

DISSERTATION

SUMMER SCHOOL: EFFECTS IN FOURTH AND FIFTH GRADES

Submitted by

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School of Education

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2014

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ABSTRACT

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Summer school has long been viewed as a viable method of decreasing the time out of school for students and thereby increasing student achievement for summer school attendees. A search of the literature reveals that many summer school programs are effective in preventing reading achievement loss of elementary students, particularly for students who qualify for free or reduced lunch.

The purpose of this study was to determine both the short and long term effects of a summer school program on students attending summer school following their fourth grade year. Independent sample *t* tests were performed to determine the difference in reading MAP score growth for students attending summer school and non-attendees. Comparisons were made based on socioeconomic status. Results showed no significant difference in gain scores between attendees and non-attendees immediately following summer school or at the end of the fifth grade year, regardless of socioeconomic status.

Implications for action and recommendations for further study are included at the conclusion of this study. These include closer examination of the grade levels and type of students experiencing the greatest benefit from summer school programs, the type of summer program producing the best results, and consideration for the needs of the specific school community.

ACKNOWLEDGEMENTS

Numerous people were instrumental in helping with the research and writing of this dissertation. First, appreciation goes out to Dr. Donna Cooner Gines, my advisor throughout the whole process. Her support, encouragement, and feedback were invaluable. Additionally, my doctoral committee, Dr. Cindy O'Donnell-Allen, Dr. Gene Gloeckner, and Dr. Roderick Lucero provided assistance, revision suggestions, and affirmation. Without this group of professionals, this research project could not have been completed.

Saying thank you to Dr. Dwayne Schmitz is insufficient recognition for his help. Dr. Schmitz assisted in gathering the data and guiding me through the analysis of the data. His willingness to supply the data and meet with me on numerous occasions to discuss the analysis created the conditions for a successful project.

Finally, gratitude is due my family for their support through the many hours I was busy writing. Their encouragement and belief in me was unwavering. Thanks go to my husband, all six of my children (my own three and their spouses), and my two beautiful grandchildren for understanding when I was unavailable.

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CHAPTER 1: INTRODUCTION

Background and Setting

In March 2013 a Student Success Team (SST) meeting was held with Joe's parents. Joe was a fourth grade student who had been below grade level in reading since first grade. Joe's teacher noted that while Joe had made steady but slow growth prior to the Winter break, following break he had come back well below his pre-break level. Joe had participated in numerous interventions in the last three years, including attending summer school each summer. Joe's parents expressed concerns about what would happen to their son's reading level over summer if he was not able to attend a summer school program. The school district would only fund summer school for students in kindergarten through third grade. The team stated that they were waiting to hear on a grant proposal to determine if a summer program for intermediate students would be offered. Joe's reading success was dependent on grant funding.

On May 17, 2012 Colorado House Bill 12-1238, commonly referred to as the Colorado READ Act (Colorado Reading to Ensure Academic Development), was signed into law and once again placed an emphasis on Kindergarten through third grade literacy achievement. The Colorado READ Act maintained that:

- (a) If provided with the appropriate foundational skills, including the ability to read, all students can succeed in school.
- (b) The investments made in the past to preschool and kindergarten can be best leveraged by emphasizing learning in pre-kindergarten through third grade.
- (c) Early literacy intervention is more cost-effective than later remediation.

- (d) Early literacy instruction improves student achievement and produces a better educated and competitive workforce.
- (e) Parents play an integral role in the partnership between home and school in providing necessary literacy experiences.
- (f) Teachers must have access to valid assessment measures of student achievement and share results with parents.

To ensure appropriate literacy intervention, the act required schools to write READ Plans for every student in kindergarten through third grade that did not perform satisfactorily on a state-approved reading assessment. Students placed on a READ Plan had to be provided additional reading instruction, and a conference with the parents was required to determine the best intervention, including whether or not the child should be retained at the end of the year. No requirements for students beyond third grade were included in the legislation (Colorado READ Act, 2012).

The READ act replaced the Colorado Basic Literacy Act (CBLA) as the required accountability for third grade literacy achievement in Colorado (Colorado Read Act, 2012; Colorado Basic Literacy Act, 1997). While both laws placed an emphasis on reading proficiency by third grade, the laws differed in several points. To qualify for a READ plan, students must score in the bottom 10% of the grade level population, while CBLA required an Individual Literacy Plan (ILP) for any students who were below grade level. CBLA did not have any provision for retention in a grade level, but READ, when fully implemented, will require a conversation between the school personnel and the parents regarding retention of the child, with the final decision resting with the district superintendent. The decision to put a child on a READ plan is determined by a series of tests within the first 60 days of school, while qualification for

an ILP was determined by a body of evidence, including, but not limited to tests. The similarities in the laws include involving parents and putting interventions in place for the students. While CBLA intended for the ILP to be a dynamic document informing instruction, there was no requirement for that. READ, on the other hand, requires revisiting of the plan at regular intervals to determine the success of the interventions. Both laws were intended to address the issue of ensuring that students were reading at grade level before leaving third grade and be a step toward closing the achievement gaps that exist between student groups in Colorado.

“Gaps in the achievement between poor and more advantaged children and minority and nonminority students of all ages continue to be the most central problem in the field of education” (Olszewski-Kubilius and Thomson, 2010). The No Child Left Behind (NCLB) Act (2001) required schools and districts to close the achievement gap between disadvantaged students and their more advantaged peers, as well as the gap between minority and white children. Colorado’s school accreditation plan, focused attention on academic growth of all students with particular attention to the growth of students in the subgroups determined by ethnicity, language proficiency, disability, and economic status. Growth is measured by the Transitional Colorado Assessment Program (TCAP) test administered to all 3rd through 10th grade students in the spring of each year. Growth is measured at fourth grade and above to allow the use of third grade scores as a baseline. 50% of a given school’s score on the Unified Improvement Plan is calculated using the Median Growth Percentile (MGP) of all students in the school, and another 25% is based on the MGP of each identified subgroup.

History

Pattall, Cooper, and Allen (2010) referenced articles written for Teachers College Record by Weiss and Brown and an article written for Educational Policy Brief by Johnson and Spradlin, when they described the length of the school year in large US cities in 1840. In the mid 1800's the typical school was open for between 251 and 260 days with only a two week break for summer in the middle of August. Referencing an article written by Tyak and Cuban for the Harvard University Press, (1995) and an online article by Silva (2007), the authors described the change that occurred in the length of the school year by 1900. During the late 1800's urban schools continued to shorten the school year and lengthen the summer break to escape from the heat. The move to a shorter school year was encouraged by wealthy urban families seeking a time to vacation away from the city. By the early 1900's the length of the school year varied from 140 days to 195 days depending on locale. During this time summer school programs were designed for the purpose of accelerating learning, thereby shortening the number of years a student was required to attend school (Patall, Cooper, and Allen, 2010).

In a meta-analysis conducted by Lauer, Akiba, Wilkerson, Aphorp, Snow, and Martin-Glenn (2006), a review of literature revealed that when summer school programs first were implemented, it was for the purpose of preventing behavior problems. It was not until the 1950's that summer school programs were used to address the needs of low achieving students through remedial activities. In 1965 an Elementary and Secondary Education Act (ESEA) provided federal funds for summer schools that addressed the needs of low-income students by providing extra instructional time (Lauer et al., 2006).

In two studies which examined the effects of summer school attendance, Borman (2005) and colleagues reported that researchers have been examining the effects of a long summer break on student achievement for over 100 years. The authors stated that the number of summer school programs have increased since around 1975, but that most of the programs have been reactionary, responding to deficits in student learning, rather than preventative. The interventions provided by the summer school programs that were studied were also intermittent, not occurring over consecutive summers (Borman, Benson and Overman, 2005; Borman and Dowling, 2005).

Rationale for Study

The disparities between advantaged and disadvantaged student achievement have been steady over decades and across generations of students. These disparities, particularly between upper and lower income students continue into higher education in terms of college graduation rates and attainment of college degrees (Olszewski-Kubilius and Thomson, 2010).

Throughout elementary school, the achievement gap between advantaged and disadvantaged children continues to widen until the gap is approximately four times greater by the end of elementary than when the children entered school (Schacter and Jo, 2005). However, children from poor families, when assessed in the fall and again in the spring, make as much academic growth as their more affluent peers (Alexander et al., 2001). According to the findings of many researchers, at-risk, economically disadvantaged students make even more growth during the school year than their advantaged counterparts particularly at early primary grades (Alexander et al., 2001). In studies involving kindergarten and first grade students SES made no

difference to reading achievement gains from fall to spring, even favoring the economically disadvantaged students on tests of basic reading skills (Schacter and Jo, 2005).

Schools do have an equalizing effect on achievement (Borman et al., 2005), but academic growth of students can be measured at different times and results in very different growth patterns. When measured from fall to spring of an academic year, economically disadvantaged students make growth similar to their more advantaged peers. However, when measured from spring to spring low-income and minority students fall behind their high-income, white counterparts. This summer loss (White and Kim, 2008), or summer slide, has been documented for over 100 years (Borman et al., 2005). Typical children lose approximately one month's worth of knowledge or skill in math and reading combined. However, the summer loss is particularly harmful to economically disadvantaged children's reading achievement (Borman et al., 2005). Summer break without instruction results in an average difference of three months between the reading achievement of middle and low income children (Kim and Guryan, 2010).

According to Alexander et al. (2001):

“School-year gains year by year are not very different across SES levels...Indeed, in the early years the comparisons sometimes favor lower and middle SES children over upper. The summer pattern is strikingly different though, especially across the SES extremes...[L]ower SES children generally start the new school year about where they had been the previous spring or even behind their spring levels of performance. Upper SES children's scores, on the other hand, improve over the summer months...which means that they begin the new school year ahead of where they had been the previous spring. And the summer differences comparing lower and upper SES youth are large” (Alexander et al., 2001, p.177).

A growing body of research suggests that the widening achievement gap can be almost completely attributed to the summer learning differences of children from different SES levels.

Purpose of the Study

Summer learning loss has been repeatedly shown to be more significant among low SES students than among their higher SES peers (Alexander, 2001; Borman, 2006). Additionally, the same research has shown that the school year learning of low SES students is equal to or even greater than their more affluent peers. Therefore, much of the gap between low and high SES students is attributed to a cumulative summer learning loss.

This is especially true in the area of literacy. A preponderance of the research on literacy achievement has been focused on the primary grades (see Schacter and Jo, 2005; Borman and Dowling, 2006; Zvoch, 2009; Duffy, 2010; Kieffer, 2011; Slates et al., 2012), and laws have addressed the need to have students reading at grade level prior to leaving third grade (Colorado Basic Literacy Act, 1997; Colorado READ Act, 2012). Despite the efforts to raise literacy achievement in the primary grades, a significant gap exists when students leave elementary school. Some research has shown a need to continue school-based interventions into the intermediate grades in order to continue closing the learning gap. Due to the focus on primary reading skills, the district from which the data for the present study were drawn had determined to eliminate any funding for summer school for students after third grade. At the time the data were collected, 20% of fourth grade students in the district were below grade level proficiency as determined by TCAP, and 33% were below the 50th percentile nationally, as determined by their RIT score on the Reading MAP test. Of all district students who qualified for free or reduced lunch, 42% scored below grade level proficiency on the 2012 Reading TCAP. The number of district students qualifying for meal benefits who scored below grade level on the reading TCAP had fallen slightly from 45% in 2007 to 42% in 2012.

The purpose of the present study, also focused on literacy achievement, was to determine if summer learning loss among low SES students could be diminished or eliminated beyond the primary years by attending summer school. If such was the case, recommendations for additional summer school funding would be appropriate. However, if any gains that were the result of summer school attendance deteriorated over the following school year, more research into the cause of that deterioration would be warranted. Additionally, the study provided an analysis of the gains for low SES, below level students who attended summer school compared with the gains for mid or high SES, below level students who also attended summer school. This particular aspect of the study provided data to better inform funding decisions concerning which students should be provided with a summer school opportunity.

Research Questions

1. Do low performing fourth grade students in Poudre School District who attend a summer school program experience greater gains in reading skills over the summer than their low performing peers who do not attend a summer school program?
2. Is the difference in proficiency levels of low performing fourth grade students who attend a summer school program and the proficiency levels of low performing fourth grade students who do not attend a summer school program maintained during the fifth grade year?
3. After attending summer school, how do reading scores of low performing fourth grade students who qualify for meal benefits compare to their low performing peers who do not qualify for meal benefits?

4. Is the difference in reading achievement levels of low performing fourth grade students who qualify for meal benefits and who attend a summer school program and the reading achievement levels of low performing fourth grade students who qualify for meal benefits but who do not attend a summer school program maintained during the fifth grade year?

Definition of Terms

Academic Peers	Those students who scored at the same level on a standardized test
Accommodations	Testing accommodations required for individual students to allow them to achieve at their optimal level. These include, but are not limited to, extended time, teacher-read directions, and assistive technology on reading tests.
Achievement	A student's level of accomplishment as measured by a given assessment. Ex: A student's literacy achievement is the level at which the student is reading as determined by a reading assessment.
Balanced Literacy Instruction	Literacy instruction that includes reading, writing, speaking, and listening by using both phonics instruction for decoding and comprehension instruction, and utilizes authentic literature
CSAP	Colorado Student Assessment Program
ILP	Individual Literacy Plan: a plan formulated by teacher and parent to address the literacy deficiencies of a student; requirement of The Colorado Basic Literacy Act.
Intermediate Grades	Fourth and fifth grades
Literacy Intervention	Literacy instruction provided to a student in addition to the instruction in the regular classroom
Low performing	Students performing below the 35 th percentile on a standardized test designed for the grade level of the student
Low SES student	A student qualifying for federal meal benefits in either the free or reduced lunch category
Mastery Learning	Students are required to master one skill before moving on to another
Matthew Effect	Based on the Gospel according to Matthew containing a verse describing the rich getting richer and the poor getting poorer; When applied to education, it refers to students who are above grade level gaining even more, while those below level fall even further behind.

Meal Benefits	Free or reduced lunch and/or breakfast
Median Growth Percentile (MGP)	The median growth of a group of students compared to their academic peers
Prescribed Curriculum	A curriculum that is prescribed to meet specific student needs or deficits; may be scripted requiring the teacher to use specific language
Primary Grades	Kindergarten, first, second, and third grades
READ Plan	A plan of intervention required for students in kindergarten through third grade who do not meet the literacy benchmark set by the state for the specific grade level
Socio Economic Status (SES)	Determined by family income
Student Success Team (SST)	School-based team made up of general education teachers, administrators, and a student's parent(s) that meet to determine appropriate support for a student in school
Summer learning loss	The loss in achievement, as measured by test scores, that a student experiences from the end of one school year in the spring to the beginning of the next school year in the fall
Summer School	Classes held during the summer months
TCAP	Transitional Colorado Assessment Program
Testing Window	The time designated by the school, district, state, or a test-producing company in which the test must be administered

Significance of Study

This study will add to the extensive body of research on summer learning loss that already exists. It will further analyze the growth, during the fall semester, of low performing students who attend summer school as compared to their peers who did not attend summer school. The study may also reveal the benefit of summer school to low performing, low SES students as compared to the benefits for low performing students who are not low SES. The information gained from this study may help inform further research into the growth trajectories of students.

Delimitations

This study was delimited to students in fourth grade in Poudre School District located in Northern Colorado. Poudre School District is made up of small urban, suburban, and rural schools. The district served 25,000 students at the time of the study. Poudre School District was chosen for convenience; data was available to the researcher. The summer school programs were funded by the school district based grants which were allocated to schools demonstrating a need for summer school programs due to low student achievement. The study is further delimited to students enrolled in elementary school in Poudre School District between May 2012 and May 2013.

Limitations

This study was conducted in a small city school district in northern Colorado. The district is a high-performing district according to state tests results. The results of this study cannot be generalized to districts of other size, demographic make-up, or achievement status. Additionally, results obtained from a different reading assessment tool may not be comparable to the results reported in this study. The study compared reading achievement of students who attended summer school at schools in the district with those who did not attend a district summer school. The type of summer school was not included as a variable. Selected schools offered summer school programs which were site specific. The design of the program, the curriculum utilized, and the instructional approaches were determined by the school personnel at each individual school. Therefore, the results are not generalizable to specific types of summer school

programs. Another variable that was not considered was whether or not the participants had a diagnosed learning disability. Students with a learning disability often experience growth at a slower rate, thereby increasing the learning gap the further they go in school (Morgan, Farkas, and Wu, 2011). Therefore, groups of students with no learning disabled children may show different results than those in the present study.

Researcher's Perspective

I have been an elementary principal in Poudre School District since 1999. Until 2007, I served as principal of an elementary school where 80% of the students qualified for meal benefits. From 2007 to the present I have served as principal of an elementary school where the number of students living in poverty is much lower. Approximately 35% of the students in my current school receive meal benefits.

Although the demographics of the two schools are very different, similarities remain. As the principal, I review student achievement data on a regular basis. Each quarter I meet with teacher teams to analyze data that has been collected for each individual student. I began to notice a trend in the data at both schools. Not only were data showing that many students were experiencing a significant loss of learning over the summer, in a number of those cases, students had just regained the loss by the winter testing window. I began to wonder if the summer loss was creating an artificial growth in student achievement from fall to spring. While this growth during the school year would serve as an advantage to teachers with the advent of the Ensuring Quality Instruction Through Educator Effectiveness Act (Senate Bill 10-191, 2010), the school's performance rating was based on student growth from spring to spring. Therefore, the loss from

spring to fall which seemed to require a semester to recover from, posed a problem for me and for my school.

Summer school has been offered to students in Poudre School District for each summer during my tenure as principal. Data has been collected each fall, winter, and spring for many years. However, district level analysis of data collected has not included differentiating between those students who attended summer school and those who did not attend. Analysis of this data would be helpful in determining programming for students during the summer months.

Summary

In spite of decades of research, an achievement gap continues to interest researchers. The present study has the potential, despite its limitations, to answer some essential questions. The importance of providing summer school for low SES, intermediate grade students, may inform district and school decisions regarding funding for such programs. The study could also inform decisions about whether only select groups of students should be provided with this intervention.

Accountability for student achievement is at the heart of teacher and administrator evaluation. Having a solid foundation of research to build interventions upon can assist schools in meeting that accountability. This study will add to the body of research that already exists to continue to build that foundation.

CHAPTER 2: LITERATURE REVIEW

Introduction

The research on summer learning loss is substantial, but methods of measuring achievement are varied. The preponderance of the studies in this literature review are quantitative in nature, including independent and dependent variables, treatment and control groups, data analysis, results, and conclusions. However, qualitative researchers such as Shirley Brice Heath (1983) make a case for the inclusion of a different type of data. In her book, Ways With Words, Heath stated,

“Often the approaches to research in education have been quantitative...dependent on large-scale comparisons of many different schools. Terms from business predominate: input, output, accountability, management strategies, etc. Input factors (independent variables) are said to influence, predict or determine output factors (dependent variables)...The effects of formal instruction have been evaluated by correlating these input factors with educational output” (Heath, 1983, p. 8).

Heath argues that this quantitative method of research ignores the social and cultural context that provides and greatly influences the input factors (Heath, 1983). Despite the merits of this view, there are few qualitative studies in the research on summer learning loss.

Additionally, school accountability requires schools to examine quantitative data and meet quantitative standards. Both state and national governmental bodies view student achievement through a quantitative lens. This is evident from the emphasis placed on test scores such as the National Assessment of Educational Procurement (NAEP), administered to fourth and eighth grade students in randomly selected schools across the nation (NAEP, 2014), and

TCAP, administered to all students in third through tenth grade in Colorado. Therefore, for the purposes of this study, student achievement was determined by test scores.

Measures of Student Achievement

“Because success in the economy, and in life, typically requires a certain level of academic skill” (Downey, von Hippel, and Hughes, 2008), student achievement, as measured by standardized tests, has been an accepted measure of student learning and school effectiveness. Measures of student achievement range from standardized, high-stakes tests such as TCAP to text levels (Jacobsen et al., 2002) to qualitative measures such as student attitude surveys (Stone, Engel, Nagaoka, and Roderick, 2005). The No Child Left Behind Act (2001), established accountability for schools to assess students in math, reading, and science during specific times of their school tenure and to meet certain proficiency levels of achievement but left the measure of proficiency up to each state in an effort to acknowledge at some level that “schools serve children from unequal non-school environments and that these non-school influences may have some effect on children’s achievement levels” (Downey et al., 2008).

Burgin and Hughes conducted a study to determine the validity and reliability of tests used to measure student achievement gains during the summer months. The researchers began from the premise that standardized, multiple-choice tests were inaccurate measures of elementary students’ reading abilities, particularly those of low SES children, and additionally, took too much time away from instruction. They sought to show that a less time-intensive and less invasive assessment could provide valid assessment data while informing instructional planning. Both an Informal Reading Inventory (IRI) and the Developmental Reading Assessment (DRA)

were administered to a convenience sample of kindergarten through fourth grade students enrolled in a summer school program. Spearman's rho was used to calculate the correlation between the two measures. Results of the study showed that the two assessments were highly correlated and both gave valuable information to teachers regarding the instruction students needed. However, the DRA provided a more rigorous assessment of reading comprehension. The authors' recommendation was for the use of the IRI, which required approximately five minutes per child for administration, compared to the 30 minutes per child required for the DRA. There was no comparison of scores obtained from either test with scores obtained through the use of a standardized, multiple-choice test (Burgin and Hughes, 2009).

While most schools, educators, and researchers have chosen to assess learning with the use of standardized tests, others, like Shirley Brice Heath, have decried that practice. Heath (2000) posited that tests in schools are based upon "decontextualized discrete-point knowledge as the only type that can determine grade-level achievement" (Heath, 200, p. 52). Heath contrasted the types of learning measured on tests with the "heavy use of metaphor and sociodramatic" language that children from low SES families have learned to value.

In an effort to show that achievement is not the only, and often not the best measure for schools to use, Downey, von Hippel, and Hughes (2008) conducted a study on the learning and achievement of children who entered kindergarten in 1998 and finished fifth grade in 2004. These researchers put forth the theory that it is "how much students learn in a year, rather than where they end up on an achievement scale" (Downey, von Hippel, and Hughes, 2008, p. 245) that should be valued and argued that achievement is actually one of the least valid measures of success.

Whether achievement is being measured using a growth model from fall to spring, from spring to spring, or a student's performance compared to a national or local norm, measures of student achievement are important to educators. Schools consider a variety of measures and use the data to determine educational programs. Particular attention is paid to data that indicate times during the year when the chosen measures of achievement show that students are not making progress.

Achievement and Time Out of School

Researchers agree that for many students the time spent out of school can have a direct impact on the amount of academic learning. In a meta-analysis of 35 studies, Lauer et al. (2006) examined the effects of out-of-school-time (OST) programs on student achievement in reading and mathematics. To qualify for the meta-analysis, studies had to have been reported or published between 1985 and 2003, taken place in the United States, served K-12 students who showed low student performance or were identified by another risk factor such as low SES, racial minority, a single-parent family, or limited English proficiency. Additionally, studies included in the meta-analysis all had control/comparison groups and contained quantitative student achievement data. Of the 35 studies analyzed, 13 included summer school programs that targeted elementary age students. The other 22 were either after-school programs during the school year or summer programs for middle or high school students. The number of subjects in the elementary summer school program studies ranged from 21 first graders to 1,863 third through fifth graders. Results from the meta-analysis showed an effect size of .22 for lower elementary students participating in an OST program which addressed deficits in reading. The

analysis of the data sets showed no significant difference in effect if the OST program was held during the summer months or after school during the school year. Only the OST programs that had an academic focus had an effect size greater than zero. Based on the results of the meta-analysis, the researchers reached several conclusions. First, OST programs can have a positive effect on student achievement of at-risk students. Second, the timeframe, which was summer or after school, did not have a significant influence on the effectiveness of the program. Third, students in elementary school primarily benefitted from increased reading achievement, while secondary students benefitted from both reading and math achievement gains. Fourth, both academic only and academic/enrichment programs provided a benefit in achievement gains. Finally, the greatest positive effect on reading achievement scores came from one-on-one tutoring (Lauer et al., 2006).

To determine the effect of summer vacation on achievement test scores, Cooper et al. (1996) conducted a meta-analytic review of the empirical studies that had occurred prior to 1995. They found 39 studies that had reported on the effects of summer vacation on achievement. Twenty-six of the studies had been conducted prior to 1975, and 13 were conducted between 1975 and 1995. The studies prior to 1975 showed no clear trend in summer loss of achievement. Only one of the early studies examined SES differences and indicated a loss in reading achievement for students of lower SES. The variable considered most often in the early studies was intelligence. No difference in summer loss or gain was attributed to student intelligence. Many of the early studies did not use statistical tests and were of varying quality. After 1975 the focus of the studies changed to the effect of SES on summer achievement losses or gains. A meta-analysis of the studies showed no differences in mathematics achievement due to summer vacation for low or middle income students. However, the differences in reading achievement

were significant. Low SES students showed a loss in achievement over the summer months while middle SES students showed a slight gain. This difference created a gap of approximately 3 months between the two groups of students (Cooper et al., 1996).

Patall, Cooper, and Allen (2010) conducted a review of the research from 1985-2009 on Extended Day (ED) and Extended Year (EY) school programs. They confined their review of the literature to programs that served students in pre-school through twelfth grade in the United States and Canada. The researchers did not conduct a meta-analysis due to the varied research designs and implementation procedures. A total of 15 studies were selected which addressed the relationship between extended school time and student achievement. Eight of the studies were quasi-experimental designs and examined the relationship between an extended year and student achievement, and seven of the eight revealed some evidence of a positive effect with the greatest positive effect occurring for low SES students, although even that positive effect was relatively weak. The authors concluded that the research evidence suggested that although extending the school time may have a slight positive effect on student achievement, particularly for low SES students, the research designs were inferior and were unable to make a case for causality (Patall, Cooper, and Allen, 2010).

In making a case for increased global competitiveness, Smink (2007) described the need to look differently at out-of-school time. Smink advocated for “a comprehensive new learning system that focuses on out-of-school time as a strategy to increase academic achievement and boost creativity” (Smink, 2007, p. 38). The author described global efforts to increase student achievement by reducing the time students spend out of school and provided recommendations on the types of programs that have been most successful.

Another type of out-of-school time, absences during the school year, was examined by Ready (2010). Ready applied the constructs of other researchers such as Alexander and Downey on summer loss to his study on absences of primary grade children. He concluded that low SES students who benefit most from instruction during the school year are most chronically absent from school, thereby limiting the positive effect of schooling (Ready, 2010).

Regardless of the research study, researchers agreed on one idea. Time out of school resulted in declines in student achievement, and the decline was greater for some groups of students than for others. Students who were already below expected achievement level for their grade level, minority students, English Language Learners, and economically disadvantaged students showed a greater loss when out of school than their peers who were not at risk.

Summer Loss of Below Level Students

While the large majority of studies that have been conducted on summer learning loss examined the differences in achievement between groups of students based on risk factors such as SES, race, or ethnicity, not all students who perform below grade level fall into one of these risk factor categories. A few studies have examined the achievement of all students who perform below level to determine the effects of increased time in school. Stone, Engel, Nagaoka, and Roderick (2005) conducted a study to determine attitudes of students in grades 6-8 when presented with additional learning opportunities, while Kubina (2009) and Duffy (2010) used pre- and post-testing to determine achievement growth over the summer of under achieving students in grades 1-4.

Summer Loss of Minority Students and English Language Learners

According to Olszewski-Kubilius and Thomson (2010), “The achievement gap is not limited to nor defined only by differences in achievement by ethnic/racial group” (p.59). In a study conducted by Kim and Guryan (2010) Latino students were provided with books over the summer to encourage participation in a voluntary summer reading program. All of the students in the study qualified for free or reduced priced lunch, but the results of the study showed no increase in achievement for students receiving the books over the students in the control group. The authors attributed the lack of growth to the language proficiency of the students. However, in a study which separated English Language Learners into differing SES levels, there was little difference in the achievement of English Language Learners and native English speakers when SES was taken into account (Kieffer, 2010).

Recent research has suggested that SES plays a larger role even than ethnicity or race in student achievement (Kieffer, 2010, Olszewski-Kubilius and Thomson, 2010). Over a number of years data has shown that children who are economically disadvantaged tend to experience reading difficulties regardless of ethnicity (Luftig, 2010). The achievement gaps that persist between students from poverty and white middle-class students continue to be a national problem (Borman and Dowling, 2006).

However, in a study by White and Kim (2008), there was a much greater difference in scores for students of color. Minority students also showed a greater loss over the summer months than their non-minority peers in a study by Kim (2009) designed to analyze the achievement gap by examining summer reading habits of students. While the study included a sizeable number of students from 18 different elementary schools, the make-up of the

participants calls into question the analysis of the results. Only 4% of the white student participants qualified for free or reduced lunch, while 45% of the Black students and 57% of Latino students qualified for meal benefits. Therefore, the conclusion that minority students showed greater losses over the summer months may be clouded by the issue of socio economic effects.

Summer Loss of Economically Disadvantaged Students

Nearly two decades ago, Stanovich (1986) published a paper on the rich getting richer and the poor getting poorer in schools, a phenomenon known as the Matthew Effect. Although Stanovich referred to literacy skills as the currency, the same interpretation has been applied to social economic status by numerous researchers.

Schacter and Jo (2005) determined that before school even begins, economically disadvantaged students are at a deficit. Upon entering kindergarten, the low SES students in their study were approximately half of a standard deviation behind the national average. While the initial achievement gap was generally attributed to family and environment, the gap continued to grow throughout elementary school reaching up to two standard deviations by the end of fifth grade. Studies on vocabulary development, which is critical for literacy achievement, showed that this critical skill was much lower for children from low SES homes (Kieffer, 2011; Merlo, Bowman, and Barnett, 2007). Three year-olds from economically disadvantaged homes had as many as 600 fewer words than their more advantaged peers (Christ and Wang, 2010). Additionally, low SES children enter kindergarten with cognitive skills that are less developed than those of their more advantaged peers (Crosnoe and Cooper, 2010). Early deficits of low SES children are generally attributed to family economic circumstances and

dynamics that keep low income families from engaging in activities and providing the resources for their children that more advantaged parents do easily (Olsewski-Kubilius and Thomson, 2010; Merlo et al., 2007). According to Kieffer (2010), low SES is known to elevate the risk for early reading difficulties.

While this initial gap in learning might be expected to impact the remainder of the child's educational achievement, studies have shown that children from low SES families made as much growth from fall to spring as their affluent peers (Alexander, Entwisle, and Olson, 2001). In studies of kindergarten and first grade students there was no difference in reading achievement gains from fall to spring among SES levels (Schacter and Jo, 2005). Instead, many studies have shown that low SES students made even greater gains during the school year than average or high SES students during elementary school (Alexander et al., 2001). However, in a later study, Kieffer (2011) studied the effect sizes of SES on grade level bands in elementary schools. The effect size of SES on initial achievement was .42, on achievement growth in kindergarten while in 1st and 2nd grades it was -.14, and -.16 respectively, and in 3rd-8th grades it was .61, supporting the earlier studies that showed comparable or increased learning for low SES students in the primary years of school.

In addition to the initial gap in learning, continued learning loss during the summer months when school is not in session has been well-documented for over 100 years. Typical children lose as much as a month of knowledge and skill in reading and math over the summer months. However, the loss is much greater, particularly in reading, for students who are economically disadvantaged (Borman, Benson, and Overman, 2005). The summer break without instruction results in a difference in reading achievement of approximately three months for low income children (Kim and Guryan, 2010). Causing even more concern than a summer loss for

low SES children is the accumulation of that loss over time. By the time children reach middle school, the summer learning loss, together with the initial deficit, has produced a lag in reading achievement of two years (Borman and Dowling, 2006). Borman et al. (2005) contended that the widening achievement gap between advantaged and disadvantaged students can be almost entirely attributed to summer learning differences.

Family characteristics of economically disadvantaged students.

In an effort to understand the reasons behind the decline in achievement of economically disadvantaged students during the summer months, numerous researchers examined the characteristics of the families of the students. While family characteristics are multi-faceted, the characteristics examined by the researchers were those considered to have the greatest influence on academic achievement.

The lack of financial resources that necessitates a preoccupation with day-to-day matters precludes many low-income families from being able to do the things to support their children that more advantaged families can easily do (Olszewski-Kubilius and Thomson, 2010). In studies regarding the family characteristics of economically disadvantaged children, parenting practices associated with reading and math achievement were considered. Parents of low SES children watched more television and read to their children less than did parents in a higher income bracket (Borman et al., 2005). Lower SES parents also read less for their own pleasure and have fewer books, magazines, newspapers, and other print materials in their homes (Schacter and Jo, 2005). When compared with middle and high SES parents, those of low SES children hold lower expectation for their children's achievement in both reading and math both in the early grades and later in their education. The expectations disadvantaged children hold for

themselves is often a reflection of the expectations held by their parents and may be due to the fact that parents themselves are not well educated, work at minimum wage jobs and have not had experience with higher levels of education ((Borman et al., 2005; Olszewski-Kubilius and Thomson, 2010). The power of the family and community in shaping children's academic development is evidenced by the differences in learning levels across family SES levels, particularly in the loss of achievement during the summer months (Alexander et al, 2001).

According to some researchers, the lack of print resources and the lower expectation level was evident in families living in poverty prior to the time the children enter kindergarten (Schacter and Jo, 2005). Disadvantaged children entering kindergarten were already behind their more advantaged peers, having less developed cognitive skills than their peers and having a much lower number of vocabulary words even by age three (Crosnoe and Cooper, 2010, Christ and Wang, 2010). Hart and Risley (1995) described the difference in how often children from higher SES families were spoken to compared with the amount spoken to children in low SES families. Children from families on welfare were the recipients of 616 words per hour directed at them, while children from working-class families had 1,251 words per hour spoken to them, and children whose parents were professional had 2,153 words per hour spoken to them. This phenomenon, the authors argued, accounted for large gaps in skills of low SES children entering kindergarten (Hart and Risley, 1995).

Borman, Benson, and Overman (2005) conducted a qualitative study using a subset of the subjects reported in the previous study. The intervention and measures of achievement remained the same. The researchers sought to determine if family characteristics had played a significant role in the achievement gains of the students in the treatment group. Beginning with an examination of how much students gained or lost over the summer months, the researchers then

moved on and explored the relationship between four family characteristics and the SES level of the families. The characteristics examined were parental expectations, travel, and other activities, such as attendance at recreational programs, related to learning. A fourth family characteristic, parental support of summer school attendance, was the only family variable that was shown to have an impact on achievement of students over the summer months. Data were collected by means of telephone interviews with parents of students in the study.

In contrast with the view of numerous researchers that the summer activities of middle and high SES students, such as summer camps, family vacations, and trips to museums, etc. account for summer gains, Burkam et al. (2004) reported that the summer activities had little or no effect on summer gains or losses. Instead, Burkam et al. found that higher-SES parents were more likely to engage regularly in typically school-like interactions with their children. Burkam et al. stated, “Children often imitate the behavior of their parents, whether that behavior involves watching television or reading a book. The summer reading activities of the parents may be as influential as the activities...” (Burkham et al., p. 23).

While some research concludes that the greatest effect of families on student achievement can be seen from the lack of achievement growth during the summer months (Alexander, Entwisle, and Olson, 2007), others cite examples of educators who view the home as an extension of the school providing opportunities for all children, low SES or otherwise, to engage in further learning, making inquiries and independently testing hypotheses (Heath, 1994). Additionally, not all students who are impacted by poverty show a loss of learning during the summer months. In an effort to identify what caused the differences, Slates, Alexander, Entwisle, and Olson (2012) identified a substantial number of low SES students who they called Exceptional Summer Learners. These students in the Baltimore schools made even greater gains

during their first summer of elementary school than their high SES peers, although by the end of elementary school their cumulative academic growth was slightly lower. The researchers identified family characteristics that contributed to the summer learning of the identified students and concluded that family support for literacy, such as trips to the public library, made the greatest difference (Slates et al., 2012).

Research has clearly shown that family characteristics can contribute to the achievement of economically disadvantaged students. Schools, therefore, have examined ways in which to offset any negative effect of lack of family resources. Providing more time in school has been considered an effective intervention by many schools and government entities.

Additional Time as an Intervention

The Statement of Purpose from the No Child Left Behind act provides a list of ways in which schools can meet the goal of ensuring that all children have access to and meet proficiency on high academic standards. The eighth recommendation in the Statement of Purpose describes an increase in the *amount* of instructional time. (2001) Research studies using comparison groups of students have reported positive results for increasing the time low SES students attend school (Lauer et al., 2006). Programs providing additional learning time for students can be categorized into three basic types: Extended day interventions, which include increasing the time in a particular grade level such as full-day kindergarten, intersession programs held in a year-round school setting, and summer school programs.

Extended Day or Intersession Programs

A study by Zvoch (2009) compared the growth of full-day kindergarten students who were considered at risk due to SES with the growth of their half-day kindergarten peers who were not at risk. The low SES full-day students came to school lower than their half-day peers but gained more during the year to end the year at a slightly higher level than their half-day peers (Zvoch, 2009). In the study conducted by Jacobsen et al., (2002) 4th-6th grade students attending an intersession program in a year-round setting made gains based on a pre- and post-test.

Summer School

Summer school increases the amount of time students spend in school, increasing achievement, particularly for low-SES children (Patall et al., 2010). Regardless of the program design, the grade levels served, or the length of the program, summer school, according to a variety of studies, has a positive effect on the achievement of at risk students.

A 2011 report from the RAND Corporation hypothesized that “participation in summer learning programs should mitigate learning loss and could even produce achievement gains” (McCombs et al., 2011). The report summarized the findings of many researchers who found that low achieving students who need more time to master the curriculum can benefit from summer school. In numerous schools and districts across the nation, summer school has produced positive results for students who perform below grade level. White and Kim (2008) found that while attending a summer school program, low SES students not only received increased instruction, but also had greater access to print materials that were available to their advantaged peers on a regular basis thereby at least partially offsetting the negative effects of an impoverished home environment. Results of a study by Borman et al. (2005) showed an increase

of .05 standard deviation on fall achievement tests for each week that elementary students attended a summer school program. Studies using a control group for comparison showed significant reading achievement increases at all grade levels of two or more months following a summer program (Schacter and Jo, 2005; Borman and Dowling, 2006; White and Kim, 2008; Luftig, 2010). Other studies without a control group that examined the results of pre- and post-tests also showed increases of up to a year's growth for students attending a summer school program (Jacobsen et al., 2002; Kirkland, Camp and Manning, 2008; Kubina, 2009; Duffy, 2010).

While the large majority of studies produced positive results, Kim and Guryan (2010) found no increase in achievement from the implementation of the voluntary summer reading program they implemented. However, in another voluntary reading program that included the component of parent scaffolding, White and Kim (2008) had reported increases of up to four months of learning for low SES students.

Closer examination of the research showing that summer school had a positive effect on student achievement, particularly for at risk students, presented a different picture. Although the reading summer day camp reported on by Schacter and Jo (2005) produced positive results for 1st grade students, the benefit to attending students, when tested on decoding ability, had vanished. At risk students who attended full day kindergarten also lost their advantage over the half day students by the end of 1st grade according to Zvoch (2009). Providing books and family literacy events during the summer did nothing to improve reading scores of 370 fourth grade students (Kim and Guryan, 2010). Both short and long term changes in literacy achievement of early elementary students in the Pacific Northwest were examined by Zvoch and Stevens (2011). Following an academically intense summer reading program, kindergarten and first grade

students who were considered moderately at risk gained more than non-participants. However, the non-participants gained more during the subsequent year, thereby eliminating any advantage of summer school participation. The randomized field trial reported in the *Early Childhood Research Quarterly* (Zvoch and Stevens, 2012) showed that when both groups were provided with the same summer school intervention, moderately at risk students gained more than students who were considered most at risk. The intervention, therefore, widened the gap between the two groups.

Types of Summer School Programs

The types of summer school programs are nearly as varied as the locales in which they are offered. Four basic types of programs emerged from the research: Enrichment programs that sometimes target students identified as gifted and talented and may or may not have any academic focus, voluntary summer reading programs that allow parents and students to self-select into the program, remedial programs designed to provide instruction to address academic deficits of students, and full-day combination programs which combine both instruction in academics and an enrichment component that models a summer camp experience.

Enrichment Only or Gifted and Talented

In the fall of 2010, an article published in *Gifted Child Today* addressed issues of equity in programming for low SES students who are identified as gifted. The authors presented the problems facing students of color and/or low SES who are also identified as gifted. Many of these students, particularly in urban settings, lacked either family support, school opportunities,

or both that would have enabled them to achieve at the same advanced levels as their more affluent or Caucasian peers. The authors described two programs designed for gifted students of low SES. One program, Project Excite, identified potential students during third grade based on math assessments and parent nomination. Students selected for the program were given over 400 hours of math and science enrichment classes held after school and during the summer for the next six years to prepare them for a more rigorous high school curriculum. Results from the program showed that 70% of the students entered high school having completed Algebra 1 or higher, and approximately 60% entered high school placed in an advanced science course. The longitudinal results were more variable once students left the program and entered high school. The second program, Project LIVE, identified students with exceptional potential based on teacher recommendation, state tests, and district assessments at the end of sixth grade. Between sixth and eighth grades, students were provided with over 300 hours of enrichment in language arts both after school and during the summer. While the total number of participants completing the program all three years, 37, was relatively small, results showed that 70% or 26 of the students were placed in honors English classes as freshmen entering high school. These two programs, both designed to meet the needs of low SES, minority gifted children shared some commonalities. Both programs were designed to prepare students for rigorous high school curriculum and to engage and excite students through discovery based, hands-on learning activities; both programs identified students in elementary school and provided a long-term commitment; both programs forged connections with parents that resulted in parents of students in both programs becoming more involved and supportive of their child's education; both programs had components of cultural enrichment for students that connected both the students and their parents to the greater cultural community; and both programs took place outside of

school hours with an extensive summer component. Based on their experience with the two programs described, the authors concluded with recommendations for programming for low SES or minority gifted children, including flexibility of programming and programming that was tailored to the individual needs of the students and families (Olszewski-Kubilius and Thomson, 2010).

Another summer program designed to meet the needs of gifted students in a low SES area was implemented in one of the poorest geographical areas in Alabama. A study utilizing the Summer Enrichment Workshop (SEW) sought to answer questions about the clinical experience of interns in a teacher preparation program who were assigned to the SEW. However, the study also yielded information on one type of summer programming that has a positive effect on achievement of students from low SES. The program utilized curriculum such as field trips, videos, and interest-based explorations that are not generally a mainstay of the regular classroom. An emphasis on higher order thinking skills and real world problem solving also characterized the program. Data collected from the study did not include student achievement but rather was used to inform teacher preparation programs (Newman, Gregg, and Dantzler, 2009).

Heath (1994), in a qualitative study, proposed a partnership that connected community organizations and schools to provide the best summer program for at risk students. The programs she described targeted students in third grade through high school. Third, fourth, and fifth grade students participated in a science discovery program both after school and on Saturdays. The comprehensive program included reading, writing, and math along with the hands-on, engaging scientific investigations. The program for high school students engaged inner city, minority high school students living in poverty in a summer drama program. The high

school students engaged in language rich experiences while learning to work cooperatively and practice leadership skills. Both programs were deemed successful by the students, the educators, and the researcher (Heath, 1994).

Frost (2005) compared two tuition-based summer school programs designed for gifted and talented students in England and the US. The two programs, the National Academy for Gifted and Talented Youth (NAGTY) in England and the Centre for Talented Youth (CTY) in the US both offered summer programming to students identified as gifted. The comparison included basic information such as number of sites, number of students, class size, costs, and identification procedures as well as structure, staffing, courses offered, and student views of the programs. The comparison included a discussion of the attributes of programming offered to gifted and talented youth in both England and the US (Frost, 2005).

Voluntary At-Home Programs

The October 2008 issue of *The Reading Teacher* included an article by Kim and White (2008) which reported on two experiments with summer reading programs. Both qualitative and quantitative data were reported in the article. Both experiments involved providing books to students over the summer months to treatment groups but nothing to the control groups. The second experiment was conducted to replicate the first and add an additional variable by creating a second treatment group that was given books but no specific instruction. Prior to the summer months, teachers delivered three targeted lessons to the treatment group of students in oral reading, silent reading, and comprehension strategies. In both experiments, parents of students in the treatment groups were encouraged to listen to their child read and return a postcard at the end of the summer. The score gains of low SES students in the intervention were minimal

compared to the scores of the low SES students in the control group with a mean difference of .8 month. However, there was a much greater difference in scores for students of color. The second experiment added a group of students who were given books to read over the summer but were not given the three lessons prior to summer. Results of the second study showed a moderate gain for students who were only given books and a marked gain for students in the full treatment group, with low SES students gaining an average of four months of achievement over their control group peers. The researchers concluded that low SES and minority children could benefit from voluntary reading programs during the summer months, particularly if parents and teachers provided support and instruction in reading strategies (Kim and White, 2008).

An examination of one district's data by Kim (2004) produced similar results. The researcher analyzed data from 18 ethnically diverse elementary schools and included 1687 participants. Students in the district were required to read and respond in writing to at least one book over the summer following their fifth grade year. Teachers supplied lists of books from which students could choose. Following the year, students completed a survey reporting how many books they had read and how many books they had access to during the summer. Results of the survey and achievement data revealed that the more books students had available, the more they read, and the more they read the higher their reading achievement results were in the fall (Kim, 2004).

In an effort to determine the effect of a voluntary summer reading program on the reading achievement of low SES Latino children, Kim and Guryan (2010) conducted a study which included a randomized sample of students leaving fourth grade. Over 90% of the students in the study received free or reduced priced lunch, were Latino, and were from homes in which parents' primary language was Spanish. Four hundred families from four elementary schools in

a large California district were recruited and randomly assigned to one of three groups. One group received ten self-selected books to read over the summer; one group received 10 self-selected books and participated in three family literacy events during the summer; one group served as the control group, receiving no books. Results of the voluntary summer reading program revealed no differences in achievement scores for any of the three groups. The researchers attributed the lack of difference to the language issues of the students. Based on an earlier study they conducted, the researchers determined that English language learners struggled with decoding, comprehension, and vocabulary which prevented positive gains merely by increasing the number of books read. They concluded that many low SES Latino children failed due to the lack of a structured summer intervention designed to accelerate reading achievement (Kim and Guryan, 2010).

Remedial Programs

Six elementary teachers from Visalia Unified School District in Visalia, California undertook the task of determining if the literacy learning of older elementary students in grades three through six could be accelerated using the practices of early literacy instruction in either a summer school program or an inter-session program in a year-round school. Beginning in 1990 and continuing through 1999, the school district implemented intense professional development for teachers and literacy coaches. Over the course of ten years, programs were implemented during the summer and during the track time off for students in the year round program. Four Title 1 schools on a traditional calendar participated in the summer school program. Results were reported for 46 K-2 students. Students were selected from the year round schools by means of teacher rankings of students. The bottom 15 students in a grade level were invited to participate in the program. Results for 242 students from two year-round schools were reported.

Results were reported in text levels gained, numbers of students dismissed from the program due to accelerated learning, and anecdotal data gathered. Both intervention programs yielded positive results with the year round intersession model producing the greatest gains. The authors concluded with recommendations for professional development for teachers in literacy instruction (Jacobsen et al. 2002).

In another study utilizing both quantitative and qualitative data Duffy (2010) sought to determine whether the growth of elementary school struggling readers could be accelerated through balanced literacy instruction in a summer school program. The researcher also served as the instructor in the summer school program. A convenience sample comprised of 11 second grade students scoring below grade level on a state-mandated reading assessment at one school was selected for the study. 43% the students at the school qualified for free or reduced-priced lunch. The intervention consisted of balanced literacy instruction two and a half hours each day for 30 days. Results of the program were interpreted as positive based on both qualitative and quantitative data collected by the researcher. However, there was not follow-up data to determine if the progress made by students was sustained, and a comparison of the students who participated in the study with students who did not participate showed no difference in scores on the state-mandated assessment given the following fall (Duffy, 2010).

Results of a short-term summer reading intervention were reported in an article published in *Literacy Research and Instruction* (Luftig, 2010). Students in the study had completed grades one through four in an inner city, predominantly African-American, Title I school in Ohio. All of the students had been identified as at risk for failure in reading achievement. Students who had completed first grade were placed into two groups; the control group received no intervention, while the test group received a school-based reading program which included small

group instruction that utilized the school's reading program. Students who had completed grades two through four were placed into three groups. The control group received no intervention while two test groups received different treatments. One received the same type of school-based reading program the first grade students received, and the third group received a commercial program which utilized one-on-one tutoring, computer aided instruction, and small group instruction. All of the interventions lasted for three weeks during the summer, although the students receiving the commercial intervention received an average of 32 hours of instruction compared to an average of 7 hours of instruction for the school based group. Students in first grade were pre- and post-tested using an assessment that had been developed and normed by the school district. Students in grades two through four were pre-and post-tested on a commercially available, standardized test. Results from the first grade groups showed that students in the control group lost an average of 2% while the students in the treatment group gained an average of 8%. Results from the second through fourth grade groups were similar, with no significant difference between the group receiving the school based intervention and the group receiving the commercial intervention. Students in second grade showed higher gains than those in third or fourth. The researcher concluded that even a small amount of intervention, such as a 3-week summer school, can have a positive effect on the reading achievement of low SES children, particularly in the early grades (Luftig, 2010).

Full Day Combination Programs

Borman and Dowling (2005) studied the effects on student achievement of a multi-year summer school program in Baltimore, MD. Students in grades kindergarten and first were invited to participate in a summer school program for three consecutive years. Participants were from ten high-poverty, urban schools. Ninety-six percent (419) of the students were African

American, and 86% (363) participated in the free lunch program. Students who applied to the program were randomly selected to participate in the program. Students who applied but were not selected were assigned to the control group. The number of students who participated at each site was determined by space available at the site. An intervention, which consisted of a seven week summer school program that included breakfast and lunch along with reading and math activities, physical activities, and enrichment activities based on science, languages, and the arts, was taught by volunteer college students who received three weeks of training prior to the start of the program. Participants and students in the control group were tested each spring and fall for three years using the Comprehensive Test of Basic Skills, 4th edition (CTBS/4), a norm-referenced test which measured vocabulary and reading comprehension to produce a total reading score. Results from the study showed that students who maintained an average attendance rate in the program scored .5 of 1 standard deviation, or 41% of one grade level, higher in total reading than their counterparts in the control group at the end of three years (Borman and Dowling, 2005).

Both academic only and academic/enrichment programs have produced positive results for students (Lauer et al., 2006). Recommendations for the best type of program to implement were based on the program(s) examined by the researcher. The recommendations made by the researchers were based on the effects the programs had on students.

Effects of Summer Programs

While some studies showed a substantial effect size for summer school, others showed negligible effect. Depending on the variables being studied, the effects ranged from student attitudes to long term academic achievement gains.

Student Attitudes

Proposing a new vision for summer programming, Smink (2012) claimed that traditional summer school “occupies a long-held negative place in U.S. culture, prompting dread in the hearts of many former and current students...It’s often framed as punishment for poor academic performance, carrying a stigma for students and teachers that can result in low attendance and lackluster outcomes” (Smink, 2012, p. 64).

In a study by Stone, Engel, Nagaoka, and Roderick (2005), both qualitative and quantitative data were examined pertaining to student attitudes toward summer school and test results. Surveys and interviews were used with students from Chicago Public Schools in the Summer Bridge program. The program offered a second chance to students in third, sixth, and eighth grades who had not met the minimum score cut off on the Iowa Tests of Basic Skills (ITBS). Data analyzed for the study came only from the sixth and eighth grade students. Based on the survey results, the researchers reported that 78% of sixth graders and 74% of eighth graders in the summer school program reported that they liked summer school better than regular school. 81% of sixth graders and 84% of eighth graders indicated they worked harder in summer school, and 73% of sixth graders and 76% of eighth graders reported they had learned more in summer school than in the regular school year. In contrast to the positive results reported by students via the survey and interviews, just under half of the participants met the ITBS cut off

scores following the summer program. The researchers concluded that the characteristics of the summer school program—small class sizes, individualized instruction, a prescribed curriculum, and mastery learning—were a good match for the needs of the low-performing students in attendance (Stone et al., 2005).

Heath (1994) described the attitudes of many low SES youths to all schooling as negative. She cited students as saying, “school is no place for us” and stated that young people “too often experience disrespect and lack of personal support and recognition...” (pp 281-290). The summer program Heath reported on was the only aspect of school the young people valued and viewed as positive (Heath, 1994).

A qualitative study by Keiler (2010) described and analyzed the effects of an urban summer school program on four high school students. The goals of the program were both increased academic achievement and improved attitudes about science. Although the number of participants was very small, the results for both goals were favorable. Students gained at least 20 points on an exam and reported very positive changes in their attitudes toward school in general and science in particular (Keiler, 2010). Similar results were reported by Matthews and Mellom (2012). Using a mixed-method evaluation of summer enrichment programs designed for 85 English-learning secondary students, the researchers found that not only did the summer programs produce significantly higher achievement, the students reported a higher level of aspiration for college and stronger social bonds following the summer programs (Matthews and Mellom, 2012).

Short Term Achievement Gains

Nearly all studies on the effects of summer school have shown immediate, short-term effects. In the study by Schacter and Jo (2005), results showed that immediately following the summer, achievement gains were substantial. This confirmed the findings of numerous other researchers who had reported on short term gains (Jacobsen et al., 2002; Rurkham, Ready, Lee, and LoGerfo, 2004; Kim, 2004). The positive effects of summer school in the short term have been further confirmed by more recent studies including a review of 15 studies which confirmed that more time in school was of benefit to low SES, minority, and low achieving students (Patall, Cooper and Allen, 2010). However, not all studies showed the same level of promise in the long term.

Long Term Achievement Gains

In a longitudinal, quantitative examination of the Beginning School Study (BSS), Alexander, Entwisle, and Olson (2001) examined the scores on the California Achievement Test (CAT) for students enrolled in Baltimore City Schools. The schools from Baltimore City Schools were selected through random sampling within strata defined by racial mix and SES. Students in the study were then randomly selected from the schools' previous year kindergarteners. Approximately two thirds of the students in the study qualified for free or reduced-priced meal benefits which reflected the make-up of the low-income, urban district in Baltimore. While the study began with 790 students, attrition over the five year period reduced the number of students in the study to 368. However, the attrition of subjects did not significantly alter the ethnic or SES of the group. Additionally, the ratio of high achieving to low achieving students from the final sample remained the same as from the original sample.

Students were given the CAT for both reading and math each spring and fall for five years. The scores from the selected students were then analyzed for the study. Hierarchical linear modeling was used to estimate both with-in person and between-person growth. The variable of interest was SES, so the researchers controlled for differences of race or ethnicity through the between-person parameters. Data from the five years showed that during the school year, lower SES children gained as much or more than their higher SES peers in both Reading and Math. However, during the summer months, gains for lower SES children ranged from negligible to significant losses, while higher SES children continued to grow. Cumulative summer losses over a period of five years put lower SES students significantly behind their higher SES peers. Based on their data, the researchers concluded that the out-of-school time, not the instruction during the school year, was responsible for the lower achievement of lower SES children. The authors concluded with recommendations of full day kindergarten programs and summer school for all lower SES children during elementary school. They also recommended that summer school programs be designed to more closely reflect the types of enrichment opportunities that are afforded to higher SES children from their families (Alexander et al, 2001).

In another, later study, Alexander, Entwisle, and Olson (2007) again used data from the Baltimore Beginning School Study to determine the effect summer months with no formal schooling had on the achievement of low SES youths. The researchers examined data from a representative random sample of students whose progress had been monitored from first grade through 22 years of age. Data for the study consisted of fall and spring standardized test scores for the first five years of school and spring scores from the end of the ninth grade year. Scores were from the California Achievement Test (CAT). Students were identified as low, mid, or high SES, although the researchers noted that nearly all affluent families enrolled their children

in private rather than public schools. Therefore, the SES levels were relative. By the end of the 9th grade year, the average achievement of the low SES students was .88 standard deviation below the average achievement of high SES students. Approximately one third of the difference in scores could be traced to the difference in achievement of students entering first grade, and another one third was accumulated during the remainder of the elementary years. The low SES group actually gained slightly more than their high SES peers during the school year, but the gains were negated by the loss during the summer months. The long term effects of the summer loss were characterized by higher drop-out rates in high school and lower levels of college attendance for low SES students. The researchers concluded that families and communities have a significant effect on children's achievement during the summer months, leading them to hypothesize that summer school offered to only low SES children would have the possibility of closing the achievement gap between low and high SES students (Alexander, Entwisle, and Olson, 2007).

Seeking to determine if summer school programs had a lasting effect on student achievement of low SES students, Schacter and Jo (2005) conducted a study of 160 first grade students from three elementary schools in south Los Angeles. All three schools consisted of 100% low SES students who were either Hispanic or African American. The students were randomly selected and then randomly assigned either to a control group or an intervention group. The treatment group attended a seven week long reading day camp which consisted of two hours of reading instruction, camp activities (sports, arts, swimming, video arcade), lunch and snacks for a total of nine hours each day. Students in the control group received no summer intervention. All students in the study were pre- and post-tested using two different commercial assessments that were deemed valid and reliable. Subjects were then tested again in December

and May of the following year. Results of the experiment showed that immediately following the summer, students in the intervention group out-performed the control group students by 41% on the comprehension portion of the tests and 33% on the decoding portion. These gains declined to 39% and 22% respectively after three months and to 18% and 0% at the conclusion of the study. The researchers attributed the decline in scores over the course of the year to three possibilities. They hypothesized that teachers may have spent time reviewing at the beginning of the year to catch the control group students up, teachers in low-income schools tended to be less experienced and knowledgeable, or the summer intervention provided a fun, engaging context that increased learning for students over the everyday experience of school (Jo, 2005).

Results of a summer school program, whether short or long term, may be dependent on more than the type of program or length of the program. Results may also differ depending on the grade level of the students.

Targeted Grade Levels

A few studies have considered the effect of summer school for students at multiple grade levels (Cooper et al., 1996; Gorman, Benson, and Overman, 2005; Kieffer, 2011), while others have limited their studies to either a small grade band in elementary or in secondary school.

Primary Grades

Research on the effects of summer school for young students abounds. Stanovich (1986) wrote, “It is apparently important that the prerequisite phonological awareness and skill...be in place *early* in the child’s development, because their absence can initiate a causal chain of

escalating negative side effects” (pg. 363-364). Children develop cognitively from the time they are born, but the importance of early school learning has been well documented in many of the aforementioned studies. Students in the early primary years have more to learn (Burkam et al., 2004), a condition which may have prompted many researchers to study gains and losses over the summer for young children. Researchers such as Burkam, Ready, Lee, and LoGerfo (2004), Schacter and Jo (2005), Borman and Dowling (2006), Alexander, Entwisle, and Olson (2007), Zvoch (2009), and Duffy (2010) have sought to determine what role early intervention played in later achievement. A randomized field trial examined by Zvoch and Stevens (2012) resulted in gains in reading fluency for both kindergarten and first grade students following a scripted, direct instruction summer program. The results of all of the above studies showed the positive effect that increased learning time had on student achievement in the primary grades. The importance of early intervention to close the reading achievement gap was the impetus of several federal and state laws which resulted in increased accountability for reading proficiency in the primary years.

Intermediate Grades

While the number of studies which examined effects of increased school time for students in later elementary grades may not equal those conducted on primary grades, the results showed similar gains. The greatest increase came from the students in grade two in the study by Luftig (2010) which included students in grades two through five, but results showed increases at all levels. Positive results were also found in the study reported on by Jacobsen (2002) examined the effects of a summer school program on the literacy achievement in the intermediate grades. In the study by Alexander, Entwisle, and Olson (2007), while a third of the discrepancy in achievement scores between low and middle SES students could be accounted for by the end of first grade, another one third of the discrepancy accumulated during the rest of elementary

school. Extra reading was determined by Kim (2004) to be of benefit to students leaving fifth grade. In later studies, White and Kim (2008) reported on positive results of a voluntary, at-home reading program for intermediate grade students, while Kubina (2009) reported on significant improvement as a result of direct instruction in a summer school program. Burkam, Ready, Lee and LoGerfo (2004) made the case for summer school during later elementary years by asserting that during the summer of early elementary, students have less to lose than during summers later in their education.

Students determined to be at risk due to SES, have shown cumulative losses over the summer. Low SES students showed a loss equal to seven tenths of a standard deviation in first grade, but that deficit had increased to nine tenths of a standard deviation by sixth grade. While family nurturance was not associated with literacy acquisition at age four, it was significantly associated with literacy growth at age eight (Merlo, Bowman, and Barnett, 2007). These findings indicated a need for continued intervention throughout elementary school for children who are at risk of failure.

Conclusion

Despite efforts of schools across the nation, there remain achievement gaps that can be traced to economic strata. Research into student achievement patterns clearly shows that students deemed to be at risk due to socioeconomic factors show greater loss over the summer months than their more advantaged peers. Greater time in school has been effective in increasing the literacy achievement of low SES students in elementary schools. Therefore, summer school continues to be a viable option for closing the achievement gap.

While additional time has been effective in increasing learning and minimizing summer loss, the achievement gap remains requiring further examination of summer results. While in the majority of studies, immediate gains are evident, long term gains are not as documented. Additionally, since the achievement gap between low and mid-SES students is cumulative, more needs to be known about the need for summer school programs throughout the elementary years.

A study to determine the effectiveness of summer school for intermediate grade students would be useful in determining where schools and districts should place interventions for students. If the achievement gap between students living in poverty and their more advantaged peers is to be eliminated, schools and districts must find the most effective method for doing so.

CHAPTER 3: RESEARCH METHODOLOGY

Research Design and Rationale

This chapter describes the methodology for the study. This study was an ex post facto quantitative research study, grounded in the post-positivist paradigm, which postulates that the observable world can be studied, interpreted, and results can be generalized to a broader population. The research approach was comparative as there was not random assignment of participants to groups. The study was a quantitative research study because the data collected consisted of numerical achievement scores of students. A comparative approach to the research (Creswell, 2009) was chosen for several reasons. In order to collect data on the greatest number of subjects, the researcher chose to analyze archived data from 2 recent years rather than the current year. Assignment to groups was determined by the participants' choice in participating in the intervention. A nonequivalent comparison-group design was utilized to obtain pre-test and post-test data for both the comparative and treatment groups.

The purpose of this study was to evaluate the impact of summer school on reading skill levels and on maintenance of reading gains of below grade level students' during elementary school in the Poudre School District. Differences in summer reading gains of below grade level fourth grade students were examined, as were the differences between low SES students and non-free and reduced lunch students.

Sampling Design

A sample for the study was obtained by identifying the location for the study, determining which schools could provide the needed data, obtaining the data, and creating both the treatment and comparison groups.

Participants and Site

Poudre School District is located in northern Colorado and encompasses Ft. Collins and the nearby small towns of Wellington and Timnath, as well as three small mountain communities. Ft. Collins is a small city with a population of 120,000. It is home to Colorado State University and is considered a choice city, having been named the number one place to live in 2006 by Money Magazine (Money, 2006). Poudre School District is among the top five districts in the state as ranked by state test scores. The district has four comprehensive high schools and one alternative high school, nine middle schools, 31 elementary schools, one K-12 school, and an online academy, serving a total of approximately 27,000 students in pre-K through 12th grade. The demographic make-up of the district consists of 74% Caucasian, 17% Hispanic/Latino, 3% Asian, 1% African American, and 5% other. 31.4% of the district's students qualify for meal benefits under the federal lunch program.

Population

The population from which the sample was taken consisted of all fourth grade students in Poudre School District who were below grade level. This population was chosen because the researcher sought to answer questions about the reading achievement of both low SES students and students who did not qualify as low SES. Characteristics of the individuals in the population varied in many ways, including mobility rates, whether they were living in generational or

situational poverty (Payne, 2001), access to the intervention, attendance rates, individual achievement level, and family characteristics. However, despite the variations, the mean reading scores of the population were significantly lower than the entire student population of the district.

Sample

The sample for the study was a convenience sample and was limited to students completing fourth grade in one of the district elementary schools which offered summer school during the summer of 2012. All fourth grade students who scored below the 50th percentile on the MAPS test in the spring 2012 and attended a school that offered summer school during the summer of 2012 were included in the sample. Those who attended summer school were included in the group that received the intervention, while those who did not attend summer school were assigned to the comparison group. This sample was chosen because of availability of data. While reading achievement data were available for kindergarten and first grade students, a different instrument was used by the district schools to collect data for these grades. A standardized instrument was used beginning in 2nd grade and continuing through 8th grade.

Participants

The participants for this study consisted of 89 students who attended Poudre School district from May 1, 2012 to May 20, 2013. All of the participants were determined to be below grade level by their fourth grade teachers. In the majority of cases, the determination was made based on test scores, including the Reading MAPS RIT score. However, in a limited number of cases, the participants scored at grade level on the MAPS but were determined to be below grade level either based on other tests or classroom performance. Participants considered for this study

had completed fourth grade in May 2012. Additionally, participants completing the fourth grade in 2012 remained in the district through their fifth grade year ending in May 2013.

Theoretical Population	Accessible Population	Selected Sample	Actual Sample
All below grade level fourth grade students in Northern Colorado public schools	Below grade level fourth grade students in Poudre School District	Below grade level fourth grade PSD students in schools offering a summer school program in 2012	Below grade level PSD students completing grade 4 in 2012 for which MAP data was available

Figure 3.1 Sampling framework for summer school effectiveness study

Data Collection

Data for this study were collected from the school district’s archives. A request for the data was submitted to the district’s director of research and assessment. Archived data are maintained for all students in the student information system of the district. Types of data include MAPS scores, TCAP scores, DRA 2 scores, as well as demographic data such as gender, free and reduced lunch status, and attendance rates.

During the summers of 2011 and 2012, each elementary site in the Poudre School District determined whether or not they would offer a summer school program to students. Since these programs were site-based, student attendance was not registered in the district student

information system. Therefore, data on which students attended summer school had to be obtained from individual schools. This was done by requesting the student identification numbers of each student who attended summer school from each elementary school principal. The ID numbers were then given, by the researcher, to the director of research and assessment for use in determining which students to collect data for. Data were provided to the researcher by the director of research and assessment in Excel spreadsheet format. ID numbers were replaced with generated identifiers, and student demographic data were included with identifiers for meal qualification status, disability status, language proficiency status, and limited ethnicity information. The data spreadsheets were stored on flash drives which were kept locked under the care of the researcher. The data were imported by the researcher into SPSS for the analysis.

Prior to analysis, the data set was examined and cleaned to produce the actual sample. To be included in the actual sample, students had completed the fourth grade during the 2011-2012 school year in one of the selected schools, attended summer school during the summer of 2012 at one of the selected schools, and completed the fifth grade during the 2012-2013 school year at one of the selected schools. Approximately 5 students were removed from the data set because they had moved to a different school in the district or were missing at least one MAP score. Three students had two scores for the MAP test during the same testing period. Two scores occur when a student retakes the test, usually because the teacher has deemed the score invalid based on the student's classroom performance. The score with the lower standard deviation was selected as the correct score for that particular test. Once the data for the actual sample had been refined, a comparison group was built.

The comparison group was constructed by examining the distribution of Spring RIT scores of the summer school students. Once the frequency of the scores in each RIT band of

scores was determined, a group with approximately the same frequency in each score band was randomly selected from all of the students who had not attended summer school. The randomly selected group had a total number of students equal to the students in the treatment group. This created a comparison group that entered summer at the same level of achievement, as measured by MAPS, as the treatment group. A histogram of each group, treatment and comparison, was generated to visually show the similarity of the two groups.

Validity and Reliability of Study

Since archived data were used in this study, the reliability is strong. The same analyses could be done by other researchers using the same data and methods. MAP tests are administered to all second through tenth grade students each fall and spring in Poudre School District. The testing window is set by NWEA, creators of the test to standardize scores nationally. Students are provided with the same accommodations they receive for state testing. The instrument utilized was chosen to increase the validity of the results. The MAP test is a computer-based test which involves no teacher judgment. Therefore, the ecological validity of the study is high.

Measurement Instrument

Poudre School District uses the Measures of Academic Progress (MAP) test from Northwest Education Association (NWEA) to assess students in reading and mathematics. The test is administered to all students in second through tenth grades each fall and spring. Many

schools also choose to administer the test in the winter. MAP is a computerized adaptive assessment providing detailed information on each child's reading achievement level. Computerized adaptive assessments adapts to the ability level of each student by updating the estimated ability of the student after each question and presenting subsequent items based on the new estimate (Kingsbury and Houser, 2004). MAP is a nationally normed test which produces a RIT (Rasch Unit) score for each child with expected growth for each grade level. An average gain for fourth grade students in a year is approximately seven points. RIT scores serve the same function as a standard score and range from 150 to 300 (NWEA, 2005).

Validity and reliability of Instrument

The validity of the MAP test is well documented. NWEA considered three characteristics of the tests: the content of the test, the alignment of scores received on the test to the scores received on the state-mandated test, and how well the MAP scores predicted the scores on the state-mandated test. NWEA determined the concurrent validity of the MAP test with other multiple choice tests to be .804. Correlations in the mid-.80's is considered strong concurrent validity (NWEA 2005).

The MAP test contains dynamic item selection, so a student never gets exactly the same test twice. Therefore, test-retest reliability alone is not sufficient. A parallel form cannot be guaranteed since the difficulty of each test item is determined by the student's answer to the previous question. The reliability of the MAP test is a mix of the test-retest and parallel forms test which is spread across several months. The reliability for the reading MAP test, which is a collection of the reliabilities across test item pools is from .78 to .83 (NWEA, 2005).

Data Analysis

The data for this study were analyzed using a series of t tests. For each analysis there were two groups, the group of students from the sample that attended a summer school and the group that did not. This constituted an independent sample t test because no students were in both groups. Each research question was answered with the following analysis:

1. Do low performing fourth grade students in Poudre School District who attend a summer school program experience greater gains in reading achievement over the summer than their low performing peers who do not attend a summer school program?

Analysis: Using a t test, mean RIT scores from the spring MAP test were compared to the mean RIT scores from the following fall MAP test. The independent variable was attendance at summer school. The dependent variable was the difference in the spring and fall scores on the reading MAP test.

2. Is the difference in reading achievement levels of low performing fourth grade students who attend a summer school program and the reading achievement levels of low performing fourth grade students who do not attend a summer school program maintained during the fifth grade year?

Analysis: The change in RIT scores for each group was computed and analyzed. The mean scores were compared using a t test. The independent variable was attendance at summer school. The dependent variable was the difference in spring to spring scores on the reading MAP test.

3. After attending summer school, how do fall reading scores of low performing fourth grade students who qualify for meal benefits compare to their low performing peers who do not qualify for meal benefits?

Analysis: Using a *t* test, mean RIT scores from the spring MAP test were compared to the mean RIT scores from the following fall MAP test. The independent variable was attendance at summer school. The dependent variable was the difference in the spring and fall scores on the reading MAP test.

4. Is the difference in reading achievement levels of low performing fourth grade students who qualify for meal benefits and who attend a summer school program and the reading achievement levels of low performing fourth grade students who qualify for meal benefits but who do not attend a summer school program maintained during the fifth grade year?

Analysis: Using a *t* test, mean RIT scores from the spring 2012 MAP test were compared to the mean RIT scores from the following spring 2013 MAP test. The independent variable was attendance at summer school. The dependent variable was the difference in the spring to spring scores on the reading MAP test.

CHAPTER 4: RESULTS

Introduction

The focus of this research study was to determine whether attendance at summer school could positively impact the achievement of fourth grade students by reducing or eliminating a summer loss. While data from all students who attended the summer programs were analyzed, data from students impacted by poverty were of particular interest to this study. The analyses included comparisons of MAPS reading scores for fourth grade students who attended summer school programs with those who did not and comparisons of data from students who qualified for free or reduced lunch with the data of students who did not qualify. Scores from spring 2012, fall 2012, and spring 2013 were obtained for all participants and the comparison group. The analysis of three sets of data allowed the researcher to answer questions about summer losses or gains, as well as the lasting effects of those losses or gains.

Participants in the study were students completing fourth grade in one of the selected schools in Poudre School District. Additionally, to be considered a participant, students returned to one of the selected schools for the fifth grade year and were administered the MAP reading test and received a RIT score for all three testing periods. The same criteria were used to qualify non-attending students for placement in the comparison group. While student demographic information such as language proficiency, ethnicity, gender, and disability status was available, these demographic qualifiers were not part of the research questions. This chapter is organized around the four research questions identified in chapter one. Each question was addressed by conducting an independent samples *t* test.

The three assumptions for the independent samples *t* test—*independence*, *normal distribution*, and *equal variances*—were met. The data collected were all independent; no test score of a participant was dependent on any other participant’s score. Variances of the dependent variable in the two groups were equal. The dependent variable, reading MAP RIT scores were normally distributed within both the test group and the comparison group. The distribution of RIT scores is illustrated in Figure 4.1.

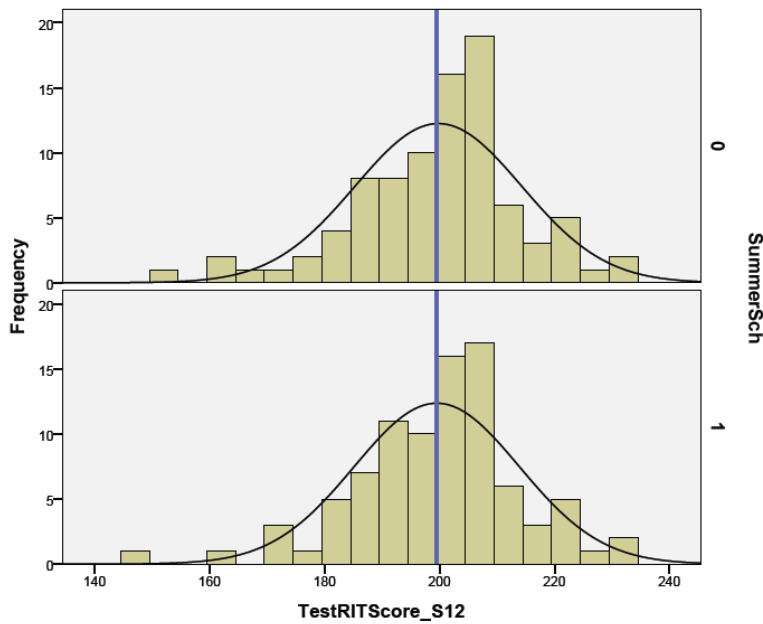


Figure 4.1 Distribution of MAP RIT scores for test group and comparison group

Study Hypotheses

Research Question One: Do low performing fourth grade students in Poudre School District who attend a summer school program experience greater gains in reading skills over the summer than their low performing peers who do not attend a summer school program? This study hypothesized that low performing fourth grade students who attended a summer school in Poudre School District would experience greater gains in reading, as measured by the MAPS

assessment, than their low performing fourth grade peers who did not attend a summer school program.

Research Question Two: Is the difference in proficiency levels of low performing fourth grade students who attend a summer school program and the proficiency levels of low performing fourth grade students who do not attend a summer school program maintained during the fifth grade year? This study hypothesized that reading gains made by students who attended summer school would be maintained through their fifth grade year, thereby, resulting in higher reading MAPS scores at the end of fifth grade for those students who attended summer school than for non-attendees.

Research Question Three: After attending summer school, how do reading scores of low performing fourth grade students who qualify for meal benefits compare to their low performing peers who do not qualify for meal benefits? This study hypothesized that low performing fourth grade students qualifying for meal benefits who attended summer school would benefit academically from summer school attendance and would, therefore have higher reading MAP scores than their non-attending peers in the comparison group who did not attend summer school.

Research Question Four: Is the difference in reading achievement levels of low performing fourth grade students who qualify for meal benefits and who attend a summer school program and the reading achievement levels of low performing fourth grade students who qualify for meal benefits but who do not attend a summer school program maintained during the fifth grade year? This study hypothesized that any difference between the reading MAP scores of students qualifying for meal benefits and who attended summer school and the reading MAP scores of their non-attending peers in the comparison group would be maintained during the fifth

grade year, thereby, resulting in higher scores for summer school attendees at the end of fifth grade.

Presentation of Results: Research Question One

The effect of summer school attendance on the reading achievement of fourth grade students was studied. Measures used for the analysis were spring and fall reading MAP scores. The first research question was, “Do low performing fourth grade students in Poudre School District who attend a summer school program experience greater gains in reading skills over the summer than their low performing peers who do not attend a summer school program?”

Table 1 shows that there was no significant difference in reading MAP score growth from spring to fall between students who attended summer school and students who did not attend summer school. Inspection of the two group means indicated that the average MAP growth for summer school attendees ($M = -.55$) is not significantly different ($p = .239$) than the average MAP growth for non-attendees ($M = -1.97$). The effect size d is approximately 0.17 which indicates that the summer school group had a mean outcome that exceeded the control group’s mean outcome by about 17% of a standard deviation unit. This effect size can be considered very small, indicating that there is no more difference than one would expect by chance.

Table 1: Comparison of spring to fall growth on reading MAP scores of summer school attendees and non-attendees (n=89 attendees and 89 non-attendees)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Spring to Fall Growth			1.18	176	.239	0.17
Summer School	-.55	7.65				
No Summer School	-1.97	8.34				

Presentation of Results: Research Question Two

The effect of summer school attendance on the maintenance of reading achievement scores of fourth grade students was studied. Measures used for the analysis were fall 2012 and spring 2013 reading MAP scores. The second research question was, “Is the difference in proficiency levels of low performing fourth grade students who attend a summer school program and the proficiency levels of low performing fourth grade students who do not attend a summer school program maintained during the fifth grade year?”

Table 2 shows that there was no significant difference in reading MAP score growth from spring of the students’ fourth grade year to spring of their fifth grade year between students who attended summer school and students who did not attend summer school. Inspection of the two group means indicated that the average MAP growth for summer school attendees ($M= 7.11$) is not significantly different ($p=.743$) than the average MAP growth for non-attendees ($M= 6.73$).

The effect size d is approximately 0.05 which is much lower than typical size for effects in the behavioral sciences.

Table 2: Comparison of spring to spring growth on reading MAP scores of summer school attendees and non-attendees (n=89 attendees and 89 non-attendees)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Spring to Spring						
growth			.328	176	.743	0.05
Summer School	7.11	7.44				
No Summer	6.73	8.09				
School						

Presentation of Results: Research Question Three

The effect of summer school attendance on the reading achievement scores of fourth grade students who qualified for meal benefits was studied. Measures used for the analysis were spring and fall reading MAP scores. The third research question was, “After attending summer school, how do reading scores of low performing fourth grade students who qualify for meal benefits compare to their low performing peers who do not qualify for meal benefits?”

Table 3 shows that there was no significant difference in reading MAP score growth from spring to the following fall between fourth grade students who qualified for meal benefits and who attended summer school and fourth grade students who did not qualify for meal benefits and also attended summer school. Inspection of the two group means indicated that the average MAP growth for summer school attendees who qualified for meal benefits ($M= -.92$) is not

significantly different ($p=.178$) than the average MAP growth for attendees who did not qualify for meal benefits ($M= 1.00$). The effect size d is approximately .224 which is a small size for effects in the behavioral sciences.

Table 3: Comparison of spring to fall growth on reading MAP scores of summer school attendees who qualified for meal benefits with those attendees who did not qualify for meal benefits (n=72 attendees who qualified for meal benefits and 17 attendees who did not qualify for meal benefits)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Spring to Fall growth of attendees			-929	87	.178	.224
Meal Benefits	-.92	7.44				
No Meal Benefits	1.00	8.55				

Presentation of Results: Research Question Four

The effect of summer school attendance on the maintenance of reading achievement scores of fourth grade students who qualified for meal benefits was studied. Measures used for the analysis were spring 2012 and spring 2013 reading MAP scores. The fourth research question was, “Is the difference in reading achievement levels of low performing fourth grade students who qualify for meal benefits and who attend a summer school program and the reading achievement levels of low performing fourth grade students who qualify for meal benefits but who do not attend a summer school program maintained during the fifth grade year?”

Table 4 shows that there was no significant difference in reading MAP score growth from spring 2012 to the spring 2013 between fourth grade students who qualified for meal benefits and who attended summer school and fourth grade students who qualified for meal benefits but did not attend summer school. Inspection of the two group means indicated that the average MAP growth for summer school attendees who qualified for meal benefits ($M= 7.13$) is not significantly different ($p=.123$) than the average MAP growth for non-attendees who qualified for meal benefits ($M= 7.10$). The effect size d is approximately .003 which is a much smaller than typical size for effects in the behavioral sciences.

Table 4: Comparison of spring to spring growth on reading MAP scores of summer school attendees who qualified for meal benefits with non-attendees who qualified for meal benefits (n=72 attendees who qualified for meal benefits and 69 non-attendees who qualified for meal benefits)

Variable	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Spring to Spring growth of students who qualified for meal benefits			1.167	139	.123	.003
Attendees	7.13	7.74				
Non-Attendees	7.10	8.59				

Summary

This study hypothesized that students finishing fourth grade and attending summer school would have greater gains in reading scores from spring MAP test to fall MAP test than their grade level peers who did not attend a summer school. However, there was no statistical

difference in reading MAP gains between summer school attendees and non-attendees. The effect size of summer school on MAP gain scores of the attendees was smaller than typical. Therefore, the hypothesis that summer school had a positive effect on the reading MAP scores of fourth grade students who attended summer school must be rejected.

Additionally, this study predicted that gains made by summer school attendees over non-attendees would be maintained for the following school year, resulting in higher reading MAP scores at the end of fifth grade for those students who had attended summer school. Again, there was no statistical difference in spring 2013 reading MAP scores between summer school attendees and non-attendees. The effect of summer school on attendees' reading MAP scores in spring 2013 was negligible. The hypothesis that the previous year summer school had a positive effect on the reading MAP scores of fifth grade students must also be rejected.

The third hypothesis of this study was that students who qualified for meal benefits and attended summer school would show greater gains in reading MAP scores in the fall than those students who attended summer school but did not qualify for meal benefits. While there was no statistical difference in the gains made by summer school attendees who qualified for meal benefits when compared with attendees who did not qualify, there was a small effect size. Nevertheless, the hypothesis that summer school would have a greater effect on students who qualified for meal benefits must also be rejected.

The final prediction of this study was that summer school would have a long term positive effect on students who qualified for meal benefits, resulting in greater reading MAP score gains for those students than for their peers who also qualified for meal benefits but did not attend summer school. The final prediction must also be rejected as there was no statistical difference in score gains between students who qualified for meal benefits whether or not they

attended summer school. The long term effect, spring to spring, of summer school on reading MAP score growth of attendees to non-attendees was so minute it could be considered nonexistent.

In conclusion, the results of this study indicated that there is no statistical difference in reading MAP gains for any group of fourth grade students who attended a summer school program in 2012 when compared with their fourth grade peers who did not attend summer school. This study showed that the only effect of summer school was a slightly larger positive effect for students who did not qualify for meal benefits and attended summer school than for students who qualified for meal benefits and attended summer school.

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

This study sought to determine the effectiveness of summer school programming in Poudre School District. Of paramount interest to the researcher was the effect of summer school, both immediately and long-term, for students leaving fourth grade. Data from spring 2012, fall 2012, and spring 2013 were collected from the seven school sites in Poudre School district that offered a summer school program during the summer of 2012. The data were analyzed to determine the effectiveness of the summer school program for the general population of fourth grade students as well as the effectiveness of the summer school program for students who qualified for meal benefits during their fourth grade year. The results discussed here have varying levels of support from the body of literature which addresses summer learning loss of students.

Summary of Findings

Analysis of the first research question, “Do low performing fourth grade students in Poudre School District who attend a summer school program experience greater gains in reading skills over the summer than their low performing peers who do not attend a summer school program?”, showed that there was no significant difference in reading growth, as measured by MAPS between students attending summer school and their peers who did not attend. The effect size of summer school on growth of reading performance was so small as to be negligible.

Similarly, analysis of the second research question, “Is the difference in proficiency levels of low performing fourth grade students who attend a summer school program and the

proficiency levels of low performing fourth grade students who do not attend a summer school program maintained during the fifth grade year?”, yielded no significant difference in scores between the treatment group and the comparison group a year after the summer school program. The effect of summer school on the growth of reading scores of the students when compared at the end of the following year was even smaller than immediately after summer school.

The third and fourth research questions examined the effect of summer school on students who qualified for meal benefits. Analysis of the third question, “After attending summer school, how do reading scores of low performing fourth grade students who qualify for meal benefits compare to their low performing peers who do not qualify for meal benefits?”, compared students qualifying for meal benefits with their grade level peers who did not qualify when both groups attended summer school. There was no statistical difference in scores following summer school between these two groups, and the effect size of summer school was small. The effect size, .22, indicated that summer school had only slightly more effect on students *not* qualifying for meal benefits than it did on students who qualified for meal benefits.

Finally, this study compared two groups of students who all qualified for meal benefits. The research question, “Is the difference in reading achievement levels of low performing fourth grade students who qualify for meal benefits and who attend a summer school program and the reading achievement levels of low performing fourth grade students who qualify for meal benefits but who do not attend a summer school program maintained during the fifth grade year?”, presupposed that a difference in these two groups would exist immediately after summer and was seeking to determine if any difference would remain at the end of the following year. Analysis of the data showed that there was no significant difference in reading MAP growth for

the test group when compared with the comparison group. The effect size in this final analysis was the smallest of all the effects examined in this study.

Discussion of Findings Related to the Literature

The first finding in this study showed no significant difference in reading MAP score gains over the summer between the students who attended summer school and those who did not. The majority of studies examining the effects of a summer school program on reading skills contradict the findings of the present study. The hypotheses in the present study were in agreement with McCombs et al., (2011) that participation in a summer school program should minimize, if not eliminate, summer achievement loss. Numerous studies (Schacter and Jo, 2005; Borman and Dowling, 2006; White and Kim, 2008; Luftig, 2010) reported significant increases in reading achievement at all grade levels. Even studies that did not use a control or comparison group but looked only at pre and post-tests, showed up to a year's growth for students who attended a summer school program (Jacobsen et al., 2002; Kirkland, Camp and Manning, 2008; Kubina, 2009; Duffy, 2010). While all of the cited studies produced results in direct opposition to the present study, a few studies lend support for the present findings.

Following a voluntary summer reading program for fourth grade students, Kim and Guryan (2010) saw no increase in reading achievement scores. While the results of the study and the grade levels were the same, unlike the present study, Kim and Guryan conducted their research using a group of fourth grade students of which over 90% qualified for meal benefits and were Latino. Lauer et al. (2006) conducted a meta-analysis and determined that while an out of school time program can have a positive effect on student achievement, the effect size of .22, which was similar to the .17 effect size of the current study, was only achieved in the lower grades.

Fewer studies reported in the literature examined the residual effects of summer school on student achievement. The present study found no significant difference in reading MAP score gains over the course of the fifth grade year for summer school attendees and non-attendees. This finding was supported by Zvoch (2009) who found that any kindergarten students who received additional instruction lost their advantage by the end of the first grade year. Similarly, the study by Jo (2005) which examined the reading achievement of first grade students immediately following and one year after a summer program, showed that while there was a significant increase in student achievement scores in the short term, the advantage in gains had vanished by the end of the following year. However, the present study differed from the two cited studies both in grade level and type of intervention, bringing into question the validity of comparing the studies.

Several studies that produced results opposing the results of the current study were based on a more longitudinal look at data. The current study looked at achievement growth at the end of fifth grade following one year of summer school between fourth and fifth grades. After three consecutive years of summer school, Borman and Dowling (2005) found that students who had maintained an average attendance rate during the summer program scored 41% of one grade level higher than the control group. If the present study had produced similar results, this would have equated to approximately 3 points being added to the mean gain score of summer school attendees. However, the Borman and Dowling study was conducted over three years as opposed to a year.

Two longitudinal studies by Alexander, Entwisle, and Olson (2001; 2007) do not support the findings of the present study. The earlier study by Alexander, Entwisle and Olson collected data over a period of five years and showed that while school year achievement gains were the

same, summer loss was greater for disadvantaged students who did not attend summer school. The cited researchers' later study analyzed data from students from kindergarten through age 22 and determined that one third of the difference in scores of students could be attributed to summer loss. If the present study had produced similar findings, the summer loss—which would have shown as a negative gain—would have been much greater for the non-attendees.

The first two questions of the present study examined the scores of all summer school attendees and compared those score gains to non-attendees in a comparison group. Nearly all of the studies cited in the literature have examined the effects of summer school on students considered disadvantaged, that is, receiving meal benefits. Again, the findings of the present study have little support from the literature. The preponderance of the reported studies (Jacobsen et al., 2002; Schacter and Jo, 2005; Borman and Dowling, 2006; White and Kim, 2008; Kirkland, Camp and Manning, 2008; Kubina, 2009; Duffy, 2010; Luftig, 2010) resulted in increased student achievement following summer instruction for students who qualified for free or reduced lunch. Such was not the case in the present study. The lack of effect of summer school for students qualifying for meal benefits did not have support from the literature.

Stanovich (1986), referring to literacy skills, wrote about the rich getting richer. One hypothesis of the study by Alexander, Entwisle, and Olson (2007) put forth the idea that summer school should be offered only to low SES children to close the achievement gap between low and high SES students. This hypothesis was supported in a study by Zvoch and Stevens (2012) which showed that when provided with the same summer school intervention, students who were only moderately at risk gained more than those considered more at risk. The present study produced an effect size of .22 for summer school when comparing attendees who qualified for meal benefits with attendees who did not qualify. This finding is not supported by the cited

literature. Summer school made no more significant difference to students not qualifying for meal benefits than to those who qualified.

Perhaps the most surprising—and possibly the most important—finding of the present study was the comparison of summer school attendees and non-attendees when both groups qualified for meal benefits.

Supplemental Discussion

Since all of the previously cited literature indicates increases in scores for low SES students who attended summer school, there really is no support in the literature for not only the lack of significant difference in scores but the nearly 0.0 effect size of summer school for low SES students found in the current study. It is the hypothesis of the researcher that this lack of significance and effect, contrary to what the literature clearly states, may be due to other factors not examined in the present study.

As was presented in the introduction to this research, Ft. Collins, Colorado is considered a “choice” city. In 2011 the median household income in Ft. Collins was \$51,676 (City-Data, 2014.). In contrast, the median household income in Baltimore, Maryland, the location of two large, multi-year studies by Alexander, Entwisle, and Olson (2001; 2007) was \$40,803 (United States Census Bureau, 2014). Based on the difference in median household income and the size of the two cities, it is the hypothesis of the researcher that students in the present study qualifying for meal benefits, and therefore, considered low SES and disadvantaged may be very different than the students in studies that have occurred in large, inner city locales. Family characteristics such as lower expectations, lack of print materials and lack of parent education, which were described by cited researchers (Borman et al., 2005; Schacter and Jo, 2005; Olszewski-Kubilius

and Thomson, 2010) may not be characteristics of Ft. Collins families who are living in poverty. Low SES students, identified by Slates, Alexander, Entwisle, and Olson (2012) as “exceptional summer learners, made equal to or higher gains over the summer, without summer school, than their high SES peers. The researchers determined that the gains were due to family support for literacy. Ft. Collins not only has an extensive public library program, several schools throughout Poudre School District offer a library program during the summer months. It is possible that any lack of print material in Ft. Collins homes is offset by the availability of literary material from both the city and the school.

Each school in Poudre School District is unique in its demographic make-up and the type of summer school that was offered. During the spring of 2012 all elementary schools were invited to submit a proposal for summer school funding. Seven schools were awarded funding and offered a summer school program that included fourth grade. For the present study, individual schools were not identified, nor were data from individual schools analyzed, in part due to the small number of participants at some schools and in part due to the need for anonymity for schools. As can be seen from Figure 5.1, gain in MAP RIT scores from spring to fall for the individual schools varied from school to school.

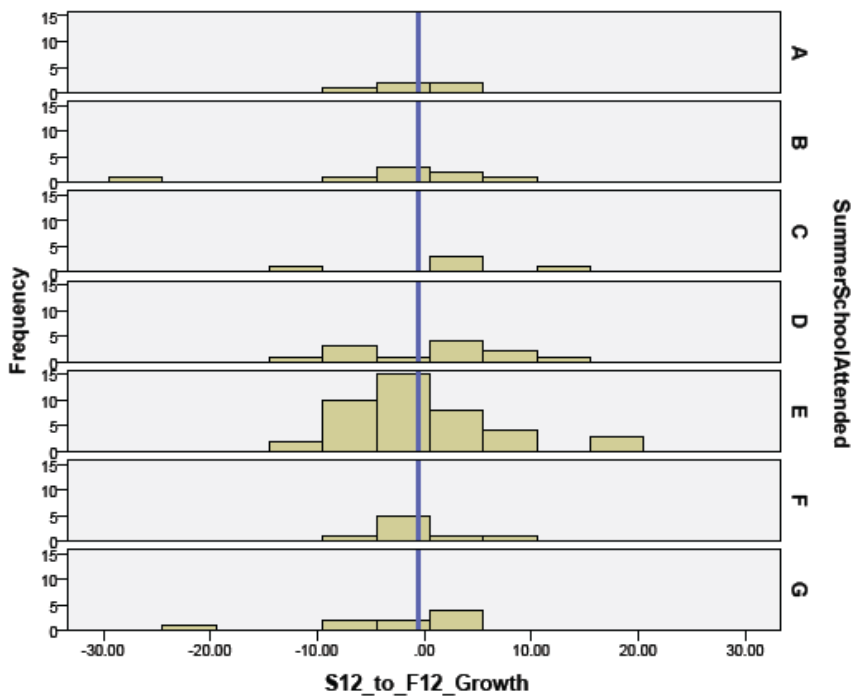


Figure 5.1 Histogram of summer growth for individual schools

The lack of significant results upon compilation and analysis of the data, along with the variance seen between schools, points to the need for further study and creates possible implications for action.

Conclusions

Implications for Action

Upon careful analysis of the data from this study, it became apparent that summer school, as it existed in 2012 in Poudre School District, did not positively impact the reading achievement of students leaving fourth grade. This finding has implications for both the district and for individual schools.

1. The district should utilize the existing data collection system to provide a comprehensive analysis of the data for all schools in the district. This would allow district officials to determine which schools have the greatest decline in student achievement scores over the summer months.
2. Existing district funds should be allocated to the schools exhibiting the greatest need based on summer loss.
3. When implementing site-based summer programs, school sites should carefully consider the grade levels served along with the type of program offered. While a focused, academic program may produce the highest gains for lower elementary grades, a more engaging, hands-on, discovery program, such as the ones described by Heath (1994), Alexander et al. (2001), and Olszewski-Kubilius and Thomson (2010) may better meet the needs of older elementary students. These types of enrichment programs that integrate literacy skills will more likely produce authentic engagement, leaving students with a positive attitude toward learning.
4. The school district and individual school sites should engage in more comprehensive, rigorous action research to determine if site-based summer programs should continue to operate or if a district run program is a better use of funds.

Recommendations for Further Research

The findings of this study suggest the need for several areas of further research:

1. To determine the benefit of a summer school program to specific groups of students, a study designed to gather and analyze data from the following groups of students should be designed and carried out:

- a. Students with an identified disability
 - b. Students with a native language other than English
 - c. Students who score below the 35th percentile on two or more standardized assessments
 - d. Students who score above the 35th percentile but are recommended for summer school based on teacher judgment
2. In order to identify the program most likely to produce positive student achievement results, multiple programs—academic only, enrichment only, academic and enrichment—should be implemented within the same student population with random assignment of subjects to the different programs.
 3. Research of the summer school teacher quality and expertise should be conducted to determine the role it plays in program effectiveness.
 4. To determine the cause of summer school attendees not maintaining any advantage over non-attendees by the end of the following year, as shown by this study and other cited studies, research into what happens during the year following summer school needs to take place. Schacter and Jo (2005) hypothesized that teachers spend time reviewing at the beginning of the year to “catch up” those students who did not attend summer school. This should be validated or negated through further research.
 5. For the current study to be generalizable to a larger population, a study including more school districts of similar demographic make-up needs to be undertaken.

Concluding Remarks

Although the results of the present study do not support many of the previous studies that have been reported here, it is important to keep several things in perspective. Many of the

studies reported included a much larger number of subjects than the present study and therefore, may be more generalizable to the general population. Additionally, the majority of the larger studies reported here were done on student groups in which the large majority qualified for free or reduced meals, unlike the present study. Finally, none of the other studies reported used the MAPS as a measure of student academic growth. It may be that other assessments, if used in the present study, would have shown greater growth in reading achievement. The present study adds to the body of evidence regarding the effectiveness of summer school but should not be used as the sole piece of evidence for decision making.

District and school leaders and decision makers must carefully consider the cost and benefit when implementing, changing, or discontinuing a summer school program. “The effect size [of an intervention] indicates the strength of the relationship or magnitude of the difference and thus is relevant to the issue of practical significance” (Morgan et al, 2011, p. 101). Very small achievement gains may have practical significance in a school community. Therefore, consideration should be given not only to the likely achievement gains for students, but also to the needs of the school community. Providing the school community with a summer program that provides benefits other than academic achievement may be of great value. When making decisions that can potentially have far reaching results, whether academic or otherwise, all available research, including the present study, should be considered. Contrary to using the results of the present study to discontinue summer school programs, the researcher advocates that summer school programs should be studied more carefully and perhaps be redesigned to increase student growth over the summer.

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