Effects of a Summer School Reading Intervention Program for Grades 3 and 4 in a Suburban District

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Abstract

The purpose of this study was to determine the impact of summer school on grade 3 and 4 students' reading achievement. Data was collected in a Midwestern suburban school district. The sample consisted of 36 summer school participants and 28 non-participants in District A during the spring, summer, and fall of 2015.

The results showed that summer school participants improved on the district-created English Language Arts target of comprehension. Grade 3 students showed a marginal improvement in comprehension scores, while grade 4 students showed statistically significant improvement in comprehension. There was not a statistically significant difference in the improvement in grade 3 and 4 students' reading scores, as measured from the spring 2015 to fall 2015 Fountas & Pinnell benchmark assessments, between eligible grade 3 and 4 students who participated in summer school and eligible grade 3 and 4 students who did not participate in the summer school in District A. There was not a statistically significant difference in the improvement in grade 3 and 4 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 and 4 students who participated in summer school and eligible grade 3 and 4 students who did not participate in the summer school in District A.

The results from this study suggest implications for action for District A to improve their students' reading through summer school participation. Those actions should include research on the effects of summer vacation on low-SES students, testing periods that only include summer vacation, requiring attendance for students below grade level in reading, and requiring parent participation in summer school. Districts with a

stated goal to improve student reading through a summer school program could benefit from viewing the results of this study.

Dedication

This dissertation is dedicated to the following people:

First, I want to thank my family and dedicate this dissertation to them. Without their help, I could not have succeeded in this process. I must thank my husband, Phil Schulze, and daughter, Grace, for their love, support, patience, and understanding through all of the long weekends and nights of working. I hope that I have provided you with an example of what women are capable of when they put their minds to it. I also want to thank my parents, Michael and Sheila Bailey, who have always loved me, believed in me, and encouraged me to reach for my dreams. They helped in this process by feeding me and taking care of Grace in a way that only grandparents can do.

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Chapter One

Introduction

Reading is critical to the success of students and their ability to graduate from high school. In fact, "About 16 percent of children who are not reading proficiently by the end of grade 3 do not graduate from high school on time, a rate four times greater than that for proficient readers" (Hernandez, 2012, p. 4). Given this stark reality, many states and school districts have been searching for instructional programs to get students to reach proficiency in reading by grade 3. The Missouri Senate passed Senate Bill 319 in 2001, which held that districts could no longer promote students year after year who were reading more than one grade below grade level. Rather, districts had to develop reading improvement plans for grade 3 and 4 students reading more than one grade level below their current grade level. Students could not go to grade 5 if they still read more than one grade below level (Senate Bill No. 319, 2001). Many districts also chose to try to prevent students from falling behind in reading by offering summer school before students were required to meet consequences from Senate Bill 319.

Previous research studies have explored the effectiveness of summer school intervention programs toward improving student achievement, and researchers have reported mixed results (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Haymon, 2009). Further research on the effectiveness of summer intervention programs in a suburban school district is needed. This chapter provided the background, statement of the problem, purpose of the study, significance of the study, delimitations, assumptions, research questions, and definitions of terms.

Background

Summer school was a response to new child labor laws, and it provided students activities to keep them busy (Cooper, 2012). Over the years, the types of summer school programs offered evolved. By the 1950s, summer schools began to use remediation to help struggling students. In 1956, the New York City public schools began using a combination of remediation, cultural experiences, and parental involvement to help disadvantaged students improve academically (Austin, Rogers, & Walbesser, 1972). Remediation programs expanded to include four types: (a) allow high school students to make up credits of failed classes during the regular year, (b) help students meet graduation requirements, (c) ensure services for students with disabilities, (d) help children in poverty improve academically (Cooper, 2012).

Researchers increased efforts to measure student gains in reading to determine the effectiveness of those remediation programs. Over the past five decades, researchers have conducted numerous studies to determine the effectiveness of summer school in relation to student reading achievement (Bakle, 2010; Cooper et al., 1996; Cooper, Charlton, Valentine, Muhlenbruck, & Borman, 2000; Eidahl, 2011; Haymon, 2009; Heyns, 1978; Jacob & Lefgren, 2004; Koop, 2010; Linder, 2004; Roberts & Nowakowski, 2012). Several researchers found that summer school had a positive effect on student reading achievement (Cooper et al., 2000; Eidahl, 2011; Jacob & Lefgren, 2004; Linder, 2004; Roberts & Nowakowski, 2012). By contrast, other researchers found mixed results regarding the effect of summer school on student achievement in reading (Bakle, 2010; Haymon, 2009; Koop, 2010). Researchers have suggested that the differences in the findings about the effect of the summer school programs on student

reading achievement depended on the type of program, class sizes, and length of the program (Cooper et al., 2000; Downey, von Hippel, & Broh, 2004; Eidahl, 2011; Terzian, Moore, & Hamilton, 2009). The timing of when tests were administered factored into the measurement of summer school effects on student reading achievement. Cooper et al. (1996), Burkam, Ready, Lee, and LoGerfo (2004), and Downey et al. (2004) found that some researchers used summer reading test scores that included regular school year instructional time. Spring reading tests occurred a month or more before school ended, and fall reading tests occurred a month or more after school started. Therefore, it was difficult to determine to what extent summer school alone affected test scores.

Unlike the districts used in the study above, District A was much smaller. The total population of District A is 5,999 students in grades K-12, and the district is considered a suburban Midwest district because of the mixture of city homes, apartments, and farms (Missouri Department of Elementary and Secondary Education, 2014). The district is 83% white, 9.6% black, and 7.5% Asian, Hispanic, Indian, Pacific Islander, and multiracial combined. The district has a free and reduced lunch population of 27.1% (Missouri Department of Elementary and Secondary Education, 2015). In 2012, 35 students in grade 4 in District A (Director of Secondary Education & Special Services, 2012) participated in summer school, and 31 students in grade 4 participated in summer school in 2013 (Summer School Principal, personal communication, January 2, 2014). In the past, the district offered summer school as an intervention for students who were below grade level in reading and/or math.

District A decided to use Science, Technology, Engineering, Art, and Mathematics (S.T.E.A.M.) units in all grade 3 and 4 summer school classes and reading

intervention groups for struggling readers. In summer school, the S.T.E.A.M. lessons for grades 3 and 4 were on Egypt and roller coasters. Teachers incorporated reading into the lessons and focused mainly on non-fiction pieces. The S.T.E.A.M. lessons are a new extension of Science, Technology, Engineering, and Mathematics (S.T.E.M.) lessons that add art into the instruction. There was no research as to the effectiveness of S.T.E.A.M. lessons. However, there was research into the effectiveness of Science, Technology, Engineering, and Mathematics (S.T.E.M.) lessons. The results of one meta-analysis revealed, "Looking at students' achievement through integrative approaches, the findings revealed that students' achievement on the integrated concepts of STEM literacy showed large effect sizes" (Becker & Park, 2011, p. 31).

District A had two elementary schools with pull-out reading interventions during the summer school for struggling readers. Both used a variety of materials; however, there was one difference. School A used *Good Habits Great Readers*™, and School B used *Scholastic News*. One study on *Good Habits Great Readers*™ was conducted by a consulting firm hired by the publisher, Magnolia Consulting. In that study, researchers used *Good Habits Great Readers*™ as the intervention over a school year with 673 grade 4 and 5 students across the country. Researchers found that students made gains on the *Vocabulary* and *Total* tests during the study. Specifically, researchers found that, "These gains corresponded to large and medium effect sizes and average percentile gains of 21 points and 14 points" (Pearson, 2010, p. 58).

Scholastic News™ is a magazine published by Scholastic, which also publishes the *Scholastic Reading Inventory*™ test. There is not much research into the effectiveness of *Scholastic News*™, but there have been studies on the effectiveness of

reading magazines on reading achievement levels. For example, one report on the National Assessment of Educational Progress (NAEP) and grade 4 students' reading achievement found, "Those students who reported reading all three types of materials -- storybooks, magazines, and information books --had higher average proficiency than their peers with less diverse reading experiences" (Campbell & Ashworth, 1995, p. 4). Therefore, it appears that the research indicates that magazines can be a valuable classroom tool.

District A decided to use components of the *Fountas & Pinnell*'s (F&P) reading systems, *Benchmark Assessment System* (BAS) and *Leveled Literacy Intervention* (LLI), during the regular school year. The BAS is used with all students in grades 3 and 4, and the LLI is used with struggling readers; however, both systems can be used to find students' independent reading levels on the F&P Text Level Gradient. Researchers at the Center for Research in Educational Policy at the University of Memphis conducted studies to determine the effectiveness of LLI. In those studies, researchers used the LLI as the intervention for 40-90 days with kindergarten, grade 1 and grade 2 students (Ransford-Kaldon et al., 2010; and Ransford-Kaldon et al., 2013). In the first study, Ransford-Kaldon et al. (2010) found, "Across the three grade levels, students in LLI achieved between 1 ½ benchmark levels up to almost 5 ½ benchmark levels, while students who did not receive LLI achieved between less than 1 benchmark level to 3 benchmark levels" (p. 53). However, in the second study in an urban setting, Denver, the researchers found a positive effect of literacy achievement for kindergarten and grade 1 students, but the positive effects were less for grade 2 students (Ransford-Kaldon et al., 2013). These studies were not conducted with grade 3 and 4 students. However,

research on BAS was conducted with 497 students in grades K-8. Researchers in that study found:

> There was a strong association between the System 1 (levels A–N) fiction texts (correlation of .94) and nonfiction texts (correlation of .93) and Reading Recovery® Text Level Assessments. This is an important finding, since Reading Recovery® was recently recognized by the U.S. Department of Education as an effective and scientifically based reading program. (Heinemann, 2007, p. 13)

Thus, both BAS and LLI can be used to determine students' benchmark reading levels on the Fountas & Pinnell Text Level Gradient.

Statement of the Problem

In recent years, school districts have experienced constant pressure to increase student achievement, so summer school staffs have employed various methods and curriculum choices to try to affect student achievement in reading. One method has been to offer or require summer school for students struggling in reading. There have been several studies into the effectiveness of summer school on reading achievement. Some studies indicated gains in reading assessment scores. Aidman (1997), studied a summer school program in Austin, Texas. That program focused on small class sizes and learning targets for students below grade level. Despite those small classes, results indicated only modest gains in student achievement on those English Language Arts learning targets (Aidman, 1997). Gewertz (2003) reported that a Chicago summer school program helped students make improvements in reading achievement faster than during the regular school year and increased the number of promotions to the next grade; however, the Chicago students' rate of learning did not continue to increase over the next year of school. Not

all studies have indicated gains in summer school participants' reading scores. Bakle (2010) studied a 60-hour summer school remediation program in eleven elementary schools in Fort Wayne, Indiana, and he reported mixed results with students showing improvement in language usage and math in some grades. However, Bakle (2010) found that the reading post-test scores for grade 3 and 4 summer school attendees were lower than for non-attendees. In order to look at multiple summer vacation studies in the same study, one meta-analysis of 13 studies was conducted to determine the overall effects of the break. Cooper et al. (1996) found mixed results in the reading tests with some students showing gains and some showing losses in reading skills. Overall losses in reading were about one month over the summer; however, there were differences between income groups. "Middle-class students appeared to gain on grade-level equivalent reading recognition tests over summer while lower-class students lost on them" (Cooper et al., 1996, p. 227).

Studies of summer school have been conducted in large districts, which provide ample numbers of students for participants and control groups. However, those studies' results are difficult to apply to smaller districts, like District A. Therefore, District A needed to determine the effectiveness of its summer intervention program using district-created S.T.E.A.M. lessons in summer school with grades 3 and 4 students. At the time, administrators had only partially gathered and analyzed reading data for overall program effectiveness (District A, 2014a). Due to variance in reading interventions among schools in past summer school sessions, there were difficulties in analyzing the data that was collected. In addition, the district did not make comparisons between students who participated in summer school and those who did not attend summer school (District A,

2014a). As a result, there has not been enough statistical evidence available to determine if District A's summer school intervention program was effective. District administrators also could not definitively determine if the dollars expended were, in fact, improving students' reading due to incomplete data available from summer school, reading interventionists, and classroom teachers. Thus, District A's Assistant Superintendent prior to this research study desired to determine the effectiveness of District A's summer school intervention utilizing Science, Technology, Engineering, Art and Mathematics and reading intervention (S.T.E.A.M.) (Assistant Superintendent, personal communication, January 6, 2014), as did the Assistant Superintendent during the study (Assistant Superintendent, personal communication, April 1, 2014).

Purpose Statement

One purpose of this study was to determine the difference in grade 3 and 4 summer school attendees' pre-test and post-test scores for the English Language Arts learning target of comprehension. The pre-test was administered within the first few days of summer school, and the post-test was administered four weeks later during the last few days of summer school. The second purpose was to determine to what extent there was a difference in the improvement in reading scores, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 and 4 students who participated and those eligible grade 3 and 4 students who did not participate in the summer school intervention program in District A. The final purpose of this study was to determine whether there was a difference in reading improvement, as measured from the spring and fall *Scholastic Reading Inventory*™ scores, between eligible grade 3 and 4

students who did participate and those grade 3 and 4 students who did not participate in the summer school intervention program in District A.

Significance of the Study

This study is important for several reasons. Most research studies on summer school took place in urban and large suburban districts (Aidman, 1997; Alexander, Entwisle, & Olson, 2007; Bakle, 2010; Gewertz, 2003; & Heyns, 1978). However, fewer studies have been conducted in smaller suburban districts; therefore, this study addressed that research gap. There have also been mixed results in previous studies about the effectiveness of summer school interventions on reading improvement, so this study increased the body of research concerning whether or not summer school positively affects student achievement. Furthermore, this information may prove useful for District A administrators, school board members, and stakeholders as the district considers the future of the summer school program.

Delimitations

"Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (Lunenburg and Irby, 2008, p. 134). This research study had the following delimitations:

1. The study was limited to four of six elementary schools in a suburban/rural district in the Midwest.
2. The timeframe was limited to a one year (2015) summer school intervention program with testing times during spring 2015 and fall 2015.
3. The sample was limited to students in grades 3 and 4 who were recommended for summer school and were divided into a treatment group of students who

participated in summer school and a control group of students who did not participate in summer school.

4. The treatment was limited to participation in the summer school program coordinated by the district and conducted in two elementary buildings.
5. The study's variable was limited to attending summer school or not.
6. The measurements were limited to the pre-test and post-test scores from district English Language Arts assessments for comprehension, the spring 2015 and fall 2015 Fountas & Pinnell assessment systems, and spring 2015 and fall 2015 *Scholastic Reading Inventory*™ (SRI) scores.
7. The pre-tests and post-tests on district learning targets in English Language Arts in grades 3 and 4 occurred during the first few days and last few days of summer school. The pre-tests in grades 3 and 4 from the Fountas & Pinnell assessment systems and *Scholastic Reading Inventory*™ tests occurred 45 days or less before school ended. The post-tests in grades 3 and 4 from the Fountas & Pinnell assessment systems and *Scholastic Reading Inventory*™ tests occurred 45 days or less into the 2015-2016 school year.

Assumptions

"Assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research" (Lunenburg and Irby, 2008, p. 135). The assumptions for this study were:

1. Students gave their best effort on pre-tests and post-tests of the district learning targets in English Language Arts for comprehension, the Fountas &

Pinnell assessment systems tests, and the *Scholastic Reading Inventory*™ tests.

2. Teachers followed the S.T.E.A.M. lesson plans and teaching methods were similar across grades and schools.
3. Reading intervention teachers used a variety of teaching methods to teach phonemic awareness, phonics, vocabulary, fluency, and comprehension.
4. Data collected at the district or building level in this study was complete and accurate.

Research Questions

The researcher evaluated the effectiveness of the summer school intervention program in District A. The District Assistant Superintendents desired to know if there would be differences in student improvement on reading assessments based on participation or not in summer school. Data was collected to answer the following research questions:

RQ1. To what extent is there an improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

RQ2. To what extent is there an improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

RQ3. To what extent is there a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and those eligible

grade 3 students who did not participate in the summer school intervention program in District A?

RQ4. To what extent is there a difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 4 students who participated and those eligible grade 4 students who did not participate in the summer school intervention program in District A?

RQ5. To what extent is there a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated and those eligible grade 3 students who did not participate in the summer school intervention program in District A?

RQ6. To what extent is there a difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 4 students who participated and those eligible grade 4 students who did not participate in the summer school intervention program in District A?

Definition of Terms

To maintain consistency and avoid confusion in the study, programs, assessments, educational terminology, and demographic characteristics are defined. These terms were essential to any discussion of summer school and student achievement.

Benchmark test. "A point of reference from which measurements may be made" (Benchmark, 2014, para. 2). In this study, the benchmark assessments refer to the

reading tests in the Fountas & Pinnell *Benchmark Assessment Systems* and *LLI Benchmark System*.

Cloze test. In this study, the *Scholastic Reading Inventory*™ is, "A test in which one is asked to supply words that have been removed from a passage in order to measure one's ability to comprehend text" (Oxford University Press, 2015, para. 2).

Comprehension. The process of constructing meaning and understanding what is being read is comprehension (Al-Hazza & Gupta, 2006).

District-created assessment. For the purposes of this study, district-created assessment refers to the pre-tests and post-tests created by District A summer school teachers to measure comprehension.

Fluency. The meaning of fluency is **"**the ability to read effortlessly with expression and without undue pauses or hesitations" (Al-Hazza & Gupta, 2006, p. 18).

Fountas & Pinnell *Benchmark Assessment System (BAS)*. This is a benchmark reading test system administered individually to students to find their independent reading levels on the F&P Text Level Gradient (Fountas & Pinnell, 2015b).

Fountas & Pinnell *Leveled Literacy Intervention (LLI) Benchmark System*. This is a reading system designed for struggling readers. Benchmark tests are administered individually to students to find their independent reading levels on the F&P Text Level Gradient (Fountas & Pinnell, 2015c).

Fountas & Pinnell Text Level Gradient. These are also called the Guided Reading Levels or F&P Levels and can be obtained using the Fountas & Pinnell assessment systems. The levels range from A to Z (Fountas & Pinnell, 2015a). Grade 3

students are expected to read at Levels O-P by the end of the school year, and grade 4 students are expected to read at Levels R-S (District A, 2014b).

Learning target. According to the Great Schools Partnership (2014a), "In education, learning objectives are brief statements that describe what students will be expected to learn by the end of school year, course, unit, lesson, project, or class period" (para. 1). In District A, learning objectives are called learning targets.

Lexile. This score is derived from the *Scholastic Reading Inventory*™ and is generally between 200L and 1700L, but it is possible to score lower. A Lexile score "reflects the difficulty of the words and the complexity of the sentences in that text," (Scholastic, 2008, p. 3) and the higher the score, the harder the text is to read. "The middle 50 percent of the students" (pp. 5-6) at mid-year read between 330L and 700L in grade 3 and between 445L and 810L in grade 4.

Phonemic awareness. "Phonemic awareness is the ability to hear, differentiate, and manipulate sounds, including segmenting and blending those sounds" (Oczkus, 2011, p. 4).

Phonics. "Phonics refers to the ability to match the sounds one hears within language to printed text" (Tracey & Morrow, 2009, p. 2).

Post-test. In this study, it refers to the district-created tests for the English Language Arts learning target of comprehension that were administered to the summer intervention group at the end of June 2015. It also refers to the Fountas & Pinnell assessment systems tests that were administered to the participants and non-participants in fall 2015 (Fountas & Pinnell, 2015b & 2015c). The post-test also refers to the *Scholastic Reading Inventory*™ test administered in the fall 2015 (Scholastic, 2007).

Pre-test. In this study, it refers to the district-created tests for the English Language Arts learning target of comprehension that were administered to the summer intervention group at the beginning of June 2015. It also refers to the Fountas & Pinnell assessment systems tests that were administered to the participants and non-participants in spring 2015 (Fountas & Pinnell, 2015b & 2015c). The pre-test also refers to the *Scholastic Reading Inventory*™ test administered in the spring 2015 (Scholastic, 2007).

***Scholastic Reading Inventory*™.** This assessment is a computer-adaptive test of reading comprehension. The difficulty of each question depends on whether the student correctly answered the previous question (Scholastic, 2009). Scores are expressed as Lexile levels.

Science, Technology, Engineering, Art, and Math (S.T.E.A.M.). This is a type of lesson defined as, "Science & Technology interpreted through Engineering & the Arts, all based in Mathematical elements" (Academia, 2015, p. 3).

Scripted reading program. "Accompanying teacher guides …are usually fully scripted; that is, they give step-by-step directions for all instruction, often with the actual words that teachers are to utter" (Venezky, 1990, p. 16).

Standards-referenced grading. In this study, "Standards-referenced refers to instructional approaches or assessments that are "referenced" to or derived from established learning standards—i.e., concise, written descriptions of what students are expected to know and be able to do at a specific stage of their education" (Great Schools Partnership, 2014b, para. 1).

Struggling readers. In District A, there are reading criteria for summer school intervention. If a grade 3 student's Lexile score fell below 400 and the Fountas & Pinnell

reading level fell below N, the student was recommended for summer school. If a grade 4 student's Lexile score fell below 500 and the Fountas & Pinnell reading level fell below Q, the student was recommended for summer school (District A, 2014b).

Summer learning loss. This loss is the negative change in a student's learning over summer as measured on assessments in the spring and fall (Cooper et al., 1996).

Vocabulary. "Students identify words in their reading by using strategies such as phonics, context clues, sentence structure, background knowledge, and pictures" (Al-Hazza & Gupta, 2006, p. 19). Students are then able to use those words in their speaking and writing.

Overview of the Methodology

A quasi-experimental design was chosen for this study. "Quasi-experiment is a form of experimental research in which individuals are not randomly assigned to groups" (Creswell, 2014, p. 247). Classroom teachers recommended students for the non-random sample according to criteria established by the district. The control group consisted of students who were recommended for summer school by their classroom teachers, but who did not attend. The treatment group consisted of students who were recommended for summer school by their classroom teacher, and who participated. The data collected for this study consisted of pre-test and post-test scores on the district pre-tests and post-tests for the English Language Arts learning target of comprehension for the treatment group, the Fountas & Pinnell assessment systems tests for the control and treatment group, and the *Scholastic Reading Inventory*™ spring 2015 and fall 2015 scores for both the control and treatment groups. IBM® SPSS® Statistics Faculty Pack 22 for Windows

software was used to calculate the data. The hypothesis testing of the data consisted of one sample *t* tests and independent samples *t* tests.

Organization of the Study

This study includes five chapters. Chapter one includes the background of the study, statement of the problem, purpose of the study, significance of the study, delimitations, assumptions, definition of terms, an overview of the methodology, and an organization of the study. In chapter two, there is a review of the literature, which includes a historical overview of summer school, a discussion of summer learning loss, a discussion of the efficacy of summer school on student achievement, review of successful summer school characteristics and programs, a discussion of how students learn to read, and materials used in the reading intervention in District A. Chapter three includes the methodology of this study, which includes the research design, population and sampling, sampling procedures, instrumentation, measurement, validity, data collection procedures, data analysis and hypothesis testing, limitations, and a summary. Chapter four presents the findings of the study and includes descriptive statistics, the data for the research questions, and data analysis of the research questions. Chapter five is a summary of the study with an interpretation of the results, an overview of the problem, a review of the purpose statement and research questions, a review of the methodology, major findings, findings related to the literature, implications for action, recommendations for further research, and concluding remarks.

Chapter Two

Review of Literature

Introduction

This chapter is divided into seven sections and is a review of the literature relevant to summer school and summer learning loss. The first section is the history of summer school. Summer learning loss in reading is the second section. The next section addresses the arguments against summer school. Arguments for summer school are in the fourth section. The fifth section includes characteristics and examples of quality summer school programs. Reading programs are in the sixth section. The final section is about the programs and materials used in District A during summer school.

History of Summer School Research

This section is divided into four subsections. The first section discusses the earliest research into the effectiveness of summer school in the 1920s-1950s before many summer school programs were available. The next section addresses the 1960s-1970s when researchers like Fox et al., (1969), Hayes and Grether (1969), and Heyns (1978) studied summer school effectiveness in relation to family income and race. In the third section, researchers during the 1980s-1990s examined whether summer learning loss existed in reading and the validity of Heyns' research. The final section discusses the research from the 2000s-present, which examined the effect of summer school on student achievement.

1920s-1950s. In the 1920s, researchers began to question whether students lost any learning in reading or math over summer vacations. During that time period, few students attended any type of summer school program. Researchers conducted studies to

see if summer learning loss was occurring in primarily math and reading, but other subjects were included in some studies. The studies did not have the same results or conclusions.

Morrison (1924) and Patterson and Rensselaer (1925) conducted early studies of summer learning loss with students in New York. Morrison found that the Thorndike-McCall Silent Reading Test showed changes in reading were not significant. The author concluded that there was little change in reading ability over the summer. Patterson and Rensselaer found that two grades scored lower (Grades 4-5) and three higher in reading (Grades 6, 7, 8) on the Thorndike-McCall Silent Reading Test. The changes were small, and the researcher concluded that "summer vacation had…little effect on the reading ability…of all grades" (Patterson & Rensselaer, 1925, p. 225).

Elder (1941), Bender (1944), and Morgan (1929) conducted other studies about summer learning loss in reading, with different conclusions. There were average gains per grade level, but some of the results of individual students were mixed. Elder's overall results of the Monroe's Standardized Silent Reading Test found 27% of students were less proficient, 59% improved, 15% scored the same, and 17% went from below to above average during summer (Elder, 1941). Bender's study (1944) showed that students did lose some knowledge over the summer. The students were tested in a variety of subjects, including reading. Girls outperformed boys on the test, but both groups showed mixed results in reading over the summer. In fact, 42% of the students showed losses in reading, and 45% showed gains in reading. The study also found that intelligence was not a factor in the gains or losses of the students in the summer months. Morgan's study (1929) involved using two weeks of training in arithmetic and reading in one class. The

other class served as the control group. Both groups were tested in May and September with the Thorndike-McCall's Reading Scale, Form 8. In the group with training, Group Y, 16 scored higher, 12 stayed the same, and 12 scored lower in reading. In Group X, 25 scored higher, five stayed the same, and eight scored lower in reading. Group X gained three months in reading over the summer, and Group Y gained two months over the summer.

Unlike Elder (1941), Bender (1944), and Morgan (1929), Bruene (1928) examined test scores in several subjects for 69 students in grades 4 (n = 15), 5 (n = 26), and 6 (n = 28). Students showed losses in some subjects, but the author concluded that reading was not negatively affected by summer vacation. However, when the author factored in students' IQ, the group with an IQ below 110 did have a loss in reading achievement for 50% of the participants. Due to the overall gains, the author concluded that reading was not negatively affected by summer vacation, but there was a loss in arithmetic reasoning and fundamentals (Bruene, 1928).

Cook's studies in the 1940s at Mankato State Teachers College in Minnesota with grade 1 and 2 students were some of the first to try to find a way to eliminate summer learning loss. Teachers sent home packets created specifically for each student. The packets contained reading and arithmetic exercises that students were to complete each day of summer vacation. The grade 1 students took the Gates Primary Reading Test in the spring and fall. The grade 2 students took that test and the Metropolitan Achievement Tests. The summer work was designed to take 15-20 minutes each day for five days per week for the whole summer break. The following results used weeks to describe the summer work, but did not detail if students spent the prescribed number of days and

minutes each week studying. The researcher found that students with an IQ over 100 worked more in the summer than those with lower IQs. Students who worked 0-7 weeks in the summer showed losses on all sections of the Gates and Metropolitan tests. Students who studied 8-11 weeks showed only losses in Sentence Reading on the Gates and on the Metropolitan Test (Cook, 1942). Cook (1952) began the research in 1940 and continued her study of summer learning loss for twelve summers. The key finding of that research was that students showed more gains with any reading program than if they did not participate in a summer reading program. Students lost .40 of a year or 4.8 months over the summer if they did not do work provided or read library books. It did not matter whether students with plans did worksheets or not, they both gained about .15 of a year or 1.8 months. By January of the next year, participants who read library books scored .54 higher than non-participants. The author concluded that plans with a variety of tasks that included writing produced the best results.

The research between 1920 and 1950 was mixed. Morrison (1924) and Patterson and Rensselaer (1925) found little change in reading during the summer. Bruene (1928) found gains in reading, while Elder (1926), Bender (1944), and Morgan (1924) found mixed results among the individual students. Therefore, no conclusions could be made about the effect of summer learning loss on reading. Furthermore, Cook's studies (1942 & 1952) showed that students who participated in a summer reading program could avoid summer learning loss. By 1960, more research was needed to guide educators.

1960s-1970s. While earlier studies focused on summer learning loss, later studies began to focus on whether, and for whom, summer school could be beneficial. The 1960-1970s saw an increase in the number of districts offering summer school. With that

increase, researchers wanted to know how effective summer school was at increasing student achievement and if student achievement was the same across income levels and races.

During the 1960-1970s, race and poverty were important issues in the United States. Several researchers wanted to know if race and poverty played a role in student achievement or loss during the summer months. Fox et al. (1969) studied the achievement results of children in poverty in New York City. The Metropolitan Achievement Test in reading was administered to 106 grade 3 students and 100 grade 5 students. They took the test in April before summer school and in week five of summer school, and median scores were compared at each grade level. The results on the test were inconclusive. In grade 3, 43% gained, 47% lost, and 10% showed no change on the Metropolitan Achievement Test. In grade 5, 36% gained, 59% lost, and 5% showed no change (Fox et al., 1969). However, Hayes and Grether (1969) and Heyns (1978) found the achievement gap between low-SES students and minority children and richer white students grew during the elementary school years. Hayes and Grether (1969) found that low-SES students were 0.7 of a year behind at the start of grade 2, but up to 2.7 years behind in reading by grade 6. There was also a racial achievement gap evident in the study. White students gained six times more than non-white students in word-knowledge. The students in the study did not attend summer school. The researchers concluded that half or more of the differences in reading and word knowledge were due to summer vacation.

After the Hayes and Grether study, Heyns decided to research the effect summer school had on these differences in achievement between races and income levels. Heyns'

study in Atlanta found that students learned more during school than during the summer, and the learning gap widened between races and income levels in the summer.

> For the sixth grade, in the fall of 1971, black sample children from the lowest income level were 2.24 years behind white children from the highest income category; by fall 1972, this gap had increased to 3.39 years, and the summer months were primarily responsible. (Heyns, 1978, p. 49)

Heyns (1978) finished her study but wondered if a more formal and rigorous summer program would lessen the gaps because she concluded that Atlanta's less academically rigorous program had only been "marginally effective in raising test scores or promoting equal outcomes" (p. 124).

1980s-1990s. With results of previous studies mixed, researchers in the 1980s-1990s sought to determine the effectiveness of summer school. They also wanted more research to determine if summer learning loss existed and to test Heyns' findings. In these studies, researchers relied more on statistical analysis and examined the methods of previous researchers more closely. However, as with previous time periods, the researchers did not have the same conclusions.

More research from the Sustaining Effects Study of Compensatory Education conducted in the 1970s became available in the early 1980s (Carter, 1984; Hoepfner, 1980; & Klibanoff, & Haggart, 1981). Those researchers looked at whether summer learning loss existed and the effectiveness of summer school for students in compensatory education. The researchers found that students did not lose school-year gains over the summer, even if they were compensatory education students, low-income students, or minorities. In fact, students gained more in reading than math over the

summer, but students in compensatory education gained less than other students. In addition, summer school attendees did not grow faster academically than non-attendees. The researchers concluded that summer school had no effect on student achievement. Curtis, Doss, and Totusek (1982), in the Austin, Texas Independent School District, also found that summer school was not effective in increasing student achievement when compared to non-attendees. "Comparable students who do not attend summer school perform as well on standardized achievement tests as summer school participants*"* (p. 1).

Other researchers during this time sought to replicate or disprove Heyns' results. Ginsburg, Baker, Sweet and Rosenthal (1981) tested the generalizability of Heyns' study by using data from 250 schools from all over the country. Ginsburg et al. (1981) found that socio-economic status and parental education level did not affect student achievement as much as Heyns had reported. However, the researchers did confirm that whites outperformed blacks and Hispanics and that the higher the family income, the higher a student's achievement level was likely to be. Ginsburg et al. (1981) concluded that the data only "partially supported" (p. 29) Heyns' findings about the relationship of socioeconomic background and achievement. Students from higher incomes scored higher on achievement tests, but Ginsburg et al. (1981) did not find a relationship between socioeconomic background and learning. They concluded that "background affects initial achievement level and that initial differences between groups are maintained through the elementary grades" (p.29). Heyns also concluded that there was a relationship between achievement and attendance, but Ginsburg et al. (1981) found only a weak relationship between achievement and attendance.

Coleman (1982) also found fault in Heyns' study. First, she used word knowledge as one test, which was not as affected by summer vacation. Coleman concluded:

> The consequence of this for her results is that the basic effect of schooling, relative to that of family background, is probably greater than she found with word knowledge, while the equalizing effect of schooling is probably less than she found because there is less inequality generated by family background in other skills. (p. 142)

Coleman (1982) also found the data analysis calculated the standard scores and grade level equivalents from raw scores. In addition, the teachers who taught the children also gave them the tests, so that they may have helped students on spring tests.

Cooper et al. (1996) conducted a meta-analysis to evaluate the 39 studies conducted across the country from 1982-1994 to make conclusions about summer learning loss and student achievement. Thirteen of the studies were used in the meta-analysis. The other 26 studies did not include enough statistical analysis for the meta-analysis, but were included in the study. The results indicated summer learning losses of about one month, with greater losses in math computation and spelling. Results did not differ by race or gender. There were mixed results in the reading tests with some showing gains and some showing losses in reading skills; however, the researchers point out that summer testing intervals may have been tainted by including school year instructional times in summer results. In general, disadvantaged children showed losses in reading skills over the summer (Cooper et al., 1996).

After much research in the 1980s-1990s, few definitive conclusions were drawn from the studies. Due to inconclusive results about socioeconomic status and its relationship to student achievement and issues with data collection and analysis, Cooper et al. (1996) recommended: (a) further research in how student income affects learning loss, (b) testing that only includes the summer vacation period, and (c) to keep subjects distinct to allow researchers to find out how summer learning loss affects different subjects. Once again, more research was needed to address these issues.

2000s-Present. Researchers in the 2000s followed Cooper's recommendations for further research. They continued to investigate the effectiveness of summer school on student achievement. In addition, several researchers sought to determine if gender, race, or socio-economic status affected the results. This led to new insights about the effectiveness of summer school.

Several studies found that summer school did not increase reading achievement in attendees. Bakle (2010) and Mountain (2010) found that non-attendees scored better than summer school attendees on reading assessments. Koop (2010) found that students increased in math after attending summer school, but not in reading when administered the SAT-10 test after a six-week summer program. These studies did not support the concept of summer school.

Some larger studies had mixed results, but some showed positive effects of summer school. Harrington-Leuker (2000) reported on the results of the expansion of summer school in large cities across the United States. New York and Boston had a large number of students required to attend who did not pass the test at the end of the summer school. Boston's program had poor results in reading: one-third did not show gains in

reading after attending summer school and two-thirds did not meet the minimum benchmark levels set by the district. However, some of the programs did show gains. In Chicago, the number of students in grades 3, 6, and 8 meeting promotion requirements increased in 2000 over the late 1990s (Harrington-Leuker, 2000). The meta-analysis by Cooper (2001) found that summer school did have a positive effect on the achievement of middle-class students, but was less effective for more disadvantaged students. Haymon's (2009) study in the St. Louis Public School District also mirrored these larger studies because the results were mixed in reading on the CTB Terra Nova Reading exam when summer school attendees and non-attendees were compared.

Yet, some researchers have found that summer school did increase reading achievement in attendees. Cooper et al. (2000) did a meta-analysis of 93 studies and concluded that summer school attendees perform .14 to .25 of a standard deviation higher than non-attendees on assessments. Several smaller studies not included in the meta-analysis came to similar conclusions. Eidahl (2011) and Linder (2004) found fluency scores increased with summer school attendance. Jacob and Lefgren (2004) reported that attendees increased in reading and math achievement, and grade 3 students increased "roughly 12% of the average annual learning gain" (p. 241). Grade 6 students increased by only about 6%. Roberts and Nowakowski (2012) had an overall effect size of .42 or 40% of one standard deviation. The results indicated that students in the month-long summer Voyager reading program made similar gains to students in intervention programs that took nine months. This was despite the fact that eight of nine schools had a free and reduced lunch rate of 35% or higher.

Recently, researchers sought to conduct more research into the effects of socio-economic status (SES) on student achievement in reading. The majority of studies have found that SES is a factor in summer reading loss and the effectiveness of summer school. Researchers in one major study reported that low-SES students were academically lower than middle and high SES students at the beginning of formal schooling. Low-SES students were academically lower than middle and high SES students by the end of elementary school due to summer reading losses (Alexander et al., 2007). Bakle (2010) also found a statistically significant relationship between SES and student achievement. Burkam et al. (2004) and Cooper et al. (2000) found that summer school participation increased student achievement, but was less effective for low-SES than mid- and high-SES students.

After all of the research into summer school and summer reading loss, some conclusions can be made. First, results of Cooper's meta-analysis (2000) and other large studies showed that overall summer school does increase student achievement. Even though the meta-analysis showed an overall increase in achievement, some studies found that summer school attendees did not outperform non-attendees (Bakle, 2010; Koop, 2010; Mountain, 2010). Furthermore, low-SES students did not show as many gains as other students (Alexander et al., 2007; Burkam et al., 2004; Cooper, 2000). However, many of the studies (Cooper, 2001; Downey et al., 2004; Jacob, & Lefgren, 2004) determined that gender, race, and ethnicity were not factors that affected learning loss. Finally, summer school is needed due to the cumulative effects of summer reading loss (Alexander et al., 2007).

Summer Reading Loss

Allington and McGill-Franzen (2013) have researched summer learning loss for many years and defined it as, "… that backsliding in reading development that can occur during the summer vacation periods, when children are not enrolled in school" (p. 3). Researchers have found that summer learning loss is larger for low-SES students than for mid- and high-SES students. Hayes and Grether (1969) determined that poorer school students were .7 years behind at the start of grade 2, but up to 2.7 years behind in reading by grade 6. The researchers concluded that half or more of the differences in reading were due to summer vacation. Recent researchers also made similar conclusions. Alexander et al. (2007) reported, "Children's lives *outside school* over the preschool years and during the elementary grades account for almost all of the achievement gap that separates low- and high-SES children at the start of high school" (p. 22).

Now that most researchers and educational professionals have accepted that summer learning loss occurs and is disproportionate to lower-income students, they have been searching for ways to combat the problem. McGill-Franzen and Allington (2001) advocated giving low-income students ten to twenty books to read over the summer. Kim (2007) determined that reading four to five books had a larger effect on fall reading test scores than reading fewer books. Meanwhile, Cooper et al. (2000) suggested that summer school was an effective way to combat summer reading loss because he concluded that summer school attendees scored .14 to .25 of a standard deviation higher than non-attendees. Burkam et al. (2004), Eidahl (2011), Jacob and Lefgren (2004), Linder (2004), and Roberts and Nowakowski (2012) also determined that summer school improved students' reading achievement. Ballinger (1995) called for a change in school

year calendars to a year-round model that includes intersessions. Each intersession can be as short as one week or as long as three weeks. Borman, Overman, Fairchild, Boulay and Kaplan (2012) called for multi-year programs to help low-income students avoid summer loss, and after three years, Borman, et al. (2012) found that students in the Teach Baltimore Summer Academy did show a statistically significant effect on reading.

Arguments Against Summer School

Despite research that argued the mitigation of summer learning loss with summer school, some researchers and educational professionals have argued against summer school programs. Even so, many school districts have expanded summer school programs to try to improve the test scores of low-performing students and end social promotion (Archibold, 1999; Buchanan, 2007). Now, researchers have studied those large programs and many have argued that summer school does not work.

Critics of summer school argue that its remedial nature creates a negative environment. Stenvall (2001) argued that summer school was the equivalent of "summer jail." Stenvall went on to say, "Children are singled out and placed in a negative grouping, to try to relearn with those who couldn't or wouldn't the first time around" (para. 7). Pipho (1999) agreed with Stenvall and called a summer school program in Seattle "academic boot camp" (p. 7). The question then became could these negative environments produce growth in student achievement?

Critics pointed to several large summer school programs' negative results as evidence that summer school does not work. Chicago's summer school program had positive short-term results on tests and allowed students to avoid retention, but the results did not last long-term (Gewertz, 2003). New York City's summer school program had

even more problems, such as absenteeism, budget cuts, and poor academic results. In 2000-2002, only half the students who came to summer school passed the end of summer school tests in math and reading. In grade 8 in 2000 and 2002, students did worse on the tests after summer school than they had done in the spring (Goodnough, 2003). In another example, Seattle's tough summer school program in 1998 only helped two of thirty-seven grade 5 students who had failed the regular school year pass on to grade 6 (Coeyman, 1999). Due to the examples, Denton (2002) argued that summer school was an "unfulfilled promise" (p. 3). The lack of success of these programs was not surprising given the high numbers of low-SES students in larger cities. After all, Cooper et al. (2000) in their meta-analysis found that summer school is more effective for middle-class than low SES students. Hattie (2009) concluded that summer school ranked 98th in its effect on student achievement after looking at 105 studies because the effect was small.

Given the mediocre results of summer school, critics have also complained about the costs of those programs. According to McCombs et al. (2011), summer school programs cost between $1,109 and $2,801 per student. For a large school district, summer school can cost millions of dollars. In the 2013-2014 budget, summer credit recovery alone in the Los Angeles Unified School District was allotted $1,000,000 (Los Angeles Unified School District, 2013). In fact, a program lasting from 16 half-days to seven weeks in large cities can cost as little as $700,000 and as much as $35 million (Harrington-Leuker, 2000). For District A, the cost of summer school in 2013 was $284, 034 (Chief Financial Officer, 2013). Districts have also been forced to make budget cuts in recent years due to decreases in money received from the state. In Missouri, the summer school money was reduced by half in 2007 (Buchanan, 2007). In

2010, District A was forced, due to budget cuts, to reduce temporarily the summer school program to only the 800 academically neediest pupils, which was down from the 2,500 participants in 2009 (Hollingsworth, 2010). By 2015, the numbers of participants in summer school in District A increased again.

Arguments for Summer School

Despite arguments against summer school, many researchers still advocate for using it to help struggling students. Advocates of summer school point to the achievement gap between low-SES students and other students as one reason for the need for summer school. Many researchers have also concluded that summer school can improve student achievement. In addition, advocates argue that not having summer school will simply worsen the achievement gap.

Several researchers' large studies showed that summer learning loss exists. Alexander et al. (2007) examined summer learning loss, and the results showed that lower income youth made up some of the achievement gap with more advantaged students during the school year. However, the disadvantaged youth scored lower than more advantaged students on tests by the end of elementary school. The researchers concluded that the low-SES students were far behind high-SES students by the end of elementary school due to summer cumulative losses in reading. Cooper (1996) also concluded that disadvantaged children showed losses in reading skills over the summer. McCombs et al. (2011) examined many studies and summarized the research as, "Summer learning loss disproportionately affects low-income students, particularly in reading" (p. 24). Even though Burkam et al. (2004) found reading gains for all students,

he also found that low-SES gains were smaller than mid- and high-SES students. Due to these studies, advocates say summer school must exist to battle these inequities.

Advocates of summer school utilize many research studies that have concluded summer school does increase student achievement. Cooper et al. (2000) found that students who attend remedial summer schools perform .14 to .25 of a standard deviation better than non-attendees. Roberts and Nowakowski (2012) found a .42 positive effect size in student achievement when students participated in the Voyager reading program. Jacob and Lefgren (2004) found that not only does summer school improve student achievement, but that achievement continued even two years after the summer school program ended. Schacter and Booil (2005) studied grade 1 students who attended a summer day camp with reading instruction with a control group who did not attend summer school. The grade 1 students in the summer intervention did better on immediate post-tests and tests three to nine months after the intervention. "Summer reading camp students' comprehension increased the equivalent of 41% compared to controls directly after the programme [*sic*]. These students maintained a 39% advantage for three months, and at the end of the year were performing 18% better than controls" (p. 166).

Finally, advocates of summer school contend that even if summer school does not always produce an increase in student achievement, it is still necessary to prevent the aforementioned summer learning loss. In 1986, Heyns discussed the dilemma of whether summer school improves student achievement or simply prevents low-SES students from losing further ground on higher-SES students. Heyns said at the time that it was unclear whether summer school efficacy should be measured by gains or lack of losses. Harrington-Leuker (2000) argued that it is about preventing those further declines:

> It can be argued, even no gain is better than losing ground over the summer… 'Even if we didn't get 100 percent of these children [to standards],' says Maureen Harris, Boston's assistant director of curriculum and instructional practices, 'these kids didn't lose what they would have lost over the summer.' (p. 23)

McCombs et al. (2011) also concluded that summer school "could help mitigate" (p.25) summer learning loss and possibly produce gains. Therefore, most researchers have concluded that summer school is necessary just to prevent further losses.

Proponents of summer school have shown much evidence that it can eliminate losses and even produce gains. Several major reports by Cooper et al. (2000), Roberts and Nowakowski (2012), Jacob and Lefgren (2004), and Schacter and Booil (2005) showed that summer school can even increase student achievement.

Quality Summer Programs

Since there are many different types of summer school programs, researchers have found that the results vary depending on the type of program. With that in mind, researchers in recent years have called for identifying the components and examples of successful summer school programs. In Cooper et al. (2000), the researchers called for more research involving parent participation, the length of summer school, and the timing of summer school. As a result, several studies sought to answer these questions and examine the characteristics of successful summer programs.

Planning of programs. Quality summer programs begin with early and careful planning. Rischer (2009) suggested that planning needs to occur early in the school year to allow families to plan for summer school attendance. He also suggested that teachers use a scoring rubric to evaluate potential summer school attendees. Rischer (2009)

recommended that staff use the rubric to evaluate report cards and attendance to determine summer school participants. McLaughlin and Pitcock (2009) called for better planning, and Bell and Carrillo (2007) called for programs that use a collaborative planning process that includes all stakeholders in the community. Therefore, careful and early planning with all stakeholders leads to the best summer programs.

Length of programs. Summer school programs occur at all levels: elementary, middle, and high school. Researchers sought to determine which level was most effective in increasing student achievement. Black (2005) and Cooper at al. (2000) found that summer school helps all kids, but it is most effective in elementary and high school and least effective in middle school. McCombs et al. (2011) reported that studies had recommended summer school programs with 80 and 360 hours of class time for students. McLaughlin and Pitcock (2009) called for a six week summer schools where students attend classes all day. While researchers do not agree on the exact length, there is evidence that successful programs are often longer in length than other summer school programs (Bell & Carillo, 2007).

Parental involvement. In addition to length of program, Black (2005) and Terzian, Moore, and Hamilton (2009) found that parental involvement was also a crucial component of successful programs. Parental involvement can take many different forms, such as reading with children, volunteering at summer school, or helping with homework. Researchers have noted a lack of parental involvement is a common problem in many programs (Terzian, Moore, & Hamilton, 2009). District A does not require parental involvement in summer school.

Participation, attendance, and incentives. Some summer school programs are voluntary and some are required to avoid retention. McLaughlin and Pitcock (2009) advocated offering sports and enrichment activities and free breakfast and lunch programs to encourage students to attend. McCombs et al. (2011) went a step further and suggested giving students incentives to attend summer school for both the students and parents, such as prizes, payments, and bus passes. Some districts require students to attend in order to be eligible to move to the next grade, which obviously can increase attendance.

Quality of instruction. The quality of instruction is also crucial to the success of summer school programs. Black (2005) and McCombs et al. (2011) described successful summer programs as having good instruction. With the increased pressure of high-stakes testing, Black (2005) and McCombs et al. (2011) promoted aligning regular school year curriculum with summer school curriculum and increasing rigor. This allows students a chance to close the achievement gap with their peers during the summer because summer teachers can continue lessons where regular school year teachers stopped. Bell and Carrillo (2007), McLaughlin and Pitcock (2009), and Terzian, Moore and Hamilton (2009) all found the way to insure instruction was effective was to give teachers quality professional development on how to teach struggling students. Then, Black (2005), Christie (2003), McCombs et al., (2011), and Terzian, Moore, and Hamilton (2009), found that small class sizes and individualized instruction improved the success of summer school students. In addition, McLaughlin and Pitcock (2009) and Terzian, Moore and Hamilton (2009) also made a case for using hands-on activities to engage

students and increase student achievement. When these techniques are combined, student achievement increases (Terzian, Moore, & Hamilton, 2009).

Evaluation process. A final key component of quality summer programs is an evaluation process. Christie (2003) and Rischer (2009) suggested that teachers and students' achievement needed to be evaluated often to hold all parties accountable. Achievement was not the only way suggested for summer school programs to be evaluated. Researchers also suggested looking at the overall programs to find strengths and weaknesses. Then, improvements could be made to the programs (Bell & Carrillo, 2007; McCombs et al., 2011)

After this recent research, school districts have much more information about what makes a summer school program effective. The program is more effective when the length of the program is longer. The effectiveness of a summer school program also depends upon the quality of instruction and parental involvement. Other factors such as participation, attendance, and incentives affect the achievement of students in summer school programs. Finally, effective summer school programs have an evaluation process that monitors student achievement and the overall performance of the summer school program.

Reading Programs

Congress asked the National Institute of Child Health and Human Development and the Department of Education to form a National Reading Panel to recommend the best ways to teach reading. In April 2000, the National Reading Panel finished its work and recommended that reading instruction include phonemic awareness, phonics, fluency, vocabulary, and comprehension skills (National Institute of Child Health and Human

Development, 2013). This led to reading programs and interventions with those components becoming popular in the 2000s. The following sections briefly outline the five major categories of reading skills.

Phonemic Awareness. "Phonemic awareness can be defined as the conscious awareness that spoken words comprise individual sounds" (Snider, 1997, p. 203). Researchers have conducted many studies to examine the relationship of phonemic awareness to reading achievement. Reading and Van Duren (2007) found that grade 1 students who had phonemic awareness training in kindergarten performed better on phonemic awareness skills tests than those who did not. However, when grade 1 students who had not received phonemic awareness training in kindergarten received that training in grade 1, there were no differences in test scores at the end of the grade 1 year between the two groups. In addition, lack of phonemic awareness instruction had negative effects on students' ability to learn to read. Juel (1988), Snider (1997), and Yeh and Connell (2008) also found that phonemic awareness skills in younger students predicted the reading ability of older students. If younger students struggled with phonemic awareness, they struggled later with reading ability. The National Reading Panel found, "Correlational studies have identified phonemic awareness and letter knowledge as the two best school-entry predictors of how well children will learn to read during their first 2 years in school" (National Institute of Child Health and Human Development, 2000, p. 2-1)

After these studies showed the importance of phonemic awareness, researchers also sought to figure out the best ways and, in which order, to teach phonemic awareness. Schuele and Boudreau (2008) gave a clear instructional sequence for teaching phonemic

awareness: “onset-rime segmentation, segment initial and final sounds, blend sounds into words, segment words into sounds, and delete, manipulate phonemes” (p. 6). Many strategies have been used to teach these phonemic awareness skills. Oczkus (2011) suggested teaching phonemic awareness with rhyming words in poems, by changing initial sounds to make rhyming words, isolating sounds, clapping syllables, and saying words slowly. Joseph (2008) suggested similar activities, such as sound sorts to sort words into categories with the same beginning, ending, or rhyming words. He also suggested using sound boxes to help students by moving a token into each sound box as the student says each sound of the word. In these ways, students gain phonemic awareness skills necessary to facilitate later reading ability.

Phonics. Snider (1995) defined phonics as “using letter sounds and other rules to sound out words” (para. 13). As with phonemic awareness, researchers sought to determine the effect of phonics on reading achievement. Eldredge, Quinn, and Butterfield (1990) found “phonics knowledge has a causal impact on both reading comprehension and vocabulary gains” (p. 201). Davidson (2007), Fulwiler and Groff (1980), and Tyner (2012) all identified phonics as a critical component in learning to read. Tyner (2012) explained why phonics is a critical component by stating, “Because English is a complex language with an alphabetic writing system that is difficult to learn, many children need explicit instruction in this system in order to learn to read successfully” (p. 3). Allington (2013) emphasized, “Developing effective decoding proficiencies is an essential task of primary-grade teachers” (p. 522). Therefore, phonics instruction is a critical component in teaching young children to read.

Phonics instruction can take on a variety of methods in primary grades. Mesmer and Griffith (2005/2006), Oczkus (2011), and Strickland (1994/1995) suggested using explicit instruction. "In explicit instruction, teachers clearly identify the objective of the lesson and briefly explain why learning the targeted skill is important" (Tracy & Morrow, 2009, p. 3). Other approaches were also suggested. Oczkus (2011) and Tracy and Morrow (2009) called for hands-on activities with manipulatives. Several researchers recommended teaching rhymes (Cunningham & Cunningham, 2002; Schuele & Boudreau, 2008; Strickland, 1994/1995). Many researchers also proposed using word work, games, and manipulation to teach students phonological skills (Cunningham & Cunningham, 2002; Oczkus, 2011; Schuele & Boudreau, 2008; Stahl, Duffy-Hester, & Stahl, 1998). In this variety of ways, teachers teach young students phonics.

Vocabulary. "Vocabulary development is one of the most important skills young children need to acquire to be successful in learning to read and in school" (Wasik & Iannone-Campbell, 2012, p. 322). Vocabulary was included as a critical component of reading in the findings of the National Reading Panel (National Institute of Child Health and Human Development, 2000). After those findings, vocabulary instruction was incorporated into reading programs and reading standards. For example, the *Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects for Grades K-5* incorporated vocabulary by stating, "Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade topic or subject area" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 14). Researchers have

also found the need for vocabulary instruction in kindergarten to third grade classrooms. One research team analyzed fourteen studies and found:

> This synthesis indicates convergence on the following research themes: (a) frequency of exposure to targeted vocabulary augments children's understanding of word meanings and their use of targeted words, (b) explicit instruction increases word learning, and (c) language engagement through dialogue and/or questioning strategies during a read-aloud enhances word knowledge. (Butler et al., 2010, p. 3)

There are many ways to incorporate vocabulary instruction into classes. First, teachers must decide which vocabulary words to teach. Beck, McKeown, and Kugan (2013) defined tiers of words. "We designated Tier One words as words typically found in oral language and Tier Three consists of words that tend to specific domains…Tier Two comprises wide-ranging words of high utility for literate language users" (p. 20). Marzano (2012) also suggested that the tiers of words be used in a plan to teach vocabulary with tier one terms taught to students who need intervention, tier two words taught when needed, and tier three words taught in the subject areas. Other researchers suggested more techniques for quality vocabulary instruction. Overturf (2013), Roskos and Neuman (2014), and Wasik and Iannone-Campbell (2012) advocated for teaching words in context. In addition, Manyak et al. (2014), Taylor, Mraz, Nichols, Rickelman and Wood (2009), Roskos and Neuman (2014), and VanDeWeghe (2007) all suggested using visuals, such as word walls, semantic maps, and graphic organizers. Furthermore, Overturf (2013) also called for teaching prefixes, suffixes, figurative language,

synonyms, and antonyms. Teachers use all of those techniques to help students improve in vocabulary, which helps students improve their reading ability and comprehension.

Fluency. Fluency has been defined in many ways. Pikulski and Chard (2005) combined definitions to provide a more thorough one:

> Reading fluency refers to efficient, effective word recognition skills that permit a reader to construct the meaning of text. Fluency is manifested in accurate, rapid, expressive oral reading and is applied during, and makes possible, silent reading comprehension. (p. 510)

Fluency was also included in the National Reading Panel's five necessary components of reading instruction. "Fluency is an essential part of reading" and guided oral reading and repeated reading were found to be "appropriate and valuable avenues for increasing fluency and overall reading achievement" (National Institute of Child Health and Human Development, 2000, Chapter 3, p. 28). Therefore, it was also included in the foundational reading skills in the Common Core State Standards as well (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). For these reasons, fluency is included in most commercially available reading programs, including *Good Habits Great Readers*™ and Fountas & Pinnell reading products.

There are also many ways to teach fluency. Hudson, Lane, and Pullen (2005) and Zutell and Rasiniski (2001) encouraged teachers to use modeling of fluent readers to improve student reading fluency, while Hudson, Lane, and Pullen (2005), Mastropieri, Leinart, and Scruggs (1999) and Zutell and Rasiniski (2001) emphasized the importance of repeated readings of a text to improve fluency. While modeling and repeated readings

are important, there are also other ways to teach and improve fluency. Mastropieri, Leinart, and Scruggs (1999) also emphasized using peer tutors, previewing texts, and using computer instruction as well. Pikulski and Chard (2005) suggested several steps to improve fluency that included, "building the graphophonic foundations for fluency, developing oral language, teaching high frequency vocabulary, recognizing word parts and spelling patterns, teaching a decoding strategy, using appropriate texts to promote fluency, encouraging independent reading" (p. 513-516). When combined, all of these methods can be used to improve fluency in young readers.

Comprehension. Comprehension is the last critical component identified by the National Reading Panel. "Comprehension is critically important to development of children's reading skills and therefore their ability to obtain an education" (National Institute of Child Health and Human Development, 2000, Chapter 4, p. 1). For this reason, it was also included in the Common Core State Standards. Grades 3-4 are expected to demonstrate several skills in comprehension in the section titled "Key Ideas and Details" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 12). Furthermore, Hess (2007) summarized the importance of comprehension by saying, "Comprehension is the *reason* for reading – a cognitive activity relying on excellent fluency" (p. 15).

Like the other four components, comprehension can also be taught in many ways. Armbruster, Lehr, and Osborn (2001), Mahdevi and Tensfeldt (2013), and Williams (2005) recommended using graphic organizers and teaching text structure to improve comprehension. In addition, Mahdevi and Tensfeldt (2013) and Strasser and del Rio (2013) called for vocabulary development to build comprehension skills. Some skills

involve thinking about the text read. For example, Antoniou and Souvignier (2007), Armbruster, Lehr, and Osborn (2001), Block and Duffy (2008), and Williams (2005) advocated summarizing the text to improve comprehension. Furthermore, Block and Duffy (2008) recommended making predictions, making conclusions, evaluating, and synthesizing information to improve comprehension. However, one simple technique was also suggested. Armbruster, Lehr, and Osborn (2001), Block and Duffy (2008), and Mahdevi and Tensfeldt (2013) recommended questioning techniques to improve comprehension. This variety of techniques can be used to learn. Harvey and Goudvis (2013) described learning as "the goal of comprehension remains to acquire and actively use knowledge" (p. 435).

Elements of District A's Summer School Program and Reading Intervention

District A's summer school program used S.T.E.A.M. lessons and a variety of reading materials to teach reading. S.T.E.A.M. lessons were similar from classroom to classroom and school to school. However, pull-out reading lessons did vary some because one school primarily used *Good Habits Great Readers* (*GHGR*) and one used *Scholastic News Magazine*. Both schools focused on teaching phonemic awareness, phonics, fluency, vocabulary, and comprehension skills.

Science, Technology, Engineering, Arts, and Math (S.T.E.A.M.). These are lessons that integrate subjects and are defined as, "Science & Technology interpreted through Engineering & the Arts, all based in Mathematical elements" (Academia, 2015, pp. 3). This is a new term and approach to education that was created by Yakman in 2006 (STEAM Education C/TM, 2007). Art was added to Science, Technology, Engineering, and Math (S.T.E.M.) with the belief that the arts brought several benefits for

students. Those academic and social benefits included several areas, "mathematics, thinking skills, motivation, social behavior, and school environment" (Deasy, 2003, p. 16). There has not been much research on S.T.E.A.M., but there is research on S.T.E.M. Becker and Park (2011) researched S.T.E.M. benefits and found that teaching subjects together was associated with higher assessment scores, "The effects of integrative approaches by grade levels indicated that early exposure may yield higher achievement scores among STEM subjects" (p. 31). In fact, Becker and Park (2011) concluded, "The empirical evidence shows that the effect on students' learning seems to be better at the lower level" (p. 31). Evidence such as this and public demand led District A to use S.T.E.A.M. as a lesson basis for their elementary summer school programs.

Standards-Referenced Grading and Learning Targets. One definition of standards-referenced reporting is, "Standards-referenced refers to instructional approaches or assessments that are 'referenced' to or derived from established learning standards—i.e., concise, written descriptions of what students are expected to know and be able to do at a specific stage of their education" (Great Schools Partnership, 2014b, para. 1). Robert Marzano is a major proponent of standards-referenced reporting. He wrote, "The most important purpose for grades is to provide information or feedback to students and parents. The best referencing system for grading is content-specific goals: a criterion-referenced approach" (Marzano, 2000, p. 23). Those goals are called learning goals or learning targets. Paek and Thompson (2013) defined learning goals or targets as "a description of what students will be able to do at the end of the course/grade" and "based on the intended standards and curriculum that are being taught and learned" (slide 6). District A refers to learning goals as learning targets, and elementary and middle

school students are graded in English Language Arts, mathematics, science, and social studies based on 1-4 grading scale on those learning targets (District A, n.d.) During summer school 2015, the district assessment for grades 3-4 was key ideas and details for comprehension. Therefore, key ideas and details became the focus of in-class and pull-out reading lessons for summer school.

***Scholastic News Magazine*.** In order to teach the learning target of key ideas for comprehension, the two schools were allowed to choose the learning materials for use in summer school pull-out reading intervention services. School A chose to use *Scholastic News Magazine* to teach struggling readers in those pull-out classes. The magazine uses "curriculum-connected non-fiction" to teach reading comprehension (Scholastic, 2015b, para. 1). "Children's magazines are a bridge to literacy. Many of them contain high quality writing, entertaining activities, and topical information," (Stoll, 1990, p. 8). Researchers have shown that the use of magazines can improve students' reading ability. In fact, Campbell & Ashworth (1995) found, "Those students who reported reading all three types of materials -- storybooks, magazines, and information books -- had higher average proficiency than their peers with less diverse reading experiences" (p. 4). Therefore, the curriculum-based short articles in *Scholastic News Magazine* were an appropriate choice to teach struggling readers in summer school.

***Good Habits Great Readers* (GHGR).** School B chose to utilize *Good Habits Great Readers* (*GHGR*) for pull-out reading intervention services for grades 3-4 students. *GHGR* is a non-scripted reading program that incorporates both literature and non-fiction reading materials, as well as core content (Pearson Education, 2015). The program is available for grades kindergarten through 5. The National Reading Panel recommended

that reading instruction include phonemic awareness, phonics, fluency, and vocabulary and comprehension skills (National Institute of Child Health and Human Development, 2013). The *Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects for Grades K-Five* by National Governors Association Center for Best Practices & Council of Chief State School Officers (2010) also includes phonics, phonemes, and fluency in foundational skills. Vocabulary and comprehension skills are included in the reading sections for literature and informational texts. *Good Habits Great Readers* includes instruction in all five areas recommended by the National Reading Panel and included in the Common Core State Standards (Pearson, 2010).

Fountas & Pinnell *Benchmark Assessment System* (BAS). Fountas & Pinnell *Benchmark Assessment System* (BAS) is a testing program designed for classroom usage that was used in this study. There have been few studies into the effectiveness of the Fountas & Pinnell *Benchmark Assessment System* (BAS). There was one study conducted with grade 1 and 2 students at risk for reading difficulty. One group used guided reading as described by Fountas & Pinnell as the reading intervention. Students were measured on word reading, phonological decoding, fluency, and comprehension. The study found that students in guided reading made more gains than those in the non-treatment group who received regular reading instruction (Denton, Fletcher, Taylor, Barth, & Vaughn, 2014). Another study researched the effects of Fountas & Pinnell's guided reading on fluency, accuracy, and comprehension. Heston (2010) found that only 30% of participants increased in fluency, 50% increased in accuracy, and 48% increased

in comprehension. Even with these mixed results, the researcher concluded that the effects of Fountas & Pinnell had been positive (Heston, 2010).

Fountas & Pinnell *Literacy Learning Intervention* (LLI). Fountas & Pinnell *Literacy Learning Intervention* (LLI) is a reading and testing program designed to help struggling readers, and that program was used when the BAS was not used. "LLI is designed to be used with small groups of children who need intensive support to achieve grade level competencies" (Fountas & Pinnell, 2009b, p. 4). There has been some research into the effectiveness of *Fountas & Pinnell Leveled Literacy Intervention*. One study was conducted by the Center for Research in Educational Policy during the 2009-2010 school year in the Tift County Schools in Georgia and the Enlarged City School District in Middletown, New York using kindergarten to grade 2 students (Ransford-Kaldon et al., 2010). Those researchers found, "Kindergarten students who received LLI achieved a mean gain of 1.56 benchmark levels as compared to 0.78 benchmark levels for kindergartners who did not receive LLI" (Ransford-Kaldon et al., 2010, p. 26). Grade 1 students using LLI had a mean gain of 4.46 benchmark levels versus 2.63 benchmark levels for grade 1 students not receiving LLI. Furthermore, grade 2 students using LLI had a mean gain of 4.64 benchmark levels versus 2.99 benchmark levels for grade 1 students not receiving LLI (Ransford-Kaldon et al., 2010, p. 26). A second study was conducted by the Center for Research in Educational Policy during the 2011-2012 school year in the Denver Public Schools using 320 kindergarten to grade 2 students (Ransford-Kaldon et al., 2013). The mean gain for kindergarten students with LLI was 2.3 benchmark reading levels, while students not receiving LLI had an average mean gain of 1.3 benchmark reading levels. For grade 1 students, the mean gain for students with LLI

was 4.4 benchmark reading levels and students not receiving LLI had an average mean gain of 3.4 benchmark reading levels (Ransford-Kaldon et al., 2013). Grade 2 students receiving LLI had a mean gain of 3.8 benchmark reading levels and students not receiving LLI had an average mean gain of 4.1 benchmark reading levels (Ransford-Kaldon et al., 2013). Therefore, these studies showed how effective the *Fountas & Pinnell Leveled Literacy Intervention* could be for struggling readers. See Appendix C for a table of this data created by the researcher.

Fountas & Pinnell Correlation with National Recommendations. Fountas & Pinnell assessment systems meet the recommendations made by the National Reading Panel and in the Common Core State Standards. The National Reading Panel recommended that reading instruction include phonemic awareness, phonics, fluency, and vocabulary and comprehension skills (National Institute of Child Health and Human Development, 2013). Fountas & Pinnell *Benchmark Assessment System* (BAS) assessed the elements identified by the National Reading Panel (Fountas & Pinnell, n.d.), and *Fountas & Pinnell Leveled Literacy Intervention* included practice in those same skills (Ransford-Kaldon et al., 2010). The *Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects* by National Governors Association Center for Best Practices & Council of Chief State School Officers (2010) included phonics, phonemes, and fluency in foundational skills. Vocabulary and comprehension skills are included in the reading sections for literature and informational texts. Therefore, Fountas & Pinnell assessment systems are aligned with the National Reading Panel and the Common Core State Standards recommendations.

Summary

The literature on the history of summer school was reviewed in this chapter. The review also included an examination of summer learning loss, arguments for and against summer school, quality summer programs, reading intervention programs, and elements of District's A summer school program. Chapter three examines the research design, population sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis, and limitations of this study.

Chapter Three

Methods

There were three purposes of this study. The first purpose was to determine whether there was a difference in grade 3 and 4 students' reading improvement, as measured on the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension. The second purpose was to determine whether there was a difference in grades 3 and 4 students' reading improvement, as measured by the spring and fall Fountas & Pinnell assessment scores, between students who did participate and students who did not participate in the summer school intervention program in District A.. The third purpose was to determine whether there was a difference in grades 3 and 4 students' reading improvement, as measured by *Scholastic Reading Inventory*™ Lexile scores, between students who did participate and students who did not participate in the summer school intervention program in District A. This chapter contains an explanation of the research design, population and sample, sampling procedures, instrumentation, validity and reliability, data collection procedures, data analysis and hypothesis testing, and limitations.

Research Design

A quasi-experimental design was chosen for this study. The independent variable was student summer school attendance versus non-attendance. The dependent variables were the improvement scores from the district English Language Arts learning target of comprehension for summer school participants, the spring 2015 and fall 2015 Fountas & Pinnell assessment system tests scores, and the spring 2015 and fall 2015 *Scholastic Reading Inventory*™ (SRI) scores for participants and non-participants.

Population and Sample

The population included grade 3 and 4 struggling students in District A in a Midwestern suburban community. The sample was grade 3 and 4 students who were eligible for summer school during the summer of 2015. The treatment group consisted of grade 3 and 4 students who were eligible, and participated in, summer school in 2015. The control group consisted of grade 3 and 4 students who were eligible to, but did not participate in, summer school in 2015.

Sampling Procedures

Nonrandom, purposive sampling was used in this study. "Purposive sampling involves selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (Lunenburg & Irby, 2008, p. 175). In this study, district characteristics, procedures for inviting students performing below grade level in reading, and connections with the Academic Services Department were used to collect data. The criteria used to select participants in District A for this purposive sample were schools and grade levels attended and qualified for an invitation to summer school. Four of the six elementary schools in District were used in the study, and grade 3 and 4 students were included. In order to be eligible for summer school, grade 3 students had to read at N or below on the Fountas & Pinnell levels and less than 400L on SRI. Grade 3 students are expected to read at Levels O-P by the end of grade 3. Grade 4 students were recommended for summer school if they read at Q or below on the Fountas & Pinnell levels and less than 500L on SRI. Grade 4 students are expected to read at Levels R-S (District A, 2014b).

Instrumentation

The measurement instruments for this study were the pre-tests and post-tests on the English Language Arts learning target for comprehension, the Fountas & Pinnell assessment systems tests, and the *Scholastic Reading Inventory*™ (SRI) test. The English Language Arts learning target for comprehension was measured with three questions on the S.T.E.A.M. unit pre- and post-tests, which were integrated units about Egypt and roller coasters. Students' scores corresponded to the number of questions they answered correctly. Questions were multiple-choice, based on short reading passages, and focused on key ideas and details in the passages. Teachers administered the pre-tests during the first few days of summer school, and teachers administered the post-tests during the last few days of summer school. Google Documents was used by teachers to collect data on the English Language Arts learning target for comprehension during summer school in 2015. The data collection method was explained during teacher training for summer school. Teachers were required by the district to collect the data, so summer school principals insured the data was collected.

The benchmark tests from Fountas & Pinnell assessment systems are reading tests that are administered individually to each student by teachers. The teachers had two choices of benchmark level tests from Fountas & Pinnell. One of the two possible tests used to assess participants and non-participants of the summer school programs was the Fountas & Pinnell *Benchmark Assessment System*. There are two systems within the Fountas & Pinnell *Benchmark Assessment System*. System 1 is used with grades K-2 or students reading at levels A-N. System 2 is used with grades 3-8 or students reading at levels L-Z (Fountas & Pinnell, 2015b). The assessments are used for finding the

independent and instructional reading levels. The independent level is the level that students can accurately read and comprehend on their own. The instructional level is the level that students can read when assisted and taught by a teacher. Teachers used the oral reading portions from the Fountas & Pinnell Systems 1 and 2 to measure accuracy rate, comprehension, and determine reading levels. The writing portion of the Fountas & Pinnell Systems 1 or 2 were not used. Accuracy rate is calculated by dividing the number of words read correctly by the number of total words in a passage. In order to pass a benchmark level, Scholastic recommends that readers score at least 95% on accuracy and satisfactory for comprehension for Levels A-K and at least 98% on accuracy and satisfactory for comprehension for Levels L-Z (Fountas & Pinnell, 2009a). Students must score at least five out of seven in Levels A-J on the questions for comprehension to be considered satisfactory. For Levels L-Z, students must score at least seven out of ten on the questions for comprehension to be considered satisfactory (Fountas & Pinnell, 2008b). For measurement purposes, the pre-test Fountas & Pinnell *Benchmark Assessment System* tests was administered during the last 45 days of the 2014-2015 school year, and the post-test was administered during the first 45 days of the 2015-2016 school year by District A reading interventionists or teachers. Google documents were used by teachers to collect data on the Fountas & Pinnell *Benchmark Assessment System* tests data, and e-mail reminders about the data collection were sent to the reading interventionists in the four elementary schools on July 17, August 20, September 24, and September 29.

The alternate test administered to participants and non-participants of the summer school programs was the Fountas & Pinnell *Literacy Learning Intervention* (LLI)

assessments. The program consists of three levels of interventions: Levels A-C constitute the Orange System, Levels A-J is the Green System, and Levels C-N constitute the Blue System (Fountas & Pinnell, 2009b). The assessments are used for finding the independent and instructional reading levels (Fountas & Pinnell, 2008a). Teachers used the oral reading portions from the Fountas & Pinnell *LLI Benchmark System* to measure accuracy rate, comprehension, and determine reading levels. The writing portion of Systems 1 or 2 were not used. Accuracy rates and comprehension are calculated in the same manner as in the BAS. For measurement purposes, the pre-test Fountas & Pinnell *LLI Benchmark System* tests was administered during the last 45 days of the 2014-2015 school year, and the post-test was administered in the first 45 days of the 2015-2016 school year by District A reading interventionists or teachers. Data collection in Google documents and e-mail reminders were the same as for the BAS.

The SRI is an untimed, online assessment tool that adjusts the difficulty level of a question based on whether the student correctly answered the previous question and provides an immediate assessment of what students can comprehend. Due to the online administration of the SRI test, it eliminates any variance in test results due to teacher administration differences. No two SRI tests are the same because there are 5,119 possible questions, which are used based on students' correct and incorrect answers and reading level (Scholastic, 2009). The SRI test is administered as part of regular school activities, so no additional permission was necessary to use this tool. SRI questions are fill-in-the-blank or a cloze test (Scholastic, 2009). The assessment items are literary (fiction) or expository (informational text). The questions test a variety of comprehension skills, which "include referring to details in the passage, drawing

conclusions, and making comparisons and generalizations" (Scholastic, 2007, p. 8). The test length can vary due to its difficulty level adjustments, but it usually takes about 30 minutes (Scholastic, 2015a). Scores are expressed as numerical Lexiles. The Lexile score "reflects the difficulty of the words and the complexity of the sentences in that text" (Scholastic, 2008, p. 3). Scores can range from less than 100L to 1500L (Scholastic, 2007). By the middle of the year, average students should read in a range of 330L to 700L in grade 3 and in a range of 445L to 810L in grade 4 (Scholastic, 2008). Students can increase their Lexile scores by reading more difficult text and answering the associated questions correctly.

Measurement. Measurement is integral to a quasi-experimental study. Numerical measurement is defined as:

> any process by which a value is assigned to the level or state of some quality of an object of study. This value is given numerical form, and measurement therefore involves the expression of information in quantities rather than by verbal statement (Jupp, 2006, p. 168).

The reading achievement of grade 3 and 4 participants and non-participants of summer school were measured with the following six research questions.

Research question 1 addressed the extent there was improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests on the English Language Arts learning target of comprehension. The dependent variable in research question 1 was the difference in the improvement in the grade 3 district-created pre-tests to post-tests on the English Language Arts learning target of comprehension scores.

Research question 2 addressed the extent there was improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests on the English Language Arts learning target of comprehension. Measurement of the dependent variable for research question 2 was the same as the measurement for research question 1, except that grade 4 students were assessed.

Research question 3 addressed the extent there was a difference in the improvement in grade 3 students' reading scores, as measured by the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and those students who did not participate in the summer school intervention program in District A. The dependent variable in research question 3 was the improvement in the grade 3 spring 2015 to fall 2015 Fountas & Pinnell assessment systems scores. Letter levels were assigned a number equivalent to calculate improvement. The number of levels of improvement was then calculated by subtracting the spring score from the fall score. The independent variable was participation in the summer school intervention.

Research question 4 addressed the extent there was a difference in the improvement in grade 4 students' reading levels, as measured by the spring 2015 to fall 2015 Fountas & Pinnell assessment system tests, between eligible grade 4 students who participated and those students who did not participate in the summer school intervention program in District A. Measurement and calculation of improvement for research question 4 was the same as the measurement for research question 3, except that grade 4 students were assessed. The independent variable was the same in research question 4 as for research question 3.

Research question 5 addressed the extent there was a difference in the improvement in grade 3 students' reading scores, as measured by the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated and those students who did not participate in the summer school intervention program in District A. The dependent variable in research question 5 was the improvement in the grade 3 spring 2015 and fall 2015 *Scholastic Reading Inventory*™ assessment scores. An improvement score was calculated by subtracting the spring score from the fall score. The independent variable was participation in the summer school intervention.

Research question 6 addressed the extent there was a difference in the improvement in grade 4 students' reading scores, as measured by the spring 2015 to fall 2015 *Scholastic Reading Inventory*™, between eligible grade 4 students who participated and those students who did not participate in the summer school intervention program in District A. Measurement and calculation, of the improvement score, for research question 6 was the same as the measurement in research question 5. The independent variable was the same in research question 6 as in research question 5.

Validity and reliability. For this study, the validity and reliability of the assessments used to measure the students' progress in reading were considered. Validity is "the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests…The process of validation involves accumulating evidence to provide a sound scientific basis for the proposed score interpretations" (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999, p. 9). In this study, the validity of

all measurements were considered: the pre-tests and post-tests on the English Language Arts learning target of comprehension, the spring 2015 and fall 2015 Fountas & Pinnell assessment system tests, and the spring 2015 and fall 2015 *Scholastic Reading Inventory*™.

The district-created assessments for the English Language Arts learning target of comprehension have not been assessed for validity. However, the learning target focuses on key ideas and details that correspond to the Missouri Learning Standards and Common Core State Standards (CCSS). There are four broad categories of learning in the reading standard for literature in grades K-5: "key ideas and details, craft and structure, integration of knowledge and ideas, range of reading and level of text complexity" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 10). Questions on the district-created assessments were focused on assessing students' ability to find key ideas and details in reading passages. Therefore, the assessments were aligned with the Missouri Learning Standards and the Common Core State Standards.

The Fountas & Pinnell assessment systems are based on the Fountas & Pinnell Text-Level Gradient. There was a study (Fountas & Pinnell n.d.) to determine the convergent validity of the Fountas & Pinnell *Benchmark Assessment System*. According to that study, "Convergent validity examines the relationship between an assessment's test scores and the scores from other instruments that measure similar variables" (p. 11). The study was conducted with 497 diverse participants in schools around the country (Heinemann, 2007). Researchers found "a strong relationship between the reading accuracy rates on *System 1* (levels A–N) fiction (correlation of .94) and nonfiction

(correlation of .93), and reading accuracy rates on texts used for assessments in Reading Recovery®" (Heinemann, 2007, p. 12).

In addition, the Fountas & Pinnell reading assessment programs assess the components recommended by the National Institute of Child Health and Human Development (2013) and the National Governors Association Center for Best Practices & Council of Chief State School Officers (2010) in the Common Core State Standards, which include decoding, fluency, vocabulary and comprehension skills (Heinemann, 2012). Due to the studies on BAS and the fact that the BAS and LLI are based on the same Fountas & Pinnell Text Level Gradient, both tests are valid assessments of reading achievement.

The *Scholastic Reading Inventory*™ (SRI) is a computer-based reading assessment that measures reading comprehension. "Criterion-related validity looks at the relationship between a test score and an outcome" (The College Board, 2015, para. 9). In order to evaluate its criterion-related validity, the SRI was compared to other reading tests. The relationship between the SRI scores and other major reading scores was examined, and strong or high correlations were found. The correlations for the majority of the tests in Table 1: *Standardized Test Score Correlations with SRI Lexile Scores* were .88 or higher (Stenner, Burdick, Sanford, & Burdick, 2007). In fact, the only tests that correlated below .88 were tests from individual states, such as the Texas Assessment of Academic Skills (TAAS) (.73 to .78), the Texas Assessment of Knowledge and Skills (.60 to .73), and the Georgia Criterion Referenced Competency Test (CRCT) (.72 to .88) (Stenner et al., 2007).

Table 1

Standardized Test Score Correlations with SRI Lexile Scores

Standardized Test	Grades	*N*	*r*
Stanford Achievement Tests (Ninth Edition)	4, 6, 8, 10	1,167	.92
Stanford Diagnostic Reading Test (Version 4.0)	4, 6, 8, 10	1,169	.91
Terra Nova (CTBS/5)	2, 4, 6, 8	2,713	.92
Metropolitan Achievement Test (Eighth Edition)	2, 4, 6, 8, 10	2,382	.93
Gates-McGinitie Reading Test	2, 4, 6, 8, 10	4,644	.90
Texas Assessment of Academic Skills (TAAS)	3-8	3,623	.73 to .78
Texas Assessment of Knowledge and Skills	3, 5, 8	1,960	.60 to .73
Georgia Criterion Referenced Competency Test	1-8	16,363	.72 to .88

Note: Adapted from *The Lexile Framework® for Reading Technical Report*, by A. J. Stenner, H. Burdick, E. E. Sanford, and D. S. Burdick, 2007, p. 8. Copyright 2007 by MetaMetrics, Inc.

"Construct validity occurs when investigators use adequate definitions and measures of variables" (Creswell, 2014, p. 242). The purpose of the study was to determine if the computer-adaptive and paper versions of the SRI test measured "similar reading constructs" (Scholastic, 2007, p. 86). The correlation between the two Lexile measures was 0.92 (MetaMetrics, 2005). The results show that the two tests measure similar reading constructs, which is strong evidence for the validity of the computer-adaptive assessment. "In 2005, a group of 20 Grade 4 students at a Department of Defense Education Activity (DoDEA) school in Fort Benning (GA), were administered both *SRI* and *SRI*-Print (Level 14, Form B)" (Scholastic, 2007, p. 86). According to that unpublished report from the study at Fort Benning, Georgia, the results for twenty

students showed a correlation between the scores from the two tests of .92 (Scholastic, 2007).

According to American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999), reliability is defined as:

> The degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable, and repeatable for an individual test taker; the degree to which scores are free of errors of measurement for a given group. (p. 180)

Instruments in a research study must also have reliability. The district-created assessments for the English Language Arts learning target of comprehension have not been assessed for reliability. However, the Fountas & Pinnell assessment systems and the SRI assessment have been assessed for reliability.

The Fountas & Pinnell *Benchmark Assessment System* was evaluated for test-retest reliability. Results showed a test-retest reliability of .93 for Levels A-N, .94 for Levels L-Z, and .97 for all books (Heinemann, 2007). Therefore, the results provided strong evidence of the reliability for the Fountas & Pinnell *Benchmark Assessment System*. All Fountas & Pinnell benchmark assessment systems are based on the Fountas & Pinnell Text Level Gradient, the tests are reliable.

The reliability of the SRI test was a consideration. Since all tests have an element of error, the SRI test has been examined for measurement errors. In order to personalize the test for each student, the computer uses an algorithm to determine what questions the student receives and to recalculate after every answer. The standard error of

measurement when only the grade level of the student was known ranged from 84L (Lexile points) to 104L. However, this was lower when grade level and reading level were factored into the algorithm calculation; ranging from 54L to 58L (Scholastic, 2007). Therefore, test accuracy increased when the reading level was factored in.

"Test-retest reliability examines the extent to which two administrations of the same test yield similar results. When taken together, alternate-form reliability and test-retest reliability are estimates of reader measure consistency" (Scholastic, 2007, p. 72). The *Scholastic Reading Inventory*™ (SRI) test was studied for reader error to determine test-retest reliability. It was administered twice to students in grades 2-10 in 2004-2005. There was a four month delay between the two tests. The overall correlation between the first test and the second test was .894 (Scholastic, 2007, p. 72).

Data Collection Procedures

The Assistant Superintendent of District A provided written permission to conduct the research by signing a letter of request to conduct the research study (see Appendix A). The letter of request was submitted to the district in March 2014. The letter of request was discussed in a meeting with the Assistant Superintendent on April 1, 2014. The Assistant Superintendent gave written approval to the letter of request on April 14, 2014.

The Institutional Review Board (IRB) form was submitted to Baker University prior to collecting data and conducting research on December 31, 2014. The Baker University IRB Committee approved the IRB form on January 5, 2015 (see Appendix B). After receiving written permission to conduct research from the IRB Committee, District A was contacted to begin collecting spring 2015 SRI test data.

The data for the district-created assessments for the English Language Arts learning target of reading comprehension was recorded by all grade 3 and 4 summer school teachers in Schools A and B on Google Sheets. Fountas & Pinnell assessment system tests were conducted by reading interventionists during the spring 2015 and fall 2015 for summer school participants. The students were assessed one-on-one and data was recorded on Google Sheets. All grade 3 and 4 students were assessed with the *Scholastic Reading Inventory*™ via computer in spring 2015 and fall 2015. SRI data was collected by the SRI software program in the spring of 2015 and the fall of 2015. The data was entered into the Student Information System (SIS), and a Technology Department staff member entered the SRI scores into the Tyler Student Information Systems (SIS) for use in this study. A numbering system to protect the identity of both groups was created. Further analysis was then completed with IBM® SPSS® Statistics Faculty Pack 22 for Windows software.

Data Analysis and Hypothesis Testing

The research testing focused on six research questions. Six hypothesis tests were conducted. A description of each hypothesis test is included for each question.

RQ1. To what extent is there an improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

H1. There is an improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

A one sample *t* test was conducted to address RQ1. The sample mean was tested against a null value of 0. The level of significance was set at .05.

RQ2. To what extent is there an improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

H2. There is an improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

A one sample *t* test was conducted to address RQ2. The sample mean was tested against a null value of 0. The level of significance was set at .05.

RQ3. To what extent is there a difference in the improvement in grade 3 students' reading level scores, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and eligible grade 3 students who did not participate in the summer school intervention program in District A?

H3. There is a difference in the improvement in grade 3 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and eligible grade 3 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ3. The categorical variable was participation status for summer school (did or did not participate). The dependent variable measurements were the improvement between the spring 2015 and

fall 2015 Fountas & Pinnell assessment systems reading levels for grade 3 students. The level of significance was set at .05.

RQ4. To what extent is there a difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A?

H4. There is a difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment system scores between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ4. The categorical variable was participation status for summer school (did or did not participate). The dependent variable measurements were the improvement between the spring 2015 and fall 2015 Fountas & Pinnell assessment systems reading levels for grade 4 students. The level of significance was set at .05.

RQ5. To what extent is there a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated and eligible grade 3students who did not participate in the summer school intervention program in District A?

H5. There is a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 and fall 2015 *Scholastic Reading Inventory*™

assessment scores, between eligible grade 3 students who participated and eligible grade 3 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ5. The categorical variable was participation status for summer school (did or did not participate). The two dependent variable measurements were the improvement from spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores for grade 3 students. The two sample means were compared. The level of significance was set at .05.

RQ6. To what extent is there a difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A?

H6. There is a difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 and fall 2015 SRI scores between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ6. The categorical variable was participation status for summer school (did or did not participate). The two dependent variable measurements were the improvement from spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores for grade 4 students. The two sample means were compared. The level of significance was set at .05.

Limitations

Even though researchers cannot control limitations, they need to be declared because they "may have an effect on the interpretations of the findings or on the generalizability of the results" (Lunenburg & Irby, 2008, p. 133). Teachers' summer school classrooms were not monitored by the district staff to determine all instructional practices used. The district-created pre-tests and post-tests for the English Language Arts learning target of comprehension data was collected via Google Sheets, and teachers could have made errors in data entry. There have not been any validity and reliability studies conducted on the pre-tests and post-tests for the English Language Arts learning target of comprehension. Other summer activities or other reading programs that grade 3 and 4 students in the District A summer school may or may not have participated in during the summer of 2015 could have affected test scores.

Summary

This chapter included a description of the research methods for this study. This study was a quasi-experiment that used a nonrandom, purposive sample of grade 3 and 4 students in District A. Students in District A qualified for summer school based on their scores on Fountas & Pinnell assessment systems and the *Scholastic Reading Inventory*™ assessment. The measurement instruments for this study were the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension, the Fountas & Pinnell assessment systems, and the *Scholastic Reading Inventory*™ assessment. There was a review of the six research questions. The hypotheses questions were addressed, and tests were conducted for each hypothesis. In chapter four, the results of the hypothesis testing are presented.

Chapter Four

Results

The purpose of this study was three fold. The first purpose was to determine whether there was a difference in grade 3 and 4 students' reading improvement, as measured on the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension. The second purpose was to determine whether there was a difference in grade 3 and 4 students' reading improvement, as measured by the spring and fall Fountas & Pinnell assessment systems, between students who did participate and students who did not participate in the summer school intervention program in District A. The third purpose was to determine whether there was a difference in grades 3 and 4 students' reading improvement, as measured by *Scholastic Reading Inventory*™ scores, between students who did participate and students who did not participate in the summer school intervention program in District A. Chapter four includes the descriptive statistics, hypothesis testing, and data analysis. The results of the one-sample *t* tests and the independent samples *t* tests are presented.

Descriptive Statistics

There were four groups in this sample from four of six elementary schools in District A who attended summer school in two buildings. Each group included students combined from the four elementary schools. The first group included 11 grade 3 students who were eligible for and participated in summer school in District A, and the second group included 10 grade 3 students who were eligible for and did not participate in summer school in District A. The third group included 25 grade 4 students who were

eligible for and participated in summer school in District A. The fourth group included 18 grade 4 students who were eligible for and did not participate in summer school in District A.

Table 2

Summer School Demographics

	Characteristic	*n*
Grade 3		
	Participants	11
	Non-Participants	10
Grade 4		
	Participants	25
	Non-Participants	18

The IBM® SPSS® Statistics Faculty Pack 22 for Windows software was used to conduct the data analysis for the study. The following section contains the hypothesis testing results that were utilized to make conclusions about the effectiveness of summer school in District A.

Hypothesis Testing

Data was collected on Google Sheets, transferred to an Excel spreadsheet, and imported into IBM® SPSS® Statistics Faculty Pack 22 for Windows software. Statistical analysis was conducted for six research questions. All research questions are listed below along with the hypothesis and statistical analysis results.

RQ1. To what extent is there an improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

***H1*.** There is an improvement in grade 3 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

A one sample *t* test was conducted to address RQ1. The extent of mean improvement in grade 3 summer school participants' district–created reading test scores was tested against a null value of 0. The level of significance was set at .05. The results of the one sample *t* test indicated a marginally significant difference between the two values, $t = 2.193$, $df = 10$, $p = .053$. The sample mean ($M = .455$, $SD = .688$) was higher than the null value 0. Grade 3 students who participated in summer school showed marginal improvement in reading, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

RQ2. To what extent is there an improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension?

***H2*.** There is an improvement in grade 4 summer school participants' reading scores, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

A one sample *t* test was conducted to address RQ2. The extent of mean improvement in grade 4 summer school participants' reading scores was tested against a null value of 0. The level of significance was set at .05. The results of the one sample *t*

test indicated a statistically significant difference between the two values, $t = 2.97$, $df = 24$, $p = .007$. The sample mean ($M = .680$, $SD = 1.14$) was higher than the null value 0. Grade 4 students who participated in summer school showed statistically significant improvement in reading, as measured by the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension.

RQ3. To what extent is there a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and eligible grade 3 students who did not participate in the summer school intervention program in District A?

***H3*.** There is a difference in the improvement in grade 3 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 students who participated and eligible grade 3 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ3. The average improvement levels of eligible grade 3 students who participated in summer school were compared with the average levels of eligible grade 3 students who did not participate in summer school. The level of significance was set at .05. The results of the independent samples *t* test indicated no statistically significant difference between the two values, $t = .777$, $df = 19$, $p = .447$. The sample mean for eligible grade 3 students who participated in summer school ($M = .273$, $SD = .64667$) was not different from the sample mean for eligible grade 3 students who did not participate in summer school ($M = -.400$, $SD = 2.80$). There was not a statistically significant difference in the improvement in grade 3

students' reading levels, as measured from the spring 2015 and fall Fountas & Pinnell assessment systems, between eligible grade 3 students who participated in summer school and eligible grade 3 students who did not participate in the summer school intervention program in District A.

Table 3

Fountas & Pinnell Descriptive Statistics for Grade 3 Improvement

Summer School Status	*N*	*M*	*SD*
Participants	11	.273	.647
Non-Participants	10	-.400	2.80

RQ4. To what extent is there a difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 to fall 2015 Fountas & Pinnell assessment systems, between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A?

H4. There is a difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment system scores between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school in District A.

An independent samples *t* test was conducted to address RQ4. The group of eligible grade 4 students who participated in summer school were compared with the group of eligible grade 4 students who did not participate in summer school. The level of significance was set at .05. The results of the independent samples *t* test indicated no

statistically significant difference between the two values, $t = .007$, $df = 41$, $p = .995$. The sample mean for eligible grade 4 students who participated in summer school ($M = -.440$, $SD = 1.828$) was not different from the sample mean for eligible grade 4 students who did not participate in summer school ($M = -.444$, $SD = 2.617$). There was not a statistically significant difference in the improvement in grade 4 students' reading levels, as measured from the spring 2015 and fall Fountas & Pinnell assessment systems, between eligible grade 4 students who participated in summer school and eligible grade 4 students who did not participate in the summer school in District A

Table 4

Fountas & Pinnell Descriptive Statistics for Grade 4 Improvement

Summer School Status	*n*	*M*	*SD*
Participants	25	-.440	1.828
Non-Participants	18	-.444	2.617

RQ5. To what extent is there a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated and those eligible grade 3 students who did not participate in the summer school intervention program in District A?

***H5*.** There is a difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 and fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated and eligible grade

3 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ5. The group of eligible grade 3 students who participated in summer school were compared with the group of eligible grade 3 students who did not participate in summer school. The level of significance was set at .05. The results of the independent samples *t* test indicated no statistically significant difference between the two values, $t = 1.244$, $df = 19$, $p = .229$. The sample mean for eligible grade 3 students who participated in summer school ($M = 37.455$, $SD = 107.439$) was not different from the sample mean for eligible grade 3 students who did not participate in summer school ($M = -13.800$, $SD = 77.181$). There was not a statistically significant difference in the improvement in grade 3 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 students who participated in summer school and eligible grade 3 students who did not participate in the summer school in District A.

Table 5

SRI™ Descriptive Statistics for Grade 4 Improvement

Summer School Status	*n*	*M*	*SD*
Participants	11	37.455	107.439
Non-Participants	10	-13.800	77.181

RQ6. To what extent is there a difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading*

Inventory™ assessment scores, between eligible grade 4 students who participated and those eligible grade 4 students who did not participate in the summer school intervention program in District A?

H6. There is a difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 and fall 2015 SRI scores between eligible grade 4 students who participated and eligible grade 4 students who did not participate in the summer school intervention program in District A.

An independent samples *t* test was conducted to address RQ6. The group of eligible grade 4 students who participated in summer school were compared with the group of eligible grade 4 students who did not participate in summer school. The level of significance was set at .05. The results of the independent samples *t* test indicated no statistically significant difference between the two values, $t = .344$, $df = 41$, $p = .732$. The sample mean for eligible grade 4 students who participated in summer school ($M = 53.600$, $SD = 70.462$) was not different from the sample mean for eligible grade 4 students who did not participate in summer school ($M = 45.722$, $SD = 78.682$). There was not a statistically significant difference in the improvement in grade 4 students' reading scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 4 students who participated in summer school and eligible grade 4 students who did not participate in the summer school in District A.

Table 6

Scholastic Reading Inventory™ Descriptive Statistics for Grade 4 Improvement

Summer School Status	*n*	*M*	*SD*
Participants	25	53.600	70.462
Non-Participants	18	45.722	78.682

In conclusion, two one sample *t* tests and four independent sample *t* tests were conducted. The overall findings regarding the effectiveness of summer school on improving reading achievement indicated that eligible grade 3 and 4 summer school students did not perform better on reading tests than eligible grade 3 and 4 students who did not attend summer school.

Summary

This chapter presented the results of the descriptive statistics, hypothesis testing, and data analysis associated with the effectiveness of summer school on reading achievement. The results of the two one sample *t* tests and four independent sample *t* tests were described. Chapter five includes a problem overview, the purpose statement and research questions, a methodology review, major findings, literature connections, recommendations for action, future research suggestions, and concluding statements.

Chapter Five

Interpretation and Recommendations

Chapter five includes a summary of the study, an overview of the problem, the purpose statement and research questions, a review of the methodology, and major findings. This chapter also includes a discussion of the findings in relation to the literature. This chapter provides recommendations for actions for District A and suggestions for future research in this area. The final sections contain concluding statements.

Study Summary

This section presents an overview of this study. The summary includes an overview of the problem regarding the effectiveness of summer school on the reading achievement of grade 3 and 4 students. Subsections of the study are the purpose of the study and the research questions. Next, there is a review of the methodology of the study and the major findings. This study increased the body of research concerning the impact of summer school on student achievement.

Overview of the problem. In recent years, school districts have experienced constant pressure to increase student achievement, and some districts have used summer school to try to improve student achievement. Researchers sought information about whether summer school improves student achievement or not. There have been many studies into the effectiveness of summer school on reading achievement, but they showed mixed results (Aidman, 1997; Bakle 2010; Carter, 1984; Harrington-Leuker, 2000; Haymon, 2009; Hoepfner, 1980; Jacob & Lefgren, 2004; Klibanoff & Haggart, 1981; Koop, 2010; Mountain, 2010; Roberts and Nowakowski, 2012). A meta-analysis by

Cooper et al. (1996) also found mixed results in the reading tests with some students showing gains and some showing losses in reading skills.

Most of the studies of summer school have been conducted in large districts, which provide ample numbers of students for participants and control groups. However, those studies' results are difficult to apply to smaller districts, like District A, because the student populations are different. Thus, District A's Assistant Superintendent, prior to this research study, desired to determine the effectiveness of District A's summer school intervention utilizing Science, Technology, Engineering, Art and Mathematics and reading intervention (S.T.E.A.M.) (Assistant Superintendent, personal communication, January 6, 2014), as did the Assistant Superintendent during the study (Assistant Superintendent, personal communication, April 1, 2014).

Purpose statement and research questions. There were three purposes for this study. The first purpose was to determine whether there was a difference in grade 3 and 4 students' reading improvement, as measured on the district-created pre-tests and post-tests for the English Language Arts learning target of comprehension. The second purpose was to determine whether there was a difference in grades 3 and 4 students' reading improvement, as measured by the spring and fall Fountas & Pinnell assessment systems, between students who did participate and students who did not participate in the summer school intervention program in District A. The third purpose was to determine whether there was a difference in grades 3 and 4 students' reading improvement, as measured by *Scholastic Reading Inventory*™ scores, between students who did participate and students who did not participate in the summer school intervention

program in District A. The data was analyzed to determine the effectiveness of District A's summer school program on reading improvement.

Review of the methodology. In this quasi-experiment, classroom teachers recommended students for the non-random sample according to criteria established by the district. The control group consisted of students who were recommended for summer school by their classroom teachers, but who did not attend. The treatment group consisted of students who were recommended for summer school by their classroom teacher, and who participated. The data collected for this study consisted of pre-test and post-test scores on the district pre-tests and post-tests for the English Language Arts learning target of comprehension for the treatment group, the Fountas & Pinnell assessment systems tests for the control and treatment group, and the *Scholastic Reading Inventory*™ spring 2015 and fall 2015 scores for both the control and treatment groups. Data was collected using Google Sheets and transferred to an Excel spreadsheet. Then, IBM® SPSS® Statistics Faculty Pack 22 for Windows software was used to calculate the data. The hypothesis testing consisted of one sample *t* tests and independent samples *t* tests.

Major findings. Testing instruments included district-created assessments to measure the English Language Arts learning target of reading comprehension and standardized tests. The SRI and two versions of Fountas and Pinnell assessments, *Benchmark Assessment System* and *Leveled Literacy Intervention*, were utilized in the study. The testing and analysis from the district-created assessments indicated improvement for grade 3 and 4 students who participated in summer school in District A. However, standardized assessments indicated that the grade 3 and 4 students who

participated in summer school did not show statistically significant improvement over grade 3 and 4 students who did not participate in summer school in District A.

District-created assessments. These assessments were the pre-tests and post-tests created by District A summer school teachers to measure the English Language Arts learning target of comprehension. Grade 3 students who participated in summer school showed marginal improvement in reading, as measured by the district-created pre-tests and post-tests. Grade 4 students who participated in summer school showed statistically significant improvement in reading, as measured by the district-created pre-tests and post-tests. Overall, students in grade 3 and 4 showed some improvement on district-created reading assessments.

Fountas & Pinnell benchmark assessments. These are benchmark reading assessments administered individually to students in order to find their independent reading levels on the F&P Text Level Gradient (Fountas & Pinnell, 2015b & 2015c). There was not a statistically significant difference in the improvement in grade 3 or 4 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 or 4 students who participated and eligible grade 3 or 4 students who did not participate in the summer school intervention program in District A. Overall, students who attended summer school did not perform better on the Fountas & Pinnell benchmark reading assessments than eligible grade 3 or 4 students who did not participate in summer school.

Scholastic Reading Inventory™. This assessment is a computer-adaptive test of reading comprehension. There was not a statistically significant difference in the improvement in grade 3 or 4 students' reading level scores, as measured from the spring

2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 or 4students who participated and eligible grade 3 or 4 students who did not participate in the summer school intervention program in District A. Overall, students who attended summer school did not perform better on the *Scholastic Reading Inventory*™ assessment than eligible grade 3 or 4 students who did not participate in summer school.

Findings Related to the Literature

Most research studies on summer school were conducted in urban and large suburban districts (Aidman, 1997; Alexander et al., 2007; Bakle, 2010; Gewertz, 2003; & Heyns, 1978). However, fewer studies have been conducted in smaller suburban districts. This study in District A helped to address that research gap. There have also been mixed results in previous studies about the effectiveness of summer school interventions on reading improvement, so this study increased the body of research concerning whether or not summer school positively affects student achievement.

Few studies have utilized district-created learning targets as a measurement. One study (Aidman, 1997) did use learning targets, including ones on comprehension, to measure student progress in reading during summer school. "Our analysis showed that we made modest progress in reaching our instructional targets. In general, students showed measurable gains in each target area" (Aidman, 1997, p. 68). Those results mirror the results of this study because grade 3 students who participated in summer school showed marginal improvement in reading and grade 4 students who participated in summer school showed statistically significant improvement in reading on the English Language Arts learning target of comprehension.

Several studies utilized standardized reading assessments to determine the effectiveness of summer school. Those tests were administered in spring before summer school and again in the fall after summer school. A few of the studies found summer school had a positive effect on student achievement. Jacob and Lefgren (2004) and Roberts and Nowakowski (2012) found the summer school increased the achievement of participants on reading assessments. Jacob and Lefgren (2004) found that attendees increased in reading but grade 3 students increased more than grade 6 students. Roberts and Nowakowski's (2012) results indicated that students in the month-long summer Voyager reading program made similar gains to students in intervention programs that took nine months.

Some studies found mixed results for the effectiveness of summer school on reading assessment scores. Haymon's (2009) results in the St. Louis Public School District were mixed in reading on the CTB Terra Nova Reading exam when summer school attendees and non-attendees were compared. Harrrington-Leuker (2010) reported that one-third of students did not make any gains, and two-thirds did not meet the minimum benchmarks set by the Boston district on assessments in the summer school program. However, students in the Chicago summer school program did show some gains (Harrington-Leuker, 2010).

Some research did not show positive effects from summer school on reading achievement. Hoepfner (1980), Klibanoff and Haggart (1981), and Carter (1984) found that summer school attendees did not grow faster than non-attendees. Curtis, Doss, and Totusek (1982) also found that summer school was not effective in increasing student achievement when compared to non-attendees. More recently, Koop (2010) also found

no increase in reading achievement for participants in a six-week summer school program.

These studies with mixed results were one reason the current study was conducted because District A wanted to determine the impact of their summer school program. Summer school participants in this study did not outperform non-participants on standardized reading assessments. In fact, there was not a statistically significant difference in the improvement in grade 3 or 4 students' reading levels, as measured from the spring 2015 and fall 2015 Fountas & Pinnell assessment systems, between eligible grade 3 or 4 students who participated and eligible grade 3 or 4 students who did not participate in the summer school intervention program in District A. There was also not a statistically significant difference in the improvement in grade 3 or 4 students' reading level scores, as measured from the spring 2015 to fall 2015 *Scholastic Reading Inventory*™ assessment scores, between eligible grade 3 or 4 students who participated and eligible grade 3 or 4 students who did not participate in the summer school intervention program in District A. Therefore, the summer school intervention program in District A did not increase student achievement on standardized reading assessments.

Conclusions

This section includes conclusions made from this study about the effectiveness of summer school on the reading achievement to inform improvements that District A may implement in their summer school reading interventions. Other sections included are implications for action, recommendations for future research, and concluding remarks.

Implications for action. The results of this study have effects for future summer school programs in District A. District administrators can utilize the results of this study

to make improvements to District A's summer school program. While grade 3 and 4 summer school students improved on district-created assessments, they did not improve on standardized reading assessments when compared with students who did not attend summer school. Other suburban districts may find the results of this study helpful in determining the structure and length of their own summer school programs. Schools may also want to decide whether to use standardized tests or local tests to measure student achievement.

The study indicated that grade 3 and 4 summer school participants did improve in reading, as measured by the district-created English Language Arts target for comprehension. This positive result in relation to district learning targets may provide the district with evidence that their standards-references grading system is improving student achievement on district-created assessments. Other districts may also consider using standards-referenced grading systems.

Overall, grade 3and 4 students did not show a statistically significant increase in reading achievement on the Fountas & Pinnell assessment systems or the *Scholastic Reading Inventory*™ assessment. The results of these assessments may lead District A to consider revisions to the summer school program. The summer school program in District A was 16 days. Longer summer school programs have been recommended by researchers to improve student achievement. McCombs et al. (2011) reported that studies had recommended summer school programs with 80 and 360 hours of classes. However, McLaughlin and Pitcock (2009) called for a six week summer school where students attend classes all day. While researchers do not agree on the exact length, Bell and

Carillo (2007) found evidence that successful programs are often longer in length than shorter summer school programs.

District A did not require each of the summer school buildings to utilize the same resources for teaching summer school. Teachers created units to teach S.T.E.A.M. lessons within the regular classrooms, but not all teachers chose to use the same S.T.E.A.M. lessons. Reading interventionists were allowed to determine what reading instructional resources they would utilize during intervention. *Scholastic News Magazine* and *Good Habits Great Readers* (*GHGR*) were two different resources used by interventionists. District A should require teachers to utilize the same resources in order to determine if those resources produce the desired student achievement results.

In the past, District A collected limited data on the achievement of summer school participants. Data was collected using district assessments and data from reading programs; however, the district did not collect data for summer school participants using the Fountas & Pinnell assessment systems or the *Scholastic Reading Inventory*™ assessment. No data was collected to compare summer school participants with eligible students who did not attend summer school. District A may consider collecting Fountas & Pinnell assessment systems and the *Scholastic Reading Inventory*™ assessment data for summer school participants and eligible students who are invited but do not attend summer school in order to determine the effectiveness of future years of summer school.

District A does not require student attendance at summer school, unless the student is required to do so under Senate Bill 319. Therefore, students can still be performing one grade level below their current grade and refuse to attend summer school. In the future, District A should require any student reading below grade level to attend

summer school. District A also does not require any parental participation in summer school. However, parental participation has been found to be an essential element of successful summer school programs (Black, 2005, & Terzian, Moore, & Hamilton, 2009). The results of summer school in District A indicated that summer school was unsuccessful in improving student reading achievement. Therefore, District A should require parental involvement to improve student reading achievement. Parent participation could include reading with children, volunteering at summer school, or helping with homework.

Recommendations for future research. While the overall results for District A indicated that summer school participants did not make statistically significant improvement on standardized reading assessments, this study did not examine the results in terms of gender or socio-economic status. In the future, District A and other researchers should conduct research to determine if those subgroups perform differently on standardized reading assessments. Cooper et al. (1996) also recommended further research in how student income affects learning loss. Other researchers also indicated that not all students lose in reading over the summer. McCombs et al. (2011) concluded, "summer learning loss disproportionately affects low-income students…low-income students lose more ground in reading, while their higher-income peers may even gain" (p. xiii). Given the persistent achievement gap that exists between low-SES students and mid- and high-SES, District A and other school districts cannot afford to ignore this achievement gap. The focus needs to be on building quality summer school programs that address the needs of low-income students.

Cooper et al. (1996) also recommended research studies that have testing periods that only include the summer vacation period. Often, research studies test a month or more before school ends and a month or more after it ends. This study was not an exception. Students were assessed with the Fountas & Pinnell assessment systems and the *Scholastic Reading Inventory*™ assessment during the last 45 days of the 2014-2015 school year and again during the first 45 days of the 2015-2016 school year. Data unaffected by instruction could be obtained by assessing students closer to the end of one school year and closer to the beginning of the next school year. This was also a small study with only 36 summer school participants and 28 non-participants from four elementary schools in one district. Future research studies in suburban districts with larger numbers of summer school participants and elementary schools would add to the body of research and allow for more comparisons between subgroups and of reading instructional resources.

Concluding remarks. The emphasis on student achievement and narrowing the achievement gap has caused school administrators to look for ways to help struggling students. In Missouri, Senate Bill 319 does not allow districts to promote students year after year who are reading more than one grade below grade level. Rather, districts must develop reading improvement plans for grade 3 and 4 students reading more than one grade level below their current grade level. Students cannot go to grade 5 if they read more than one grade below level (Senate Bill No. 319, 2001). Therefore, summer school will likely continue to be a major tool for districts to try to close the achievement gap. Districts will continue to look for ways to improve summer school results.

Although this study did not produce the results desired by District A, it did add to the body of research on summer school. The implications for action provide suggestions of how District A can improve summer school participants' scores on standardized assessments. District A may use the information provided by the study to improve summer school in 2016 and beyond.

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Appendices

Appendix A: District Letter of Permission

LETTER OF REQUEST FOR DISSERTATION PERMISSION TO DISTRICT

March 2014

I am conducting my doctoral dissertation research at the Baker University School of Education. My topic explores the effectiveness of a summer reading intervention program on student achievement in 2015.

The purpose of this letter is to ask for your consent to study the test results of 3rd and 4th grade students who are recommended for summer school in 2015. Students will be divided into a treatment group that attends summer school and a control group that is recommended for summer school but chooses not to attend. Data will be collected from both groups on the Spring and Fall 2015 Scholastic Reading Inventory™ tests and *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™ pre-test and post-test scores for the treatment group. To assure anonymity, the study will not reveal student names, name of the school district, or names of summer school locations. The data will be gathered using a Google document and SIS, and it will not be accessible to anyone other than the researcher. Data will be transcribed and prepared for analysis by using a made-up identification number, rather than using names or MOSIS numbers. Confidentiality will be maintained, because data will be reported without names or other personal identifiers.

The study will also analyze the effects of gender on student achievement in reading. This information can also be gathered via SIS and a Google document. All data used in the study will be destroyed after the study is completed.

This study will not change any classroom instruction nor affect any students in a negative way. The data will not identify the school district, any school, nor will the data identify any individual subject by name. By following this procedure, anonymity will be assured.

Sincerely,

Michelle C. Schulze

Principal Researcher

Researcher has permission to conduct the above described research at District A.

Assistant Superintendent of Academic Services
for School District

4/14/14

Appendix B: IRB Request and Approval

Summary

In a sentence or two, please describe the background and purpose of the research.

Several researchers found that summer school had a positive effect on student reading achievement (Cooper et al., 2000; Eidahl, 2011; Jacob & Lefgren, 2004; Linder, 2004; Roberts & Nowakowski, 2012); however, other researchers have found mixed results regarding the effect of summer school on student achievement in reading (Bakle, 2010; Haymon, 2009; Koop, 2010). The purpose of this study is to determine whether there is a difference in 3rd and 4th grade students' reading improvement, as measured on the spring and fall *Scholastic Reading Inventory*™ scores, between eligible 3rd and 4th grade students who do participate and those who do not participate in the summer school intervention program in District A. The second purpose of this study is to determine whether 3rd and 4th grade students who do participate in the summer school reading program *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™ improve from pre-test to post-test on the sub-tests of *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™.

Briefly describe each condition or manipulation to be included within the study.

Students who attend summer school will receive the treatment of the reading intervention *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™.

What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.

The measurement instruments for this study will be the *Scholastic Reading Inventory*™ (SRI) test and the placement (pre-test and post-test) test for the *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™ *Program*. The SRI is an untimed, online assessment tool with literary or expository texts that adjusts the difficulty of the next question based on the answer to the current question and provides an immediate assessment of what students can comprehend. The SRI test will provide an efficient and objective way to test multiple students at the same time in the spring and fall of 2015.

The placement test for *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™ *Program* is a reading test that is administered individually to each student by school staff. The *My Sidewalks on Scott Foresman Reading Street: Intensive Reading Intervention*™ *Program* Levels C (3rd grade) and D (4th grade) were used in this study, and the subsections measure specific reading skills at that level. In this study, the placement test will be the pre-test and post-test for summer school attendees and will be administered during the first and last weeks of summer school.

Will the subjects encounter the risk of psychological, social, physical or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

Subjects will not encounter psychological, social, physical, or legal risk.

Will any stress to subjects be involved? If so, please describe.
There will be no stress to subjects involved.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.
Subjects will not be deceived or misled in any way.

Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.
There will not be a request for information, which subjects might consider to be personal or sensitive. Identifying information will be removed from the data prior to being given to the researcher.

Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.
Subjects will not be presented with materials, which might be considered to be offensive, threatening, or degrading.

Approximately how much time will be demanded of each subject?
Subjects will not spend extra time because the *My Sidewalks Reading Intervention Program* pre- and post-test and Scholastic Reading Inventory are required as part of the district's summer or school year program.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

The population will be 3rd and 4th grade students in District A in a Midwestern suburban/rural community. The sample will be 3rd and 4th grade students who will be invited to summer school. The treatment group will consist of 3rd and 4th grade students who will be invited to and will participate in summer school in 2015. The control group will consist of 3rd and 4th grade students who will be invited but will not participate in summer school in 2015.

What steps will be taken to insure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?
No inducements will be offered to subjects for their participation.

How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.
The researcher will use archived data, so there is no participation in the research. Therefore, no consent is necessary.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.
The data to be evaluated is institutional and not identified with any specific subject.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.
The fact that a subject did or did not participate in this study will not be made a part of any permanent record available to a supervisor, teacher, or employer.

What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with it after the study is completed?
An employee in the Administrative Services Center will remove any names or identifying student numbers. Data will be stored on a flash drive and kept in a locked cabinet at the researcher's home. Data will be stored for five years and then destroyed or deleted.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?
There are no risks involved in this study.

Will any data from files or archival data be used? If so, please describe.
Data from assessments will be downloaded and imported into IBM SPSS Statistics 22 for Windows.

Baker University Institutional Review Board

1/5/2015

Dear Michelle Schulze and Dr. Zoellner,

The Baker University IRB has reviewed your research project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.

Please inform this Committee or myself when this project is terminated or completed. As noted above, you must also provide IRB with an annual status report and receive approval for maintaining your status. If you have any questions, please contact me at CTodden@BakerU.edu or 785.594.8440.

Sincerely,

Chris Todden EdD
Chair, Baker University IRB

Baker University IRB Committee
Verneda Edwards EdD
Sara Crump PhD
Molly Anderson
Scott Crenshaw

Appendix C:

LLI Mean Average Benchmark Level Gains

Study	Grade	*M* with LLI	*M* without LLI
Tift County Schools, Georgia & The Enlarged City School District, Middletown, New York	K	1.56	.78
	1	4.46	2.63
	2	4.64	2.99
Denver Public Schools	K	2.3	1.3
	1	4.4	3.4
	2	3.8	4.1

Note: Adapted from *Implementation for effective intervention: An empirical study to evaluate the efficacy of Fountas & Pinnell's Leveled Literacy Intervention system (LLI)*, by C. R. Ransford-Kaldon, E. S. Flynt, C. L. Ross, L. Franceschini, T. Zoblotsky, Y. Huang, & B. Gallagher, p. 1-57. Copyright 2010 by University of Memphis. Adapted from *Efficacy of the Leveled Literacy Intervention system for K-2 urban students: An empirical evaluation of LLI in Denver Public Schools*, by E. S. Ransford-Kaldon, C. L. Ross, C. C. Lee, E. S. Flynt, L. A. Franceschini, & T. A. Zoblotsky, p. 1-90. Copyright 2013 by University of Memphis.