instruction to meet these expectations no matter where the student receives instruction. SWD deserve the opportunity to be challenged and provided a rigorous curriculum like all students. Research has shown that reading achievement is related to a child’s self-perceptions as a reader (Lynch, 2002). Also, social stigmatization, low motivation, and lowered student expectations for academic success can be a problem for students who are grouped homogeneously in a low-ability group (Barr & Dreeban, 1991). Struggling students often have negative views about remedial reading. A student who struggles with reading may not improve if he has negative self-perception about his reading ability (Donaldson & Halsey, 2007). The extent to which students are aware of the resource room and its perceived role in the school has not been systematically investigated. Special needs students’ knowledge and understanding of the resource room may influence their self-perception and their attitude toward involvement in the class content. Rust, Miller, and Wilson (2006) conducted a year-long study and found that there were no statistically significant differences in achievement of children who were provided with resource room services versus the general education environment.

**Summary of the Study**

The purpose of this non-experimental quantitative study was to answer questions concerning the performance outcomes of SWD on the reading portion of the CRCT. The reading CRCT is a test designed to evaluate the attainment of the general curriculum in
reading. There were 157 sixth, seventh, and eighth grade SWD included in the research. The sample’s performance in reading was scrutinized for students in two dissimilar settings for instruction. The reported performance outcomes were statistically analyzed to determine if more gains were made for SWD in the co-teaching setting or resource setting. Descriptive data regarding the gender, ethnicity, disability, and socio-economic status were also reported.

A comprehensive review of the literature included the following topics: theoretical background, reading development, history of special education, RTI, students with disabilities, and placement of students which includes a discussion of the resource setting and the co-teaching setting. The review of literature revealed interesting as well as conflicting information regarding the role of special education programs and the achievement of students in co-teaching and resource settings. Little empirical data had been collected about the achievement of students of co-teaching as compared to the achievement of students in a resource setting especially at the middle school level and specifically in the reading classes.

Based on the federal requirement that all students will demonstrate proficiency on grade level standards by the 2013-2014 school year, it is essential that educators deliver special education instruction in a manner that ensures student learning. Student test scores and reading levels were statistically analyzed to determine if there was a significant difference in achievement scores of students depending on instructional setting for reading instruction.
Discussion of the Findings

In order to explore the results of instructional service delivery models on performance outcomes for SWD as measured by the CRCT and Lexile scores, eight research questions were developed for the current study. Research questions one through four addressed student achievement gains using the CRCT.

Research Question #1: Do differences in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource classes depend on grade level in grades 6, 7, and 8?

Research Question #2: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD between co-teaching and resource room classes across grade levels 6, 7, and 8?

Research Question #3: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD across learning environments in grades 6, 7, and 8?

Research Question #4: Is there an average difference in reading achievement measured by the reading portion of the CRCT for SWD who participated in a co-teaching class as compared to SWD who participated in the resource class within grades 6, 7, and 8?

Achievement of SWD who received special education services for reading in grades six through eight was statistically analyzed to measure gains made by both groups of students. Aggregated student reading performance data for sixth, seventh, and eighth grade SWD who participated in the co-teaching setting were compared to performance
data for SWD who participated in the resource setting. The primary results of the
analysis found no significant differences in achievement gains of SWD on the reading
CRCT in the two instructional settings. Research questions five through eight addressed
student achievement gains using the Lexile scores.

Research Question #5: Do differences in reading achievement measured by Lexile
scores of SWD between co-teaching and resource classes depend on grade level in grades
6, 7, and 8?

Research Question #6: Is there an average difference in reading achievement
measured by Lexile scores of SWD between co-teaching and resource room classes
across grade levels 6, 7, and 8?

Research Question #7: Is there an average difference in reading achievement
measured by Lexile scores of SWD among grade levels between the co-teaching and
resource setting in grades 6, 7, and 8?

Research Question #8: Is there an average difference in reading achievement
measured by Lexile scores of SWD who participated in a co-teaching class as compared
to SWD who participated in the resource class within grades 6, 7, and 8?

Achievement of SWD who received special education services for reading in
grades six through eight was statistically analyzed to measure gains made by both groups
of students. Aggregated student reading achievement data for sixth, seventh, and eighth
grade SWD who participated in the co-teaching setting were compared to the
achievement data of SWD who participated in the resource setting. The primary results
of the analysis found no significant differences in achievement gains of SWD in their
reading Lexile scores in the two instructional settings. However, upon further analysis by grade level, there was found to be a significant difference in the eighth grade achievement data. Eighth grade co-teaching students made significantly statistical achievement gains over the resource students.

The results of the study suggest that students make similar gains in reading achievement and reading levels whether instructed in the resource setting or in the co-teaching setting for reading at the middle school level when compared across grade levels. These findings are consistent with previous research of Gale (2005) and Murawski (2006) where no statistical differences were found based on student achievement on state proficiency assessments. However, this research did find that there were significant gains made in Lexile reading scores for eight grade students in the co-teaching setting when compared to the eighth grade students in the resource setting.

Implications

The findings of this study revealed that the instructional setting might not make a significant difference in student achievement gains in reading for SWD at the middle school level. Overall, student achievement gains between the two groups (co-teaching and resource) were similar. These findings support previous research studies that have found similar results regarding the effect that instructional setting can have on the student achievement for SWD. Fore, Hagan-Burke, Burke, Boon, and Smith (2008) found that there were no significant differences between academic achievement and class placement for students with LD in two middle schools in one school district. Additional studies which found no significant difference between achievement of special education students
in either setting include Magiera and Zigmond (2005), Rea et al. (2002), and Wischnowski, Salmon, & Eaton (2004).

Even though there is a limited amount of quantitative evidence that co-teaching increases student performance with regard to achievement on standards based assessments, it has become the prevalent model of instruction for SWD. With the implementation of the NCLB requirement came the challenge of developing effective instructional approaches for student with special needs in the co-teaching setting (Yell, Katsiyannas, & Shiner, 2006) even though there is little evidence that it is the best placement (Friend & Cook, 1992). Since NCLB was implemented, co-teaching has been a widely used model for instructing special needs students. The co-teaching model appears to have social advantages over the resource classroom, but more research is needed to document the effectiveness of these models on reading skills.

The findings of this study in conjunction with previous research support a cautious utilization of the co-teaching model of special education services for SWD. There may be other variables that impact student achievement more than the setting. There is limited information regarding teaching strategies and classroom practices for SWD. Although all public classrooms in Georgia are held accountable for teaching the Georgia Performance Standards, data was not collected that examined the type of instruction delivered across the classroom settings. Zigmond (2003) suggests that:

Place is not what makes special education “special” or effective. Effective teaching strategies and an individualized approach are the more critical ingredients in special education, and neither of these is associated solely with one
particular environment. Educators must also remember that research has shown that typical general education environments are not supportive places in which to implement what we know to be effective teaching strategies for students with disabilities (e.g., Zigmond, 1996). Considering the research evidence to date, it is clear that placement decisions must continue to be made by determining whether a particular placement option will support the effective instructional practices that are required for a particular child to achieve his or her individual objectives and goals. (p. 198).

It is important that teachers consider the needs of the individual child as the determining factor in special education placement.

There is also increasing evidence that reading procedures designed specifically for poor readers require intensive, specific intervention that differ considerably from what can be provided in large, whole group reading activities (Rashotte, Torgesen, & Wagner, 1997). Students with reading problems should have the opportunity to improve their reading skills in a setting that is conducive to giving them the individualized attention that they deserve.

Teacher training and experience may also be an important factor in student achievement. Even though all reading teachers of students involved in this study were highly qualified, the training they had in teaching reading was not comparable. This is an important variable that also needs further evaluation.

This study also indicated that there may have been instructional differences in the eighth grade co-teaching setting that caused those students to make gains in achievement
in reading levels that may not have taken place in the resource setting.

Limitations

Throughout this study, limitations surfaced. The findings of this study were not generalized to other schools or other subjects but were specific to the school setting and population of Grindstone School District.

A common limitation of research studies that compare co-teaching classrooms to resource classrooms is the small sample size (Magiera & Zigmond, 2005; Rea et al., 2002; and Wischnowski et al., 2004). The sample size in this study was relatively small. Replicating the study with a larger sample could lead to different results.

Another limitation is that the current study should not be generalized beyond the study itself. The focus of this study was on 157 middle school students receiving services in co-taught or resource classes for one period per day in one school district in Georgia. Thus one question becomes evident: Would the results be similar if the study was replicated on SWD receiving the same treatment in another school system?

Because the data were collected from already established groups, the co-teaching group and the resource group are not the same. There were more male (115) participants than female (42). Also, there were also a larger number of economically disadvantaged students in the resource setting (61) than in the co-teaching setting (48). There is the possibility that these variables, gender and socioeconomic status, could affect student achievement levels. Future research might include designing experimental studies so that the groups could be more alike.

No attempt was made to describe the type of instructional methods or co-teaching
models used in the participating classrooms. All classroom instruction was focused on
the GPS, but this is the only commonality that was noted in this study. It is likely that the
instructional methodology was an important factor contributing to the student
achievement in this study. Future research might include designing experimental studies
that focus on the strategies and instruction that is provided by the teacher to the SWD in
the classrooms. A comparison of eighth grade instructional strategies implemented in the
co-teaching and resource classrooms might offer insight into why the co-teaching
students made significantly significant increases in reading levels when compared to the
resource students. This research should include direct classroom observations that may
help uncover factors to which differences might be attributed.

A final limitation of the study was that it did not examine teacher preparation and
training in the area of reading and the impact that it may have on student achievement of
SWD. Equipped with the necessary skills, teachers can become more proficient in their
role as educators. The teachers in this study had a variety of educational training
experiences related to the teaching of reading. It would be very beneficial to examine if
there is a correlation between teacher training in reading instruction and the achievement
of SWD.

**Recommendations for Future Research**

Conducting future research on co-teaching and resource environments is of great
importance to assist SWD in accessing the general education curriculum. Listed below
are suggested recommendations.

1. Conduct more quantitative studies comparing the co-teaching and resource
environments. Research has suggested that co-teaching has been widely accepted by teachers who advocate for the practice with little quantitative research to back it up (Mastropieri & Scruggs, 2004). Student achievement cannot be the only factor that decides the placement of the student. Social and psychological needs should be addressed as well.

2. Research the differences in preferred teaching strategies and activities within the settings that may affect student performance. Given the limited information comparing the content and instructional techniques between the co-teaching and resource classroom settings, it is recommended that future research studies be conducted that address these issues.

3. Develop quantitative and qualitative studies of co-teaching and resource classes at the secondary level. Co-teaching has been advocated as a practice that could be implemented across all grade levels; however, the literature indicates that co-teaching may operate differently according to the academic level (Rice & Zigmond, 2000).

4. Examine teacher preparation and training in the area of reading and the impact on student achievement of SWD. Podhajski, Mather, Nathan, and Sammons (2009) found that teachers can improve their knowledge concerning explicit reading instruction and that this new knowledge may contribute to student growth in reading. Ferguson’s (1991) study of more than 1,000 school districts concluded that every additional dollar spent on highly qualified teachers brought about greater improvements in students’ achievement than any other use of school resources.

While the past has much to offer us about how this issue should be addressed, the
future of special education is accountability. The issue of instructional setting should be further investigated and addressed in order to help teachers implement changes that will improve student outcomes and best meet the unique needs of individual students. The structures of the classroom, the teaching processes used and teacher experience and training are all variables that affect student achievement. More care must be taken to query the extent to which SWD are achieving optimally regardless of setting. The conclusions of this study will allow school systems to analyze the results of this specialized population and possibly develop future experimental designs to further validate and expand the results of this study.
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doi:10.1002/pits.1029


DE: International Reading Association.


IRB Approval 778.010710: Does Setting Affect Student Achievement of Students With Disabilities: Comparing Co-teaching to Resource

Institution Review Board

Sent: Friday, February 10, 2010 6:51 AM
To: [Name], Sarah Yarney McDonald, Fernanda Garzon
Cc: IRB Chair

Dear [Name],

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. Attached you’ll find the forms for those cases.

Thank you for your cooperation with the IRB and we wish you well with your research project. We will be glad to send you a written memo from the Liberty IRB, as needed, upon request.

Sincerely,

Fernanda Garzon, Psy.D.
IRB Chair, Liberty University
Center for Counseling and Family Studies Liberty University
1971 University Boulevard
Lynchburg, VA 24502-2269
(434) 592-4054
Fax: (434) 522-0477
APPENDIX B: SUPERINTENDENT OF SCHOOLS APPROVAL

January 5, 2010

To Whom It May Concern:

I, [Redacted], Superintendent of [Redacted] County Schools, grant permission to allow Yvonne Mote to conduct a study examining the student achievement of middle school special education students to be conducted within the [Redacted] County Schools. I understand that the information gathered would be for research purposes only and the identity of the participants will not be revealed.

Sincerely,

[Redacted]
Superintendent
1-18-10

Dear Yvonne,

It is with pleasure that I, [Name], Director of Special Education for [County] County Schools, grant permission to allow Yvonne Mote to conduct a study examining the student achievement of middle school special education students to be conducted with the [County] County Schools. I understand the information gathered would be for research purposes only and the identity of the participants will not be revealed.

You have my support to exam data needed in your research study. I trust your use of the information will be conducted in a professional and confidential manner. As a completion of your study, I would be most interested in the results in order to utilize your research to better enhance the learning of all students in [County]. Please keep me posted of your success and progress.

If I can be of more service to you do not hesitate to contact my office.

Best regards,