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MINIMIZING READING REGRESSION THROUGH A DIRECT INSTRUCTION
SUMMER READING PROGRAM

by

Donald J. Pechous

A DISSERTATION

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Education

Under the Supervision of Professor Barbara LaCost

Lincoln, Nebraska

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MINIMIZING READING REGRESSION THROUGH A DIRECT INSTRUCTION
SUMMER READING PROGRAM

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University of Nebraska, 2012

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The purpose of this study was to determine the effectiveness of a Direct Instruction summer reading intervention program designed to minimize summer reading regression. The summer intervention program targeted the lowest quartile of readers in grades kindergarten through third grade from a suburban school district over a three-week period before the first official day of school. This intervention included specific and explicit teaching of skills to support reading fluency and comprehension. Data were collected and analyzed over three years from the district's adopted curriculum-based measurement, AIMSweb Reading Curriculum-Based Measurement (R-CBM) and AIMSweb Test of Early Literacy (Phoneme Segmentation Fluency subtest). Data from the reading assessments were analyzed to determine if there was a significant difference in reading regression of students participating in this intervention compared to students who did not participate in the summer intervention over the three-year period. The cumulative data indicated less loss of learning for kindergarten through third grade students participating in the summer intervention. Thus, indicating that the intervention helped minimize the effects of the "summer slide." Overall, positive effects were found indicating that this type of intervention merits further investigation as an effective

strategy to reduce summer reading regression. Limitations of the study, implications for practice, and future research directions were discussed.

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Chapter 1

Introduction

Increasing reading achievement continues to be a top priority for American schools. Recent statistics from the National Assessment of Educational Progress (NAEP) indicated that only 31% of fourth graders were at or above the proficient reading level and 33% of all students tested in the fourth grade tested below the basic level (U.S. Department of Education, 2009). According to Shaywitz and Shaywitz (1994), 10% of American children have significant difficulty developing proficient reading skills. Furthermore, research indicates a strong link between high school drop out rates and students' reading ability by the end of the third grade (Snow, Burns, & Griffin, 1998).

Considering that children identified with reading problems are more likely to experience (a) school failure, (b) over-identification for special education, (c) emotional disturbances, and (d) delinquency, school leaders must continue to address the gaps that exist between low and high performing students (Cicchetti & Nurcombe, 1993).

Indeed, American school leaders and teachers face unique challenges in meeting the needs of the students that arrive at their doors. Meeting this need is increasingly difficult to accomplish when many children begin formal schooling with no or little exposure to literacy (Marston, Pickart, Reschly, Heistad, Muyskens, & Tindal, 2007). Educators must understand fully the variables affecting a struggling child's propensity towards reading. Struggling readers respond differently to instruction. They belong to diverse groups that consist of different background knowledge, experiences, and language abilities (Al Otaiba & Fuchs, 2006). It is no surprise that reading is considered to be one of the most critical skills to be learned at the elementary level (Hosp & Fuchs,

2005; Lyon, 1996; Vaughn, Wanzek, Murray, Scammacca, Linan-Thompson, & Woodruff, 2009). As accountability rises and federally mandated programs are initiated, such as No Child Left Behind (NCLB) (U.S. Department of Education, 2002), Race to the Top (RTTP) (U.S. Department of Education, 2010) and Increased Learning for Children with Disabilities (U.S. Department of Education, 2004), schools remain in the spotlight.

Administrators and teachers are charged with the great responsibility of closing the achievement gap and increasing reading proficiency. Identifying research-based and evidence-based interventions for accelerating gains in reading is a priority for educators, is mandated by NCLB and RTTT, and also is a pre-requisite to receive federal funding (U.S. Department of Education, 2009). In order to accurately address and develop effective interventions, school personnel must examine all contributing factors that may play a role in delayed reading development (Kamps, Abbott, Greenwood, Wills, Veerkamp, & Kaufman, 2008). One contributing factor is the potential loss of academic progression and skill over the summer months.

Background of the Problem

Over the years, several researchers have documented the effects of the “summer slide”—the loss of academic skills when schools are not in session. Entwisle, Alexander, and Olson’s (1997) faucet theory helps explain the phenomenon through their extensive research regarding seasonal learning patterns and academic gains or declines of students from different socio-economic backgrounds. The faucet theory refers to the opportunities and access of learning materials and experiences that are available during the school year (when the faucet is turned on) compared to the lack of learning experiences during the

summer months (when the faucet is turned off). The researchers indicated that peers from different social and economic backgrounds perform at similar learning rates during the school year, but during summer, students from disadvantaged backgrounds show a sharp decline that could result in overall learning gaps (Alexander, Entwistle, & Olson, 2007; Kim 2004).

Burkam, Ready, Lee, and LeGerfo (2004) found that the reading gap is impacted by socio-economic status. Students from low-income households perform significantly lower than children from middle/high income families (Borman, Benson, & Overman, 2005; Kim, 2004; Williams, 2003). In order for all students to achieve at expected rates, some students need different and more intensive instruction over the summer months. Since early literacy is a predictor for future academic success, efforts should be made to increase the likelihood of reading success in the primary grades. Schracter and Jo (2005) asserted that summer reading interventions are an effective way to improve the achievement of primary students. Students benefit from the extra repetition as well as structured and targeted instruction.

Some students who have difficulty learning to read do not overcome this hardship with regular classroom instruction alone (Lyon & Chhabra, 2004). Furthermore, remedial reading, special education services, and recovery-based summer schools have produced inconsistent results. The key, according to Schracter and Jo (2005), is to design a summer intervention program that does not remediate reading skills but, instead, teaches the skills needed to be a proficient reader.

The skills needed for reading proficiency include developing phonemic awareness, teaching phonics, syllabication and print awareness (Boyle, 2008; Justice,

2006; Wanzek & Vaughn, 2007). Boyle (2008) suggested that a strong knowledge set of phonological skills, conventions, and letter knowledge are predictors of success for students learning the difficult art of reading. Students will become more confident readers when these skills are established. The National Reading Panel Report (2000) recommended five essential areas of reading instruction: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) text comprehension. The National Reading Panel encouraged teachers to seek scientific, evidence-based strategies to promote these areas of focus.

Researchers suggest that “highly intensive systematic” instruction can dramatically increase reading achievement for students most at risk (Kamps, Abbott, Greenwood, Wills, Veerkamp & Kaufman, 2008). Houtveen and van de Grift (2007) explained that (a) students must be exposed to organized instruction that is efficient, and (b) there must be constant collaboration between the teachers within a building. In addition, interventions that begin in kindergarten and first grade tend to make more positive impact than starting interventions during the intermediate grades (Wanzek & Vaughn, 2007).

Addressing the summer slide for low-performing students should be considered a viable intervention for improving reading achievement. Implementing a scientifically based reading curriculum during the summer may provide the structured instruction for these students; it is a start to closing the gap between low-performing and high-performing students.

Direct Instruction is one mode of instruction that is highly organized, efficient, systematic and based in research as an effective method to increase reading achievement

for students struggling in the area of reading (Munroe-Flores & Ganz, 2007; Ross, Nunnery, Goldfeder, McDonald, Rachor, Hornbeck, & Fleishman, 2004, & Mac Iver & Kemper, 2002). Two reputable programs that utilize a Direct Instruction model are Reading Mastery and Corrective Reading. Both programs have resulted in significant gains in reading achievement of students having difficulty learning to read.

Statement of Problem

Schools must establish and maintain organizational structures that enhance classroom instruction so that the number of struggling students is minimized. Researchers have recognized that when school is not in session, the achievement gap widens. Effective interventions must be employed to address this gap. One method, Direct Instruction, has gained interest, once again, as a viable way in which to teach reading, specifically to struggling readers. This study sought to determine whether a summer instructional period utilizing Direct Instruction would significantly impact the reading achievement of struggling readers in kindergarten through third grade. To determine effectiveness, scores collected from 2009, 2010, and 2011 from the AIMSweb Reading Curriculum-Based Measurement (R-CBM) for grades 1 – 3 and AIMSweb Test of Early Literacy (TEL) subtest Phoneme Segmentation Fluency (PSF) were analyzed.

Purpose Statement

The purpose of this quantitative study was to determine the effectiveness of a Direct Instruction reading program focused on the five elements of a comprehensive reading program recommended by the National Reading Panel (2000):

1. phonemic awareness,
2. phonics,

3. fluency,
4. vocabulary, and
5. reading comprehension.

The program, *Jump Start to Reading*, served as an intervention for the lowest quartile of readers in grades K-3 in a suburban school district over a three-week period before the first official day of school during the summers of 2009, 2010, and 2011. Data were collected and analyzed over three years from the district's adopted curriculum-based measurement, AIMSweb Reading Curriculum-Based Measurement (R-CBM) and AIMSweb Test of Early Literacy (Phoneme Segmentation Fluency subtest), to determine if there was a significant difference in reading regression of students participating in this intervention compared to students who did not participate in the summer intervention over three-year period.

Research Questions and Hypotheses Statements

Research Question 1. Over a three-year period, is there a significant difference in reading assessments between two groups of low-achieving reading students in grades K-3 that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb TEL (kindergarten) or AIMSweb R-CBM (first through third grades)?

Null Hypothesis 1. No significant difference exists in reading assessments between two groups of K-3 students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 2. Is there a significant difference in reading assessments between two groups of low achieving reading students in kindergarten that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb Test of Early Literacy?

Null Hypothesis 2. No significant difference exists in reading assessments between two groups of kindergarten students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 3. Is there a significant difference in reading assessments between two groups of low achieving reading students in first grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 3. No significant difference exists in reading assessments between two groups of first grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 4. Is there a significant difference in reading assessments between two groups of low achieving reading students in second grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 4. No significant difference exists in reading assessments between two groups of second grade students, one that attended the summer Direct

Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 5. Is there a significant difference in reading assessments between two groups of low achieving reading students in third grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 5. No significant difference exists in reading assessments between two groups of third grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Definition of Terms

Achievement gap—The gap that exists on measures of reading achievement between students often attributed to socio-economic status, gender, race/ethnicity, and ability (Allington et al., 2010).

At-risk Students—Students with average intelligence who exhibit at-risk factors such as living in poverty, ethnicity, and/or learning disabilities.

Comprehension—Ability to understand and derive meaning from text (Feifer, 2008).

Direct Instruction—A model for teaching that emphasizes purposeful and explicit instruction that is scripted.

Faucet Theory—Learning theory that states resources are turned *ON* for all children during the school year because of equal access to public education. During the

summer months, the faucet is turned off for children living in poverty (Entwisle, Alexander, & Olson, 1997).

Fluency—Reading words effortlessly at a conversational rate (Kuhn & Stahl, 2003).

Matthew Effect—The "Matthew Effect" refers to the idea that in reading (as in other areas of life), the rich get richer and the poor get poorer. The word-rich get richer and the word-poor get poorer (Stanovich, 1986).

NCLB—The No Child Left behind Act of 2001 was signed into law by President Bush. The Act represented the presidential education reform plan. NCLB changes the federal government's role in K-12 education by focusing on school success as measured by student achievement. The Act put forth the four basic education reform principles: (a) stronger accountability for results, (b) increased flexibility and local control, (c) expanded options for parents, and (d) an emphasis on teaching methods that have been proven to work (U.S. Department of Education, 2002).

Phonemic Awareness—Phonemic awareness includes being able to isolate and manipulate sounds in different ways to make up words (Feifer, 2008).

Phonics—It is a system of relationships between letters and sounds in a language.

Print Awareness—It is the understanding of the nature and uses of print and includes the basic knowledge about print and how it is typically organized on a page. For example, print conveys meaning, print is read left to right, and words are separated by spaces.

Reading Mastery—A reading program commercially produced by McGraw-Hill. It emphasizes explicit and systematic instruction to increase reading achievement for at-risk readers.

Research-based Interventions—Interventions that are based on instructional methods that have produced, documented, and replicated outcomes through research (Mesmer & Mesmer, 2008).

Struggling Readers—Students who are performing lower than similar peers in regards to reading fluency and comprehension.

Summer Slide—The regression or loss of academic skills over the summer vacation.

Syllabication—The act of breaking big words up into smaller parts so they can be pronounced and spelled more easily.

Assumptions, Delimitations, and Limitations

Assumptions of the study. In order to adequately understand the scope of the study, it is important to understand some basic information that is assumed. Five assumptions are inherent in this study. They are:

1. Reading Mastery, as a Direct Instruction program, is a carefully sequenced, prescribed and scripted curriculum.
2. Teachers using Reading Mastery are trained to follow the curriculum.
3. Reading Mastery, used as an intervention, accelerates students' rates of learning.

4. Students attending the summer intervention program are students from the lowest quartile, the bottom 25% of students based on national norms according to AIMSweb, the district's universal screener.
5. The scores obtained from AIMSweb through benchmarking assessments and progress monitoring accurately reflect student achievement and progress.

Delimitations of the study. Delimitations are the criteria I selected to provide the parameters of my study. The delimitations helped determine who would be included in the study and what information would be examined. I employed the following delimitations:

1. The data were collected from an affluent suburb in one state and one school district.
2. The data collected and analyzed were from summers of 2009, 2010, and 2011.
3. The universal screener used as the main source of data for this project was the AIMSweb Test of Early Literacy and R-CBM.
4. The summer intervention utilized and implemented was Direct Instruction, specifically Reading Mastery and Corrective Reading.
5. The study included only students in grade K-3.
6. The population of students is delimited to 8% of the student population in the school district.

Limitations of the Study. The following limitations may affect the results of this study:

1. Students were placed in multiple classrooms with different teachers, thus experience different instructional methods and techniques throughout the school year.
2. Some students were identified in special education and have received and will continue to receive intensive reading, writing, and language support throughout the school year.
3. A small number of minority students were available for this study.
4. A small number of free-reduced students were available for this study.

Significance of Study

Instructional leadership is paramount to the principal role. The main tenets of the principalship include analyzing student achievement data, studying curriculum, implementing professional development and training for teachers, and restructuring and reallocating staff. Although the principal maintains budgets, attends meetings and submits reports, the managerial side of the position may be taking a backseat to what is more important—student achievement. Accountability for student growth within a given school truly lies with the school leader.

Andrews and Soder (1987) concluded that student achievement was significantly higher in schools that employed strong instructional leaders as the principal than in schools that had average or weak leaders. The federal government has also identified the importance of strong instructional leadership by imposing severe penalties for the administrators of low performing schools. Strong leadership is so important that principals in several states have been removed under the federal School Improvement Grant program, Race to the Top (U.S. Department of Education, 2010). Accountability

and student growth is increasingly aligned with the principal, creating an urgency among principals to emphasize their roles as instructional leaders.

Many principals realize the importance of instructional leadership. Reeves (2007) pointed out that the continuation of prioritizing instructional leadership takes time and perseverance. Understanding assessment, creating an evidence-based culture, and the constant monitoring of the right kind of data is the foundation of a school committed to student achievement. There is an urgency for principals to lead schools with focused and evidence-based instruction and student achievement at the forefront. One possibility for principals to consider to increase student achievement is the phenomenon of summer slide and how to reduce the rate of achievement decline that happens over the summer. This study examines one possible way to reduce summer regression. This study delineates one pilot program over three years as an intervention to reduce summer regression in the area of reading scores.

Chapter 2

Review of Literature

Learning to read provides the foundation for children's long-term academic success. Much time and research has been devoted to increasing successful and critical readers to ensure that students are progressing at a rate in which the percentage of proficient readers is increasing. Despite the attention to this matter, the achievement gap continues to widen between high-achieving students and low-achieving students (Carbo, 2003). Alexander, Entwisle, and Olson (2001) have documented that children from economically disadvantaged backgrounds suffer academically due to lack of resources readily available to children from higher socio-economic backgrounds.

When school is not in session, many children still benefit from exposures and experiences encountered in literacy rich environments, trips to museums, vacations, and an actively involved home life. However, for other children, the summer months are a roadblock to learning. These children are not exposed to life experiences that contribute to academic achievement (Alexander et al., 2001).

The federal government has mandated several initiatives, such as the reauthorization of the Individuals with Disabilities Act (U.S. Department of Education, 2004) and No Child Left Behind (U.S. Department of Education, 2002). Schools must act decisively to intervene to assist struggling readers. Torgesen (2002) determined that highly intensive and systematic instruction could close the gap between low-performing and high performing students. Research-based interventions should be employed and programming and calendars must be examined to determine how best to meet the needs of the diverse learners in public schools today.

This literature review addresses learning theories and how academic growth rates are affected during summer vacation. Research associated with Direct Instruction as a teaching methodology is presented, as well as the commercially produced Reading Mastery and Corrective Reading series, which is a systematic and intensive program of instruction. The review explored how Reading Mastery addresses the five tenets of a comprehensive reading program as suggested by the National Reading Panel (2000), which include: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) reading comprehension.

Summer Regression

For years, researchers have postulated that disadvantaged students experience academic loss over the summer months (Alexander et al., 2007; Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Heyns, 1978). Cooper et al. (1996) documented, through a meta-analysis of 13 studies, that achievement scores from a fall semester tend to be lower than scores achieved in the previous spring semester. This is particularly true for students from low-income families, minority students, and less-skilled students (Alexander et al., 2001; Cooper et al., 1996).

The “summer slide” was first noted by Heyns (1978). Heyns tracked the reading progress of approximately 3,000 sixth and seventh graders during the school year and throughout the summer. Heyns (1978) noted that learners from both ends of the socio-economic spectrum learned at similar rates when school was in session. However, during the summer months, economically advantaged children were able to maintain academic achievement, while economically disadvantaged children lost academic ground. In

addition to socioeconomic status, race and ethnicity also played roles in the achievement gap observed after the summer months of no consistent reading instruction.

Similar conclusions were made with the Baltimore Beginning School Study in which Entwisle and colleagues (1997) identified seasonal learning patterns that supported Heyns research. Socioeconomic achievement gaps are minimized when school is in session. In fact, the achievement gap that is created over the summer is multiplied as disadvantaged students progress through formal schooling resulting in significant learning gaps over time (Entwisle et al., 1997). This widening achievement gap is not attributed to poor schooling, but rather a lack of exposure and limited resources to academic stimulating experiences during the summer months for children from lower socio-economic families (Entwisle et al., 1997).

Entwisle (1997) coined the term “faucet theory” to explain the phenomenon. During the school months, students across the socio-economic spectrum enjoy similar learning rates due to the availability of learning resources throughout the school year. When the school door closes and the “faucet” is turned off, children from lower socio-economic families have less access to resources resulting in learning rates that lag those of middle class children.

Lower socio-economic children entering kindergarten start out at approximately 12-14 months behind the average of their peers; the gap widens as the child progresses throughout school (Stark, 2009). These statistics may prompt claims that American schools are failing students. However, children across SES lines have similar learning rates during the school year (Heyns, 1978). Research conducted by Downy, von Hippel, and Broh (2004) provided results that schools are the “great equalizer” for raising

achievement for children from low-income families, but students from low SES suffer from an “opportunity gap” when school is not in session. The “opportunity gap” referred to the limited educational experiences and resources readily available to children from lower socio-economic families during the summer. These experiences could range from formal experiences such as summer camps, tutoring, or art lessons, to informal experiences such as visits to museums, concerts, sporting events, or the library. Added to the impact of the opportunity gap are other barriers such as: (a) lack of supervision, (b) access to health care, (c) poor nutrition, (d) language barriers, and (e) violence.

Although all children lose some academic ground over the summer, the majority of students recoup lost material during the first few weeks of the new school year. However, since children from low SES have scores below the average, it is more difficult for low-achieving peers to catch up with high-achieving peers. Stanovich (1986) further concluded that some children arrive at the school doors with more experiences and reading skills than others. Thus, these students continue to grow academically, while students who do not come from a literacy rich background tend to suffer academically. The “Matthew Effect” based on the gospel teaching, “The rich get richer, and the poor get poorer” described what is believed to happen to students that are economically disadvantaged (Stanovich, 1986). When children fail at early reading and writing, they begin to dislike reading. They read less than their classmates who are stronger readers. Thus, the ramifications of the “Matthew Effect” take place. Children from literacy rich backgrounds and experiences further develop reading skills while the children from literacy poor backgrounds and experiences get further behind.

The ability to read is both a fundamental skill and a foundational skill for learning other academic skills. Due to the importance of acquiring solid reading skills, schools have implemented a wide range of interventions to address reading regression over the summer months.

A prevalent intervention is the traditional summer school that operates on the basis that some students need remediation or may not have mastered expected outcomes and standards (Allington, 2006). In an effort to correct the skill deficit of students, these programs address detailed objectives. Researchers have concluded that summer school is an ineffective way to increase reading achievement (Heyns, 1987; Karweit, 1993; Piphoo, 1999). Cooper et al. (1996) however, contended that summer schools can help to prevent reading loss, but does little to achieve reading gains. Borman (2000) suggested that in order for summer schools to truly prevent summer reading loss, the summer program must include: (a) opportunities for primary students to participate, (b) repeated opportunities over several summers, and (c) strategies should focus on prevention and development rather than remediation. In general, most summer schools are offered to children who have fallen behind during the regular school year and its function, therefore, is about remediation instead of prevention and may be perceived as punitive (Karweit, 1993).

Providing access to books is another method for tackling summer reading loss. Evidence suggested that effective voluntary reading programs contain necessary components such as (a) access to high interest books, (b) books of appropriate reading level, and (c) the guidance of an adult to teach simple techniques to develop a clear understanding of the book (Kim, 2006). Kim and White (2008) advocated for the use of

scaffolding, which is providing structure at the child's instructional level so that the child experiences success and moves forward with the guidance of an experienced adult. These researchers asserted that although there is no overwhelming evidence of the positive outcomes of voluntary reading alone, there is some evidence that oral reading and utilizing several comprehension strategies does produce gains with the assistance and guidance of an adult. Children need to be taught how to be a critical and active reader. Boyle (2008) explained "the key to reading seems to be frequent exposure to reading skills and strategies, particularly those skills that will cross over or generalize from one activity to another" (p. 3). However, not all parents are capable of providing the support and guidance needed for the successful implementation of a voluntary summer reading program. In addition, children who already identify themselves as poor readers may not choose to read even high-interest books.

Clearly, research indicates that summer loss is a concern, and summer intervention is imperative to reduce summer reading regression. Consideration of the structure of the summer reading intervention is imperative as is the content of the program. Furthermore, since researchers have concluded that "highly intensive systematic" instruction can dramatically increase reading achievement for students most at risk (Kamps, Abbott, Greenwood, Wills, Veerkamp & Kaufman, 2008), attendees of summer intervention programs benefit from instruction that is efficient, organized, and research-based. Extra and direct instruction that focuses on basic fluency and comprehension strategies for struggling readers can bridge the gap between low and high achievers.

Direct Instruction

Direct Instruction, a teaching methodology originated in the 1960s by Siegfred Engelmann at the University of Illinois and later at the University of Oregon, is an explicit, purposefully sequenced and scripted model of instruction. This method of teaching is based on the premise of five tenets (National Institute for Direct Instruction, n.d.).

1. All children can be taught.
2. All children can improve academically.
3. All teachers can succeed if provided with adequate training and mentoring.
4. Low performers and disadvantaged learners must be taught at a faster rate than typically occurs if they are to catch up to their higher-performing peers.
5. All details of instruction must be controlled to minimize the chance of students' misinterpreting the information being taught and to maximize the reinforcing effect of instruction.

During Direct Instruction the teacher maintains management and control of the lesson through telling, modeling, demonstrating and prompting rapid active responding of the students. During the lesson, teachers follow scripts that are designed to maximize learning and minimize distraction and/or confusion through explicit instruction. One of the most important attributes of Direct Instruction is inclusion of homogeneous skill grouping; a group does not move forward until everyone in the group demonstrates mastery (American Federation of Teachers, 1998).

Direct Instruction initially gained notoriety from *Project Follow Through*, an initiative of the Department of Education during President Lyndon Johnson's tenure.

Project Follow Through addressed the disparity between academic achievement between students living in poverty and their middle class peers (Adams & Engelmann, 1996). The main objective of the study was to gain support for Head Start, which provided academic and social supports for families living in poverty (Grossen, 1996). Perhaps one of the largest experiments conducted and funded by the government regarding the effects of different instructional models, *Project Follow Through* studied 22 sponsors and eventually 9 different models of teaching in 180 schools across the United States. Over 75,000 students participated in the study, and each model of instruction was compared to a control group and with one another (Adams & Engelmann, 1996). Data were collected and analyzed every year from 1967 through 1976. Analysis was conducted by two independent research firms, ABT Associates and Stanford Research Associates. Students participating in Direct Instruction demonstrated the highest results in all three areas measured— basic skills, academic skills, and affective skills (Adams & Engelmann, 1996).

More recently, researchers provided similar conclusions regarding Direct Instruction. Direct Instruction was shown to have positive effects in a meta-analysis of 25 studies that focused on special education students (White, 1988). Ross, Smith, and Casey (1997) concluded that students participating in Direct Instruction not only performed greater on individual assessments, but also on standardized tests specifically for students in first and second grade. Similarly, of seven interventions in a large analysis of special education intervention programs, Direct Instruction was found to show strong evidence of effectiveness (Forness, Kavale, Blum, & Lloyd, 1997). Carlson and Francis (2002) concluded that achievement gains are greatest in kindergarten and first

grade under a Direct Instruction model. Kamps (2003) studied three groups of students participating in three different modes of instruction. Although all three groups of students demonstrated gains, the cohort that participated in Direct Instruction had the greatest growth rate in the area of reading achievement. A substantial body of research concludes similar findings (Crowe, Connor, & Petscher, 2009; Kamps et al., 2008; Slavin, Madden, Karwait, Livermon, & Nolan, 1990). Stockard and Engelmann (2010), in a study comparing Direct Instruction to a more holistic approach, concluded,

Children's growth in reading skills occurred throughout the time period of the study and was greater for those exposed to a more systematic and explicit curriculum whose logical order matches the theoretical formulation. (p. 18)

Direct instruction criticism. Direct Instruction has not been without criticism.

Direct Instruction is a hotly debated and controversial topic among educators, researchers, and the public. One of the major arguments against Direct Instruction is that the scripted format does not allow for the development of creative and critical thinking skills that are deemed imperative to the intuitive reader (Altwerger, 2005). Others suggested that young readers need to be exposed to quality literature in which comprehension, writing, and discussion are the main tenets of a solid reading program (Allington, 2002; Altwerger, 2005; Anderson, Hiebert, Scott, & Wilkinson, 1985). Walpole, Justice, and Invernizzi (2004) found that high performing schools with a critical mass of low-income students employed teachers who utilized differentiation to meet the needs of struggling readers. Small group intervention, emphasis on vocabulary, and small group reading instruction using quality literature and predictable books were strategies used to maintain high levels of achievement instead of using Direct Instruction method.

This “balanced” approach has been favored by many and incorporates skill-based reading, but not in a scripted format (Rasinski & Padak, 2004). Instead, teachers are the experts and determine when to devote time to phonics instruction based on the need of the students.

Ryder, Burton, and Silberg (2006) conducted a three-year longitudinal study of Direct Instruction, in which teacher perceptions were analyzed. They concluded that teachers perceived Direct Instruction as an effective corrective tool that helped develop deficient skills, but did not address comprehension and story elements that teachers deemed important. In addition, teachers noted concern about the lack of awareness regarding poverty, culture, and race in the Direct Instruction texts, which, in turn, isolated some children because of their lack of exposure to some of the events highlighted in the Direct Instruction curriculum.

Controversy surrounds Direct Instruction, and several researchers question its effectiveness (Altwerger, 2005; Wilson, Wiltz, & Lang, 2005). However, Direct Instruction is worthy of careful consideration and a clear understanding since there is a growing urgency to bridge the gap between low-performing and high-performing students.

Reading Mastery

Reading Mastery is a commercially produced Direct Instruction program by SRA/McGraw-Hill. It was originally known as DISTAR, an acronym for *Direct Instruction System for Teaching Arithmetic and Reading*. DISTAR was the same program created by Engelmann in the 1960’s and the program used in *Project Follow Through* (Adams & Engelmann, 1996).

According to Schieffer, Merchand-Martella, Martella, and Simonsen (1996), Reading Mastery's philosophy is to teach reading in "systematic, explicit, or a carefully sequenced way" (p. 5), therefore eliminating the confusion caused by implicit instruction. Students actually hear and see exactly what the teacher demonstrates. The developers of Reading Mastery asserted that, through explicit direction, students (a) develop a strong sense of phonemic awareness, (b) learn basic phonics skills, and (c) demonstrate that individual sounds and the blending of sounds form words when combined. These attributes of Reading Mastery closely align with recommendations from the National Reading Panel (2000):

1. To teach phonemic awareness explicitly.
2. To provide systematically sequenced phonics instruction.
3. To increase reading speed and accuracy (fluency) with error corrections techniques and feedback strategies.
4. To increase vocabulary.
5. To increase reading comprehension.

In addition and more specifically, the National Reading Panel (2000) recommended that phonemic awareness and phonics be taught using a systematic and explicit form of teaching. Reading Mastery addresses this recommendation through the model of Direct Instruction.

Phonemic awareness. A phoneme is the smallest unit of spoken language that can make a difference in a word's meaning. Phonemic awareness is the ability to detect, identify, and manipulate phonemes in spoken words (Hoing, Diamond, & Gutlohm, 2008). Through manipulating phonemes, students gain a strong awareness of phonemic

awareness and better understand the use of letters (National Reading Panel, 2000).

Foorman and Torgeson (2001) concluded that effective phonemic awareness instruction includes precise explanations, explicit modeling, and ample opportunities for student practice. Students benefit the most from phonemic awareness instruction that is systematic and in small groups (Foorman & Torgeson, 2001; National Reading Panel, 2000). Effective Phonemic awareness instruction is deliberate and purposeful and is considered to be just one part of an effective reading program (Yopp & Yopp, 2000). Phonemic awareness instruction improves overall word reading and reading comprehension of children with a wide range of abilities (Loeb, Gillam, Hoffman, Brandel, & Marquis, 2009).

Due to the research that promotes the effectiveness of phonemic awareness instruction, Reading Mastery has included phonemic awareness instruction as an essential component of its program. As described by Schieffer et al. (1996), the phonemic awareness instruction begins with tasks that are broad such as presenting long words broken into two parts:

Teacher: "Listen. **Ham** (pause) **burger**. Say it fast."

Hamburger (p. 6).

As students progress in the series, the objectives are more concentrated on blending phonemes such as:

Teacher: "Listen. **Sss-lll-aaa-mmm**. Say it fast." *Slam* (p. 6).

Children continue phonemic awareness instruction through Reading Mastery by segmenting words into phonemes. *Reading Mastery* techniques teach students to say each individual sound in the word without pausing and then repeating the word fast. This

repeated practice and blending of phonemes allows the students to concentrate on the sounds without distraction from print.

Phonics. The National Reading Panel (2000) concluded that phonics instruction significantly improves reading and spelling in kindergarten and first grade, significantly improves student ability to comprehend text, benefits all children regardless of socioeconomic class, and is a preventive measure for students at risk in developing reading difficulties. According to Hoing et al., (2008), phonics is a method of instruction that teaches students the relationship between the letters, graphemes, and phonemes in the spoken language and how to apply these relationships and rules to read.

Students who receive explicit and direct instruction in phonics proved to be better readers compared to students who did not receive phonics (Ehri, 2006). Similarly, de Graaf, Bosman, Hassleman, and Verhoeven (2009) found that children benefitted from a systematic phonics delivery model compared to a non-systematic phonics delivery model. These children had greater achievement in the area of phonemic awareness, spelling and reading.

Instructional efficacy regarding phonics instruction is dependent on having a systematic and explicit model of teaching phonics. Carnine, Silbert, Kame'enui, Tarver, & Jungjohann (2006) recommended that phonics instruction should include the following attributes:

1. Corrective feedback – errors should be corrected immediately and appropriate pronunciation should be modeled.
2. Monitoring – close monitoring should be employed by the teacher to ensure that students are keeping pace and paying attention.

3. Pacing – the pace of phonics instruction should maintain a quick pace with little transition or downtime.
4. Signaling – effective phonics instruction employs teacher signals that allows students to respond in unison.

Reading Mastery includes all attributes in its program. In *Reading Mastery*, students begin phonics instruction with sounding out words. Letter/sound correspondence is also a component of lessons presented through *Reading Mastery*. The sequencing of lessons and the introduction of specific letter/sound correspondence are carefully considered in *Reading Mastery*.

The introduction of letter-sounds (e.g., c = /k/, s = /sss/) and letter-sound combinations (e.g., qu = /koo/, er = /er/) is carefully sequenced to reduce confusion and to provide adequate practice. Only the most common sounds for each letter or letter combination are taught initially. (Schieffer et al., p. 9)

The four attributes presented by Carnine et al., (2006) are incorporated throughout the phonics instruction component of the *Reading Mastery* series, thereby accelerating reading acquisition. There is a clear emphasis on immediate and corrective feedback, pacing, monitoring and signaling as incorporated throughout the *Reading Mastery* series.

Once letter and sound recognition has been mastered, *Reading Mastery* begins instruction on blending. *Reading Mastery* utilizes the Englemann Blending Strategy in which the tasks of reading sounds and saying words slowly at first and then fast are combined so that there is no stopping between the sounds (Schieffer et al., 1996).

Reading Mastery's inclusion of explicit phonics instruction aligns with the National Reading Panel's (2000) conclusion that phonics instruction is the most effective way to teach the alphabetic principle.

Fluency. Reading fluency is the quick and effortless reading of words in or out of context (Kuhn & Stahl, 2003). Reading fluency is an accurate reading of text at a conversational rate. It incorporates expression, smoothness, and pacing (Hudson, Lane, & Pullen, 2005). In the end, fluency can indicate assurance that reading is not only automatic, but it also indicates comprehension of text. Reading fluency is a critical component of a solid and research-based reading program (National Reading Panel, 2000). Adams (1990) suggested that fluency is a critical indicative characteristic of effective reading skills. Kuhn (2005) further explained that the more time students spend on decoding text, the less time is spent on gathering essential meaning from the text. Effortless decoding of text contributes to better comprehension.

Given the research behind the importance of fluency, *Reading Mastery* incorporates fluency building exercises through oral reading, repeated readings, and partner reading (Schieffer et al., 1996). Students throughout the program build accuracy and fluency in each lesson by starting out reading a list of words, followed by passages or stories. Text is read aloud by individuals several times. When a reading error is made, the student starts the sentence over immediately after being provided with corrective feedback. This consistent, corrective feedback allows for several opportunities for children to develop fluency through repetitive reading.

Fluency is important because students are able to focus attention on the text and connections to the text, which aids comprehension. Direct instruction in the area of fluency is essential so that students have the opportunities to learn to decode words automatically and quickly (Rasinski, Homan, & Biggs, 2009). Reading fluency is directly related to reading comprehension and reading achievement (Rasinski, 2004).

Vocabulary. Just as fluency contributes to comprehension, having a larger vocabulary also aids in comprehension (Biemiller, 2005; Nagy, 2005). The National Reading Panel (2000) encouraged educators to develop vocabulary intentionally and explicitly through purposeful instruction and then later indirectly in the context of stories. The panel also recommended that vocabulary instruction exposes students to vocabulary items multiple times. Eventually, this continuous development of language will acquire meanings for words, which in turn will increase overall comprehension (Nichols & Rupley, 2004). Honing, Diamond and Gutlohn (2009) emphasized that “developing an in-depth, rich, and permanent understanding of new vocabulary comes through multiple exposures in more than one context” (p. 442).

Children demonstrate vocabulary gains through indirect and direct vocabulary instruction (Armbruster, Lehr, & Osborne, 2003). Indirect vocabulary instruction pertains to individual experiences and specific exposures to life experiences. Since, however, not all children are exposed to the same experiences or may not have the opportunity to participate in “rich” life experiences that cultivate vocabulary, direct instruction in vocabulary is needed. Nelson and Stage (2007) indicated that children benefitted from direct vocabulary instruction when compared to a control group that did not receive the direct instruction in vocabulary. These researchers found that reading comprehension increased significantly for students receiving direct contextually-based multiple meaning vocabulary instruction.

Reading Mastery utilizes a variety of strategies to teach vocabulary. Through word isolation, words and meanings are introduced. Students are introduced to examples, synonyms, and vocabulary through context (Schieffer et al., 1996). As students progress

through the series, vocabulary instruction becomes more sequential providing many opportunities for students to demonstrate gains in vocabulary building through modeling, written activities, and oral activities (Schieffer et al., 1996).

Finally, *Reading Mastery* introduces vocabulary through stories so that students have the opportunity to derive meaning from context.

As general knowledge of vocabulary grows, stories in Reading Mastery become increasingly complex and interesting. Thus, initial focus in reading is on controlled vocabulary and content, which fades to high-interest stories as gains are made in reading vocabulary. (Schieffer et al., 1996, p. 18)

Reading Comprehension. Reading comprehension is dependent on decoding skills, fluency rate, vocabulary, world knowledge, and specific comprehension strategies (Hoing, Diamond, & Glutholm, 2008). Understanding the purpose of the text is critical to fully comprehend the written word. The National Reading Panel (2000) identified eight strategies to develop comprehension:

1. Monitoring comprehension: the reader monitors the text for basic understanding.
2. Connecting to world knowledge: the reader links past experiences with ideas from the text.
3. Predicting: the reader hypothesizes what will come next in the text.
4. Reorganizing text structure: the reader identifies how the text is organized.
5. Asking questions: the reader continually asks questions as he/she reads.
6. Answering questions: the reader identifies clues or answers from the text to answer teacher questions.
7. Constructing mental images: the reader forms a mental picture.

8. Summarizing: the reader can accurately relay information and events from the text in an organized form.

Rapp, van den Broek, McMaster, Kendeou, and Espin (2007) further explained that highly structured comprehension instruction is critical for increased comprehension and higher overall student progress in reading. Paris and Paris (2007) found that given direct strategies related to narrative text during instruction, comprehension increased for first grade students. The researchers found that understanding and recall of main idea increased as did basic story elements.

Reading Mastery focuses on explicit teaching strategies to increase comprehension strategies. *Reading Mastery* incorporates strategies that include making inferences to pre-reading strategies including predicting, vocabulary, and questioning techniques. Students participating in *Reading Mastery* practice basic comprehension strategies (who, what, where, when) through following written directions, answering literal questions about text, identifying literal cause and effect, recalling details and events and sequencing narrative events (Schieffer et al., 1996). Questions are posed before the text is read by students. This strategy allows students to start thinking about the text as it is read. After students have shown mastery with literal comprehension, readers begin reading texts that require reasoning and inference skills. Students are asked to deduct what is important from the passage, often times using context clues from the text to assist with interpretation of the text. Lastly, students are asked to rely on background knowledge and move beyond the basic comprehension and focus on cause and effect, inferences, summarizing, main idea, outlining and comparing and contrasting. By the end of the scaffolded instruction that *Reading Mastery* promotes, readers should

exhibit mastery in drawing conclusions, predicting outcomes, making inferences, and identifying evidence from the story.

Summary

A reading achievement gap between groups of students exists and is likely to continue to be stagnate if schools do not intervene early through the summer months with preventative programs that addresses the needs of students struggling with learning to read. Borman (2000) stressed the importance of prevention over remediation and promoted the repeated exposure of literacy-rich experiences over the summer months to aid in the minimization of the summer slide. Numerous researchers indicated that summer regression is a factor in the widening gap of achievement between children from higher and lower socio-economic backgrounds.

To address summer regression, schools must implement structures that maximizes time during the summer months and must implement a research and evidence-based program that promotes literacy and skill development by addressing needs of struggling readers in the early elementary years. Kamps et al., (2008) concluded that a systematic approach to reading can greatly increase achievement levels of students across the board.

Direct Instruction, although controversial, is one method that is evidence-based and is systematic in its approach to teaching reading. Due to the systematic and explicit mode of delivery, Direct Instruction minimizes lost instruction through misinterpretation, distraction, or irrelevancy and maximizes time and instruction so that disadvantaged students learn at a faster rate, thereby, reaching new levels of achievement similar to the rate of higher-achieving peers.

Reading Mastery, a Direct Instruction curriculum, addresses five components recommended by the National Reading Panel (2000) as the “big 5” in reading: (a) phonemic awareness, (b) phonics, (c) fluency, (d) vocabulary, and (e) reading comprehension. When delivered with integrity and fidelity, students are exposed to each component in a variety of instructional techniques to further develop the skill acquisition necessary for successful reading.

Chapter 3

Methodology

It is clear that the challenges faced by schools are overwhelming in regards to closing the achievement gap in the area of reading. Although there is a substantial body of research that supports Direct Instruction, I examined the implementation of such a program during a three-week period over the summer months when the learning faucet is turned off. In this chapter, specifically, I clarify the purpose statement, identify the research questions and hypothesis statements, specify population and procedures for data collection and use of instrumentation, identify the independent and dependent variables, and describe the data analysis.

Purpose Statement

The purpose of this quantitative study was to determine the effectiveness of a Direct Instruction reading program focused on the five elements of a comprehensive reading program recommended by the National Reading Panel (2000):

1. phonemic awareness,
2. phonics,
3. fluency,
4. vocabulary, and
5. reading comprehension.

The program, *Jump Start to Reading*, served as an intervention for the lowest quartile of readers in grades K-3 in a suburban school district over a three-week period before the first official day of school during the summers of 2009, 2010, and 2011. Data were collected and analyzed over three years from the district's adopted curriculum-based

measurement, AIMSweb Reading Curriculum-Based Measurement (R-CBM) and AIMSweb Test of Early Literacy (Phoneme Segmentation Fluency subtest), to determine if there was a significant difference in reading achievement of students participating in this intervention compared to students who did not participate in the summer intervention over three-year period. Permission and approval was received by the Institutional Review Board (see Appendix A).

Intervention Design

The summer reading intervention used for this study was a district initiative, *Jump Start to Reading*, that included key elements of research-based interventions such as: (a) intensive instruction, (b) expanding instruction time, (c) consistent and intense direct instruction focusing on fluency, (d) phoneme segmentation, (e) sound identification, (f) phonics, and (g) vocabulary utilizing Direct Instruction, specifically Reading Mastery and Corrective Reading. The three-week program met four days a week (Monday – Thursday) from 8:30 a.m. – 11:30 a.m. preceding the first official day of school. Each three-hour session included 2-3 Direct Instruction lessons from Reading Mastery or Corrective Reading balanced with a component of guided reading that focuses on skill acquisition. Students were grouped by ability, and the teacher student ratio was no more than six students per teacher. During the morning, the children received a snack and a 15-minute recess. All teachers were trained in delivering Reading Mastery and Corrective Reading lessons with fidelity and integrity.

Research Questions and Hypotheses

Research question 1. Over a three-year period, is there a significant difference in reading assessments between two groups of low-achieving reading students in grades

K-3 that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb TEL (kindergarten) or AIMSweb R-CBM (first through third grades)?

Null hypothesis 1. No significant difference exists in reading assessments between two groups of K-3 students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research question 2. Is there a significant difference in reading assessments between two groups of low achieving reading students in kindergarten that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb Test of Early Literacy?

Null hypothesis 2. No significant difference exists in reading assessments between two groups of kindergarten students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research question 3. Is there a significant difference in reading assessments between two groups of low achieving reading students in first grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null hypothesis 3. No significant difference exists in reading assessments between two groups of first grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research question 4. Is there a significant difference in reading assessments between two groups of low achieving reading students in second grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null hypothesis 4. No significant difference exists in reading assessments between two groups of second grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research question 5. Is there a significant difference in reading assessments between two groups of low achieving reading students in third grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null hypothesis 5. No significant difference exists in reading assessments between two groups of third grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Population

A Midwestern suburban school district served as the site for this study. The suburban school district was one of 11 public school districts that serve the students of a large metropolitan area. With a growth rate of more than 6% each year, the school district was one of the fastest growing districts in the state. Tables 1-3 depict student demographics during the 2008-2009, 2009-2010, and 2010-2011 school years.

As noted in Table 1, the ratio between male and female students is relatively the same.

Table 1

Population of School District, 2008-2011

Year	Gender	Population	Percent
2008-2009	Male	2408	49.70
	Female	2432	50.20
2009-2010	Male	2573	49.97
	Female	2576	50.03
2010-2011	Male	2776	49.96
	Female	2780	50.02

As noted in Tables 2, 3, and 4, the school district had a relatively homogenous population. Over 90% of students are White/Not Hispanic.

Tables 5, 6, and 7 displays information that the school district is well below the state averages in regards to students with limited English proficiency and students eligible for free/reduced lunch. Students receiving special education services align more closely with state averages.

Sample

The sub-population of students eligible for the intervention served as the sample. It was defined so that students identified were based on pre-determined qualifiers that focused on relevant student data. All students selected to participate in the summer reading intervention, *Jump Start to Reading*, met one of the following criteria:

Table 2

Race and Ethnicity of School District, 2008-2009

Year	Race/Ethnicity	Population	Percent
2008-2009	White/Not Hispanic	4474	92.4
	Asian/Pacific Islander	121	2.5
	American Indian/Alaska Native	14	.3
	Black/Not Hispanic	83	1.7
	Hispanic	148	3.1

Table 3

Race and Ethnicity of School District, 2009-2010

Year	Race/Ethnicity	Population	Percent
2009-2010	White/Not Hispanic	4742	92.1
	Asian/Pacific Islander	138	2.7
	American Indian/Alaska Native	12	.2
	Black/Not Hispanic	91	1.8
	Hispanic	166	3.2

Table 4

Race and Ethnicity of School District, 2010-2011

Year	Race/Ethnicity	Population	Percent
2010-2011	White/Not Hispanic	5117	92.1
	Asian/Pacific Islander	149	2.68
	American Indian/Alaska Native	13	.23
	Black/Not Hispanic	98	1.77
	Hispanic	179	3.22

Table 5

Other Demographic Information about School District, 2008-2009

Year	Attribute	Population	Percent	State Average
2008-2009	Students with limited English proficiency	55	1.1	6.31
	Special Education	635	12.8	15.21
	Students eligible for free/reduced lunch	347	7.17	38.35

Table 6

Other Demographic Information about School District, 2009-2010

Year	Attribute	Population	Percent	State Average
2009-2010	Students with limited English proficiency	75	1.4	41.22
	Special Education	574	11.1	6.56
	Students eligible for free/reduced lunch	460	8.93	15.26

Table 7

Other Demographic Information about School District, 2010-2011

Year	Attribute	Population	Percent	State Average
2010-2011	Students with limited English proficiency	60	1.08	6.72
	Special Education	705	12.7	15.17
	Students eligible for free/reduced lunch	505	9.08	42.48

1. Students identified with a learning disability in the area of reading.
2. Kindergarten students below the 25thile of national norms in the area of phoneme segmentation fluency (PSF) according to AIMSweb Test of Early Literacy.
3. First through third grade students below the 25thile of national norms in the area of fluency as measured by AIMSweb Reading- Curriculum Based Measurement.

Table 8 displays the sub-population of students meeting the qualifications for *Jump Start to Reading* in grades K – 3 during the summers of 2009, 2010, and 2011. Students participating in the intervention were identified as the treatment group and were compared with students were invited but did not participate in the intervention. These students comprised of the control group.

Table 8

Enrollment of Students Attending Jump Start

Grade	Number of Students that met criteria and were invited to attend Jump Start	Number of students that attended Jump Start
Kindergarten	81	40
First Grade	90	46
Second Grade	102	50
Third Grade	99	46
Total	372	182*

*167 students participated in summer program once during the three summers

*10 students participated in the summer program twice during the three summers

*5 students participated in the summer program for all three summer sessions

Data Collection

Archived benchmark and progress monitoring data from 2009 - 2011 was retrieved from the school district's AIMSweb database warehouse. Progress monitoring data collected during the *Jump Start to Reading* program were analyzed during the summers of 2009, 2010, and 2011 for students participating in the intervention. For kindergarten students, benchmark data regarding phoneme segmentation fluency (PSF) from the AIMSweb test of Early Literacy were analyzed. For students in first, second, and third grades, benchmark data from AIMSweb Reading Curriculum-based measurement (R-CBM) were analyzed.

Instrumentation

AIMSweb is a standardized, formative curriculum-based measurement system. The system provides web-based reading assessments and an on-line data management system to store and organize student data. There are two main objectives: (a) to help

identify at risk students so that intervention can begin in a timely manner, and (b) to monitor student progress in an efficient and frequent manner so that data decisions can be made regarding intervention changes (Shinn & Shinn, 2002).

The AIMSweb system recommended three benchmark assessments per year, one each during the fall, winter, and spring administered to all students to ensure students who need intervention are accurately identified. According to Shinn and Shinn (2002), the core purpose of benchmarking is to (a) screen and identify at-risk students in need of reading interventions; (b) to monitor progress and improvement of individual students in the fall, winter, and spring of the school year; and (c) to make program evaluation decisions and improve accountability. The assessments are standardized. The assessments are administered, scored, and analyzed in a standard way and are designed to indicate general achievement. All students are given the same probes that are commercially produced by AIMSweb. Thus, probes are independent of a school's curriculum and are grade-level appropriate.

For kindergarten students, AIMSweb Test of Early Literacy was utilized. The Test of Early Literacy includes subtests in letter naming fluency, letter sound fluency, phoneme segmentation fluency, and nonsense word fluency. The subtest of phoneme segmentation fluency was chosen to track for this research because it is indicative in predicting overall fluency (Kaminski & Good, 1996; Shinn & Shinn, 2002). Phoneme segmentation fluency or PSF measures the student's ability to segment words into their individual phonemes. All students were given the same probes that were commercially produced by AIMSweb. Table 9 displays the components of the Test of Early Literacy Skills.

Table 9

AIMSweb Test of Early Literacy used for Kindergarten Students

Test of Early Literacy Measurements	Skills Assessed
Letter Naming Fluency (LNF)	Identification of letters
Letter Sound Fluency (LSF)	Letter – Sound Correspondence
*Phoneme Segmentation Fluency (PSF)	Identification of individual phonemes
Nonsense Word Fluency (NWF)	Links sounds, phonemes, and letters

*Denotes measurement tracked for this study

For students in first through third grades, the Reading Curriculum-Based Measurement (R-CBM) assessment was utilized. R-CBM measures oral reading fluency by assessing a student's oral reading rate and accuracy on a one-minute probe. Table 10 depicts skills assessed by the R-CBM assessment.

Table 10

AIMSweb Reading Curriculum-Based Measurement for First – Third Grade Students

Measurement	Skills Assessed
R-CBM	Number of words read correctly and number of errors given a one minute probe

Various researchers have studied the reliability of R-CBM (Shinn & Shinn, 2002; Deno, Fuchs, Marston, & Shinn, 2001). All results have indicated relatively strong reliability. A recent meta-analysis indicated a high reliability of .89 for alternate forms and a test-retest reliability of .95 (Yeo, 2011). As noted in Deno et al. (2001),

CBM relies on a traditional psychometric framework by incorporating conventional notions of reliability and validity so that the standardized test administration and scoring methods have been designed to yield accurate and meaningful results. (p. 508)

Wayman, Wallace, Wiley, Ticha, and Espin (2007) confirmed the reliability at .90 and the validity coefficients approximately at .70 - .90.

AIMSweb develops norms based on all of its users. However, the user group is not necessarily representative of the population, thus scores should be used cautiously. School districts may choose to make AIMSweb a criterion-referenced assessment by setting their own criteria for passing benchmark assessments. For this study, AIMSweb was chosen because it is administered throughout the district as a criterion-referenced assessment. Data were collected and analyzed from the Spring Benchmarks (pre-summer intervention scores) and data were collected and analyzed from the following Fall benchmark (post-summer intervention score).

Independent and Dependent Variables

All students in grades K-3 who met one of the previously described criteria were invited to participate in the intervention, *Jump Start to Reading*. Student assignment to the control group or the intervention group was dependent on parental permission to attend the *Jump Start to Reading* program. Students with permission and who attended the program became part of the intervention group. Students who did not attend, by default, became a part of the control group. Students in both the control and treatment group who did not return to the school district were removed from the study. Therefore, the independent variable is participation in the *Jump Start to Reading* program. The dependent variable is the improvement of scores from AIMSweb Test of Early Literacy

Skills (PSF subtest) for kindergarteners and AIMSweb R-CBM for first through third graders, pre and post the intervention.

Data Analysis

I analyzed and compared data from two separate groups of students struggling with reading skills in grades K-3 over a three-year period. Members of the treatment group participated in a three-week summer intervention reading program. Members of the control group did not participate in the intervention program. Descriptive and inferential statistics were used to compare both groups of students. Descriptive statistics were used to provide general, descriptive information about the samples. Inferential statistics were used to determine a significant difference between the reading scores of the two groups. Data were analyzed cumulatively by grade level and further analyzed for each year of the three testing years for each grade level.

A one tailed t-test was used to determine the statistical significance between the treatment and control groups on selected AIMSweb reading assessments, namely PSF for kindergarten students and R-CBM for first through third grade students. A one tailed t-test was chosen because the hypotheses of this study were that the summer intervention program would minimize summer regression for reading. Thus, only one direction of the results would be considered significant. The t-test was administered at an alpha of .05.

Chapter 4

Results

Purpose

The purpose of this quantitative study was to determine the effectiveness of a Direct Instruction reading program focused on the five elements of a comprehensive reading program recommended by the National Reading Panel (2000):

1. phonemic awareness,
2. phonics,
3. fluency,
4. vocabulary, and
5. reading comprehension.

The program, *Jump Start to Reading*, served as an intervention for the lowest quartile of readers in grades K-3 in a suburban school district over a three-week period before the first official day of school during the summers of 2009, 2010, and 2011. Data were collected and analyzed over three years from the district's adopted curriculum-based measurement, AIMSweb Reading Curriculum-Based Measurement (R-CBM) and AIMSweb Test of Early Literacy (Phoneme Segmentation Fluency subtest), to determine if there was a significant difference in reading achievement of students participating in this intervention compared to students who did not participate in the summer intervention over three-year period.

Research Questions and Hypotheses

This study was guided by five research questions. Research Question 1 was cumulative and incorporated data analysis of scores from students in grades K – 3.

Research Questions 2 through 5 were grade specific. Data were analyzed in multiple ways to provide a more thorough understanding of the results as they pertained to the research questions. Statistical analyses were conducted to address each research question.

Research Question 1. Over a three-year period, is there a significant difference in reading assessments between two groups of low-achieving reading students in grades K-3 that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb TEL (kindergarten) or AIMSweb R-CBM (first through third grades)?

Null Hypothesis 1. No significant difference exists in reading assessments between two groups of K-3 students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 2. Is there a significant difference in reading assessments between two groups of low achieving reading students in kindergarten that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb Test of Early Literacy?

Null Hypothesis 2. No significant difference exists in reading assessments between two groups of kindergarten students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 3. Is there a significant difference in reading assessments between two groups of low achieving reading students in first grade that is dependent on

the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 3. No significant difference exists in reading assessments between two groups of first grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 4. Is there a significant difference in reading assessments between two groups of low achieving reading students in second grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 4. No significant difference exists in reading assessments between two groups of second students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Research Question 5. Is there a significant difference in reading assessments between two groups of low achieving reading students in third grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 5. No significant difference exists in reading assessments between two groups of third students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Sample

Student data were collected from a criterion sample. Students were identified based on pre-determined qualifiers. All students selected to participate in the summer reading intervention, *Jump Start to Reading*, met one of the following criteria:

1. Students identified with a learning disability in the area of reading.
2. Kindergarten students below the 25thile of national norms in the area of phoneme segmentation fluency (PSF) according to AIMSweb Test of Early Literacy.
3. First through third grade students below the 25thile of national norms in the area of fluency as measured by AIMSweb Reading- Curriculum Based Measurement.

The sample for the treatment group consisted of 40 kindergarten students, 46 first grade students, 50 second grade students, and 46 third grade students over a three-year period (n = 182). The sample for the control group consisted of 41 kindergarten students, 44 first grade students, 52 second grade students, and 53 third grade students over a three-year period (n = 190). All students in the treatment and control groups met the criteria listed above. Of the 182 students in the treatment group, ten individual students participated in the summer intervention program for two consecutive summers and five individual students participated in the summer intervention program all three summers. The remaining 167 students participated in the summer intervention one time through the three-year study. Each participant in each year met the criteria to be included in the sample.

Findings of the Study

Research Question 1. Over a three-year period, is there a significant difference in reading assessments between two groups of low-achieving reading students in grades K-3 that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb TEL (kindergarten) or AIMSweb R-CBM (first through third grades)?

Null Hypothesis 1. No significant difference exists in reading assessments between two groups of K-3 students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Findings for Research Question 1. A t-test was conducted to determine statistical significance in scores collected from AIMSweb between students in grades kindergarten through third grade who participated in the summer intervention program (treatment group) and students who did not participate in the summer intervention program (control group). The results of the t-test are detailed in Table 11.

Table 11

Analysis of t-test for Control and Treatment Groups for All Students K-3

Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
Treatment	182	-7.17	14.396	+/- 4.20			
Control	190	-15.35	15.124	+/- 4.31			
Between Groups					370	5.34	0.000*

*p < .05

The mean difference between the pre-test and post-test scores indicated summer regression for both groups of students. The treatment group had a lower mean difference between pre- and post-tests ($M = -7.17$, $SD = 14.396$) than the control group ($M = -15.35$, $SD = 15.124$). The data indicate less regression for students who participated in the intervention than students who did not. The difference was significant, $t(370) = 5.34$, $p < .05$, one-tailed. The null hypothesis is rejected at the .05 alpha level.

Research Question 2. Is there a significant difference in reading assessments between two groups of low achieving reading students in kindergarten that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb Test of Early Literacy?

Null Hypothesis 2. No significant difference exists in reading assessments between two groups of kindergarten students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Findings for Research Question 2. A t-test was conducted to determine statistical significance in scores collected from AIMSweb Test of Early Literacy (PSF subtest) between students in kindergarten who participated in the summer intervention program (treatment group) and students who did not participate in the summer intervention program (control group). The results of the t-test are detailed in Table 12.

The mean difference between the pre-test and post-test scores indicated summer regression for both groups of students. The treatment group had a lower mean difference between pre- and post-tests ($M = -1.25$, $SD = 18.025$) than the control group ($M = -8.56$, $SD = 13.782$). The data indicate less regression for students who participated in the

Table 12

Analysis of t-test for Control and Treatment Groups of Kindergarten Students

Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
Treatment	40	-1.25	18.025	+/- 5.89			
Control	41	-8.56	13.782	+/- 4.22			
Between Groups					79	2.04	0.022*

*p < .05

intervention than students who did not. The difference was significant, $t(79) = 2.04$, $p < .05$, one-tailed. The null hypothesis is rejected at the .05 alpha level.

Research Question 3. Is there a significant difference in reading assessments between two groups of low achieving reading students in first grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 3. No significant difference exists in reading assessments between two groups of first grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Findings of Research Question 3. A t-test was conducted to determine statistical significance in scores collected from AIMSweb R-CBM between students in first grade who participated in the summer intervention program (treatment group) and students who did not participate in the summer intervention program (control group). The results of the t-test are detailed in Table 13.

Table 13

Analysis of t-test for Control and Treatment Groups of First Grade Students

Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
Treatment	46	-0.93	11.621	+/- 3.36			
Control	44	-7.34	12.430	+/- 3.67			
Between Groups					88	2.78	0.007*

*p < .05

The mean difference between the pre-test and post-test scores indicated summer regression for both groups of students. The treatment group had a lower mean difference between pre- and post-tests (M = -0.93, SD = 11.621) than the control group (M = -7.34, SD = 12.430). The data indicate less regression for students who participated in the intervention than students who did not. The difference was significant, $t(88) = 2.78$, $p < .05$, one-tailed. The null hypothesis is rejected at the .05 alpha level.

Research Question 4. Is there a significant difference in reading assessments between two groups of low achieving reading students in second grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 4. No significant difference exists in reading assessments between two groups of second grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Findings of Research Question 4. A t-test was conducted to determine statistical significance in scores collected from AIMSweb R-CBM between students in second grade who participated in the summer intervention program (treatment group) and students who did not participate in the summer intervention program (control group). The results of the t-test are detailed in Table 14.

Table 14

Analysis of t-test for Control and Treatment Groups of Second Grade Students

Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
Treatment	50	-15.84	12.446	+/- 3.45			
Control	52	-23.81	15.805	+/- 4.29			
Between Groups					100	2.83	0.003*

*p < .05

The mean difference between the pre-test and post-test scores indicated summer regression for both groups of students. The treatment group had a lower mean difference between pre- and post-tests ($M = -15.84$, $SD = 12.446$) than the control group ($M = -23.81$, $SD = 15.805$). The data indicate less regression for students who participated in the intervention than students who did not. The difference was significant, $t(100) = 2.83$, $p < .05$, one-tailed. The null hypothesis is rejected at the .05 alpha level.

Research Question 5. Is there a significant difference in reading assessments between two groups of low achieving reading students in third grade that is dependent on

the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Null Hypothesis 5. No significant difference exists in reading assessments between two groups of third grade students, one that attended the summer Direct Instruction intervention program and one that did not attend the summer Direct Instruction intervention program.

Findings of Research Question 5. A t-test was conducted to determine statistical significance in scores collected from AIMSweb R-CBM between students in third grade who participated in the summer intervention program (treatment group) and students who did not participate in the summer intervention program (control group). The results of the t-test are detailed in Table 15.

Table 15

Analysis of t-test for Control and Treatment Groups of Third Grade Students

Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
Treatment	46	-9.16	9.342	+/- 2.72			
Control	53	-19.04	11.616	+/- 3.16			
Between Groups					97	4.63	0.000*

*p < .05

The mean difference between the pre-test and post-test scores indicated summer regression for both groups of students. The treatment group had a lower mean difference between pre- and post-tests (M = -9.16, SD = 9.342) than the control group (M = -19.04,

SD = 11.616). The data indicate less regression for students who participated in the intervention than students who did not. The difference was significant, $t(97) = 4.63$, $p < .05$, one-tailed. The null hypothesis is rejected at the .05 alpha level.

Further analysis examined data collected from each individual summer and grade level to determine statistical significance between pre- and post-tests on a yearly basis. Tables 16 – 18 displays the findings from each grade level kindergarten through third grade during the summers of 2009, 2010, and 2011.

The treatment group in kindergarten had a lower mean difference between pre- and post-tests ($M = 5.89$, $SD = 27.823$) than the control group ($M = -18$, $SD = 14.230$). The data indicated students who participated in the intervention gained more phoneme segmentation skills over the summer than students who did not. The difference was significant, $t(16) = 2.22$, $p < .05$, one-tailed.

The treatment group in first grade had a lower mean difference between pre- and post-tests ($M = 4.31$, $SD = 5.589$) than the control group ($M = -0.29$, $SD = 12.216$). The difference was not significant, $t(18) = 0.91$, $p > .05$, one-tailed.

The treatment group in second grade had a lower mean difference between pre- and post-tests ($M = -15.92$, $SD = 14.930$) than the control group ($M = -24.57$, $SD = 13.867$). The difference was not significant, $t(18) = 1.28$, $p > .05$, one-tailed.

The treatment group in third grade had a lower mean difference between pre- and post-tests ($M = -9.147$, $SD = 6.186$) than the control group ($M = -19.714$, $SD = 17.415$). The difference was significant, $t(24) = 2.01$, $p < .05$, one-tailed.

Table 16

Analysis of t-test for Control and Treatment Groups during the Summer of 2009

Grade	Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
K	Treatment	9	5.89	27.823	+/- 18.175			
	Control	9	-18	14.230	+/- 9.297			
	Between Groups					16	2.22	0.020*
1	Treatment	13	4.31	5.589	+/- 3.039			
	Control	7	-0.29	12.216	+/- 9.052			
	Between Groups					18	0.91	0.188
2	Treatment	13	-15.92	14.930	+/- 8.116			
	Control	7	-24.57	13.867	+/-10.275			
	Between Groups					18	1.28	0.109
3	Treatment	12	-9.417	6.186	+/- 3.502			
	Control	14	-19.714	17.415	+/-9.125			
	Between Groups					24	2.01	0.027*

*p<.05

Table 17

Analysis of t-test for Control and Treatment Groups during the Summer of 2010

Grade	Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
K	Treatment	9	-2.44	15.993	+/- 10.453			
	Control	13	-8.31	18.355	+/- 9.975			
	Between Groups					20	0.79	0.218
1	Treatment	12	-5.08	15.704	+/- 8.883			
	Control	20	-7.45	12.680	+/- 5.558			
	Between Groups					30	0.44	0.331
2	Treatment	13	-19.00	13.235	+/- 7.197			
	Control	22	-21.95	13.400	+/- 5.599			
	Between Groups					33	0.63	0.265
3	Treatment	16	-14.571	5.851	+/- 2.871			
	Control	16	-21.00	7.312	+/- 3.581			
	Between Groups					30	5.37	0.000*

*p<.05

The treatment group in kindergarten had a lower mean difference between pre- and post-tests ($M = -2.44$, $SD = 15.993$) than the control group ($M = -8.31$, $SD = 18.355$). The difference was not significant, $t(20) = 0.79$, $p > .05$, one-tailed.

The treatment group in first grade had a lower mean difference between pre- and post-tests ($M = -5.08$, $SD = 15.704$) than the control group ($M = -7.45$, $SD = 12.680$). The difference was not significant, $t(30) = 0.44$, $p > .05$, one-tailed.

The treatment group in second grade had a lower mean difference between pre- and post-tests ($M = -19$, $SD = 13.235$) than the control group ($M = -21.95$, $SD = 13.40$). The difference was not significant, $t(33) = 0.63$, $p > .05$, one-tailed.

The treatment group in third grade had a lower mean difference between pre- and post-tests ($M = -14.571$, $SD = 5.851$) than the control group ($M = -21$, $SD = 7.312$). The difference was significant, $t(30) = 5.37$, $p < .05$, one-tailed.

The treatment group in kindergarten had a lower mean difference between pre- and post-tests ($M = -3.68$, $SD = 13.506$) than the control group ($M = -4.26$, $SD = 6.590$). The difference was not significant, $t(38) = 0.18$, $p > .05$, one-tailed.

The treatment group in first grade had a lower mean difference between pre- and post-tests ($M = -1.81$, $SD = 10.976$) than the control group ($M = -10.12$, $SD = 11.763$). The difference was significant, $t(36) = 2.22$, $p < .05$, one-tailed.

The treatment group in second grade had a lower mean difference between pre- and post-tests ($M = -14.08$, $SD = 10.652$) than the control group ($M = -25.35$, $SD = 18.685$). The difference was significant, $t(45) = 2.50$, $p < .05$, one-tailed.

Table 18

Analysis of t-test for Control and Treatment Groups during the Summer of 2011

Grade	Group	N	Mean Difference	Standard Deviation	95% Confidence Interval	df	t	p
K	Treatment	22	-3.68	13.506	+/- 5.645			
	Control	18	-4.26	6.590	+/- 2.963			
	Between Groups					38	0.18	0.430
1	Treatment	21	-1.81	10.976	+/- 4.700			
	Control	17	-10.12	11.763	+/- 5.590			
	Between Groups					36	2.22	0.016*
2	Treatment	24	-14.08	10.652	+/- 4.261			
	Control	23	-25.35	18.685	+/- 7.638			
	Between Groups					45	2.50	0.008*
3	Treatment	17	-9.76	13.433	+/- 6.384			
	Control	22	-17.18	9.743	+/- 4.070			
	Between Groups					37	1.90	0.033*

*p<.05

The treatment group in third grade had a lower mean difference between pre- and post-tests ($M = -9.76$, $SD = 13.433$) than the control group ($M = -17.18$, $SD = 9.743$). The difference was significant, $t(37) = 1.90$, $p < .05$, one-tailed.

Chapter 5

Summary, Conclusions, and Recommendations

Statement of Problem

Schools must establish and maintain organizational structures that enhance classroom instruction so that the number of struggling students is minimized. Researchers have recognized that when school is not in session, the achievement gap widens. Effective interventions must be employed to address this gap. One method, Direct Instruction, has gained interest, once again, as a viable way in which to teach reading, specifically to struggling readers. This study sought to determine whether a summer instructional period utilizing Direct Instruction would significantly impact the reading achievement of struggling readers in kindergarten through third grade. To determine effectiveness, scores collected from 2009, 2010, and 2011 from the AIMSweb Reading Curriculum-Based Measurement (R-CBM) for grades 1 – 3 and AIMSweb Test of Early Literacy (TEL) subtest Phoneme Segmentation Fluency (PSF) were analyzed.

Purpose

The purpose of this quantitative study was to determine the effectiveness of a Direct Instruction reading program focused on the five elements of a comprehensive reading program recommended by the National Reading Panel (2000):

1. phonemic awareness,
2. phonics,
3. fluency,
4. vocabulary, and
5. reading comprehension.

The program, *Jump Start to Reading*, served as an intervention for the lowest quartile of readers in grades K-3 in a suburban school district over a three-week period before the first official day of school during the summers of 2009, 2010, and 2011. Data were collected and analyzed over three years from the district's adopted curriculum-based measurement, AIMSweb Reading Curriculum-Based Measurement (R-CBM) and AIMSweb Test of Early Literacy (Phoneme Segmentation Fluency subtest), to determine if there was a significant difference in reading achievement of students participating in this intervention compared to students who did not participate in the summer intervention over three-year period.

Sample

A purposeful sampling strategy was utilized. This method will allowed students to be identified based on pre-determined qualifiers that focused on relevant student data. All students selected to participate in the summer reading intervention, *Jump Start to Reading*, met one of the following criteria:

1. Students identified with a learning disability in the area of reading.
2. Kindergarten students below the 25%ile of national norms in the area of phoneme segmentation fluency (PSF) according to AIMSweb Test of Early Literacy.
3. First through third grade students below the 25%ile of national norms in the area of fluency as measured by AIMSweb Reading- Curriculum Based Measurement.

The sample for the treatment group consisted of 40 kindergarten students, 46 first grade students, 50 second grade students, and 46 third grade students over a three-year

period (n = 182). The sample for the control group consisted of 41 kindergarten students, 44 first grade students, 52 second grade students, and 53 third grade students over a three-year period (n = 190). All students in the treatment and control groups met the criteria listed above.

Research Questions

This study was guided by five research questions. Research Question 1 was cumulative and incorporated data analysis of scores from students in grades K – 3. Research Questions 2 through 5 were grade specific. Data were analyzed in multiple ways to provide a more thorough understanding of the results as they pertained to the research questions. Statistical analyses were conducted to address each research question.

Research Question 1. Over a three-year period is there a significant difference in reading assessments between two groups of low achieving reading students in grades K-3 that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb TEL (kindergarten) or AIMSweb R-CBM (first through third grades)?

Research Question 2. Is there a significant difference in reading assessments between two groups of low achieving reading students in kindergarten that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on the PSF subtest of AIMSweb Test of Early Literacy?

Research Question 3. Is there a significant difference in reading assessments between two groups of low achieving reading students in first grade that is dependent on

the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Research Question 4. Is there a significant difference in reading assessments between two groups of low achieving reading students in second grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Research Question 5. Is there a significant difference between two groups of low achieving reading students in third grade that is dependent on the participation in a Direct Instruction summer reading intervention program as measured by performance on AIMSweb R-CBM?

Research Design

This quantitative study analyzed and compared two separate groups of students struggling with reading skills in grades K-3 over a three-year period. Members of the treatment group participated in a three-week summer intervention reading program. The control group did not participate in the intervention program. Descriptive and inferential statistics were used to compare both groups of students. Descriptive statistics were used to provide general, descriptive information about the samples. Inferential statistics were used to determine a significant difference between the reading scores of the two groups. Data were analyzed cumulatively by grade level (e.g., all third grade data over a three year period) and further analyzed each year for each grade level.

A one tailed t-test was used to determine if there was a statistically significant difference between the treatment and control groups on selected AIMSweb reading assessments. A one tailed t-test was chosen because the hypothesis of this study was that

the summer intervention program would minimize reading regression. Thus, only one direction of the results would be considered significant. The t-test was administered at the .05 confidence level.

Discussion

The purpose of this study was to investigate the effectiveness of a Direct Instruction summer intervention program for the lowest quartile readers in a suburban school district. All students invited to participate met the same criterion. Although the mean difference between the pre- and the post-test scores for each grade level indicated summer regression for both the control and treatment groups, the cumulative data clearly indicated less loss of learning for kindergarten through third grade students participating in the summer Jumpstart to Reading intervention program. The same conclusion can be made when the data were disaggregated for each grade level (K-3) over the three-summer period. Data revealed that all students demonstrated a loss of learning that aligned with the “summer slide” phenomenon as described in the review of literature. The students who participated in the summer program experienced less loss than students who did not participate. Thus, indicating that the intervention helped minimize the effects of the summer slide.

When the data were disaggregated for each individual summer, the results were mixed. In 2009, the results revealed that students in kindergarten and third grade showed stronger performance on measures of early literacy skills in the fall after participating in the *Jumpstart to Reading* summer program. The difference was not statically significant for students in first and second grades during 2009. Visual inspection of the data revealed that these students still minimized loss of learning compared to the control

group, but results did not reach statistical significance. The summer of 2010, revealed similar results. Third grade students were the only group of students to show positive significant results even though students participating in the intervention in kindergarten, first grade, and second grade all performed better on average on the post-test than the students in the control group. In 2011, results were significant at the first, second, and third grade levels.

The following considerations must be acknowledged to adequately interpret the results:

1. *Jump Start to Reading*, the Direct Instruction summer intervention program, was not compared to another summer intervention program. Summer interventions vary. One cannot assume that this specific model was more effective than another.
2. Students participating in both the treatment and control groups of this study may have participated in additional interventions over the summer (e.g., tutors, library reading programs, and/or summer school). It is not known how many, if any, of the students involved in this study participated in such interventions other than the *Jumpstart to Reading* program.
3. Although all teachers providing instruction in the Jumpstart to Reading program received specialized training to provide Direct Instruction with fidelity and integrity, some instructors provided Direct Instruction throughout the entire school year. Therefore, some teachers may have had more experience or a higher comfort level providing this type of specialized instruction compared to other instructors.

4. Reading Mastery was utilized as the Direct Instruction curriculum for students in kindergarten, first grade, and second grade. Corrective Reading was used for students in third grade. Although both programs are produced by SRA, Reading Mastery is a core curriculum for primary grades and Corrective Reading is an intervention program generally for third grade and higher.
5. Students were assigned based on parent permission to attend the summer intervention program, *Jumpstart to Reading*. Thus it is unclear whether differences existed between the treatment and control groups prior to the intervention. For example, perhaps students in the treatment group had more home support, higher or lower pre-intervention reading achievement, or higher or lower rates of verified learning disabilities.
6. Students in the control and treatment groups came from six different elementary schools in one school district. Although the curriculum is the same in all schools, each school employs different teachers and implements interventions according to their own decision rules. Thus, students may have been exposed to varying levels of instruction and intervention throughout the academic school year.
7. Sample size is a variable. When looking at the data during each individual summer, I considered sample size. The mixed results could be contributed to the smaller sample size as compared to the cumulative data in which the sample size was larger.

Conclusions

An interpretation of the results of this study yielded the following conclusions:

1. The overall results indicated that the Jumpstart to Reading summer intervention program was successful in minimizing the summer slide for all students in kindergarten through third grade. Over a three-summer period, all students in all grade levels demonstrated less regression compared to those students who did not participate in the intervention.
2. Third grade students yielded better results compared to students in kindergarten, first and second grade. Third grade was the only grade to demonstrate positive statistically significant results each summer during the three-summer study.
3. When looking at the data during each individual summer, the results were mixed. This may be due to the smaller sample size.

Recommendations

The findings of this study led to the following recommendations:

1. This school district should continue its practice in providing summer intervention to minimize the summer slide for students in kindergarten through third grade.
2. Progress monitoring data should be monitored to determine how quickly students participating in the summer intervention regain lost academic ground once the new school year begins compared to students who did not participate in the intervention program.

3. Since students in third grade produced significant results each individual summer, consideration should be made by school personnel to invite fourth and fifth graders to participate in the intervention program.
4. Further research should be completed using more diverse populations. Also, greater control over extraneous variables such as participation in additional interventions should be tested. Further research in this area might isolate the effects of a Direct Instruction program as an intervention.
5. Future research might identify whether gains made during the summer intervention program were sustained throughout the school year compared to students who did not participate.

Summary

Administrators are under extreme pressure to demonstrate positive academic achievement growth for all students. Fully understanding all of the factors that play a role in achieving higher gains is essential. One of the factors often overlooked is the summer slide or the regression of academic skills over the summer months (Helf, Konrad, & Algozzine, 2008). One way to reduce the summer slide is by developing and implementing a summer intervention program targeted for at-risk readers (Schracter & Jo, 2005).

Borman (2000) suggested that effective interventions should include participation of students in early elementary, a clear focus on skill development, and should include multiple opportunities to practice the skills. Skills taught through the intervention should support decoding, fluency and comprehension (White & Kim, 2008).

This study, specifically, focused on using Direct Instruction as the means of intervention over a 3-week summer period. This intervention included specific and explicit teaching of skills to support reading fluency and comprehension. Overall, positive effects were found indicating that this type of intervention merits further investigation as an effective strategy to reduce summer reading regression.

Further research should (a) attempt to replicate results of the study, and (b) employ this intervention in schools that have more racial and socio-economic diversity. If future research continues to gain positive results, then more schools should consider such programming as a research-based method of enhancing reading achievement.

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Appendix A

IRB Approval Letter

<https://nugrant.unl.edu/nugrant/orr/irb/viewPrintedMessage.php?I...>



June 17, 2011

Donald Pechous
Department of Educational Administration
19724 Chandler St Gretna, NE 68028

Barbara LaCost
Department of Educational Administration
127 TEAC, UNL, 68588-0360

IRB Number: 20110611811 EX
Project ID: 11811
Project Title: Increasing Reading Achievement through a Direct Instruction Reading Program

Dear Donald:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 4.

You are authorized to implement this study as of the Date of Final Approval: 06/17/2011.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- * Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

<https://nugrant.unl.edu/nugrant/orr/irb/viewPrintedMessage.php?l...>

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman

Becky R. Freeman, CIP
for the IRB

