

A Study Of A Third Grade Summer Reading Camp: Its Promotion Of Student Achievement And Its Cost Effectiveness

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A STUDY OF A THIRD GRADE SUMMER READING CAMP: ITS PROMOTION
OF STUDENT ACHIEVEMENT AND ITS COST EFFECTIVENESS

by

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A dissertation submitted in partial fulfillments of the requirements
for the degree of Doctor of Education
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ABSTRACT

The purpose of this study was to determine the immediate and long term impact of participation in the 2009 Third Grade Summer Reading Camp, as well as determine the cost-effectiveness of providing this program in comparison to the cost-effectiveness of other reading interventions as identified by Yeh (2010). All students in this study scored an achievement level one on the 2009 FCAT Reading assessment and either attended the summer reading camp or received a good cause exemption for promotion to the next grade level. Data was not available to determine immediate impact of summer school. To determine long term impact of summer school participation, 130 students who attended the program and passed were compared to a random sample of 130 students who received another good cause exemption. Results of an independent t-test indicated students who passed summer school by performing at or above the 50th percentile on the alternative assessment outperformed students who received another good cause exemption on the 2010 FCAT Reading assessment, $t(258) = -9.50, p = .000$, effect size $r = 0.51$, and 2011 FCAT Reading assessment, $t(258) = -7.43, p = .000$, effect size $r = 0.42$. Ninety percent of students who attended summer school and passed the alternative assessment for promotion made learning gains on the following year's FCAT Reading assessment; however, the majority of students performed below grade level on the 2010 and 2011 FCAT Reading assessment.

Based on school district records for the cost of salaries, benefits, transportation, materials, and supplies, the total cost of summer school was calculated and adjusted for

inflation to 2006 dollars so a comparison could be made to Yeh's (2010) cost-effectiveness analysis of summer school and other reading interventions that annualized the cost to 2006 dollars. The adjusted cost for the 2009 summer reading program was calculated at \$872,681.23. Using this number and dividing by the total number of summer school student, which were 3,012 students, the cost per student annualized to 2006 was \$289.74. Data to determine the immediate impact of summer school were not available, therefore, student performance on the 2009 FCAT Reading assessment was compared to their performance on the 2010 FCAT Reading assessment by calculating a paired samples t-test, $t(1225) = 40.82$, $p = .000$, $d = 1.23$, effect size $r = 0.52$. The effect size d was divided by the cost per student which calculated an effectiveness-cost ratio of 0.004245 compared to that derived by Yeh (2010) of 0.000125. Caution should be taken when interpreting these results as methodology was not in alignment to Yeh (2010) due to the lack of an immediate post-test measure after participation in summer school and an additional year of interventions and education is reflected in the test scores. The cost per student was calculated to be \$1,225.26 less than the amount of money reported in Yeh's (2010) calculations. Based on this information, the diminishing effect of the summer school program on student reading performance in subsequent years, and the majority of students performing below grade level one and two years after summer school participation, it cannot be determined that this program is cost-effective in raising student reading achievement.

It is recommended that this study be replicated with adjustments made to address the limitations identified. Further investigation should be made at the state level to

determine if the current practice of good cause exemptions and summer school offerings perpetuates the achievement gap in reading.

This field study is dedicated to my husband, Marty. Thank you for your love and support through this process. You survived too! Also, to my father and mother, William and Linda Conklin, who instilled in me the value of education.

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CHAPTER ONE: INTRODUCTION

Background of the Study

In the era of high stakes accountability students face possible retention within a grade level when they do not demonstrate proficiency on end-of-year assessments. To address this concern, school districts are utilizing summer school for remediation of low-achieving students (Paris et al., 2004). Summer school has served many educational and societal purposes throughout its inception (Cooper, Charlton, Valentine, & Muhlenbruck, 2000). In 2001, Borman noted that summer school offerings had doubled within the past 25 years, with 60% utilizing their programs to end social promotion and 80% retaining students who do not successfully complete summer school. However, the effects of summer school remedial programs are mixed (Cooper et al., 2000).

Cooper et al. (2000) conducted a meta-analysis of 93 summer school programs and made the following conclusions from all of the studies reviewed (a) students participating in a remedial summer program could have a fifth of a standard deviation increase in their performance over the control group, (b) summer programs with a goal of acceleration or multiple outcome goals have a positive effect similar to remedial programs, (c) middle-class students have a greater positive effect than disadvantaged students, (d) the smaller the scale of the summer remedial program the greater the effect size, and (f) programs that offer individualized and small group instruction had the greatest impact.

Roderick, Jacob, & Bryk (2004) studied Chicago Public School's Summer Bridge Program implemented in 1996, in which students were required to attend after third, sixth, and eighth grade if they did not meet a predetermined score on the Iowa Test of Basic Skills (ITBS). The results indicated that students did make gains across all ethnic categories; however, there were questions regarding sustained learning gains. The authors noted the students, who participated in the 1997 Summer Bridge program, "... maintained learning gains, on average, over 2 years. These students continued to have lower-than-average learning growth during the school year" (p. 99).

Portz (2004) studied students participating in the Boston Public Schools Transition Services Program during the summers of 2000 and 2001. This program was mandatory for students who failed to meet grade level promotion standards in grades 2, 3, 5, 6, 8, and 9. This program operated 4 days per week, 4 hours a day over 5 weeks. One thousand one hundred sixty eight third grade students participated in 2000. Of those, 66% of participating students were promoted after the 2000 summer school program and 34% were retained. In 2001, 68% of all students participating in the summer program were promoted to the next grade level.

Paris et al. (2004) evaluated summer programs throughout six school districts in the state of Michigan in 1999. From their analysis, they determined that participation provided a "buffer" to the summer learning loss but students did not outperform nonparticipants in the spring of 2000.

Borman & Dowling (2006) studied the long term effects of participation in the multi-year Teach Baltimore summer program. Based on their results, students who

participated for two summers began school the following year 0.5 standard deviations higher than similar performing peers who did not participate in the program.

The final study under consideration was conducted by Schacter & Jo (2005) on a seven week summer reading camp for first grade students who came from economically disadvantaged homes. They monitored the effects immediately following the program, as well as, three and nine months after participating. Their findings indicated, that compared to students who did not participate in the program, those who did participate, had a 41% increase in their post test scores for comprehension immediately after the program and "... maintained a 39% advantage for three months, and at the end of the year were performing 18% better than controls" (p. 166). However, gains in decoding were not sustained one year later.

Fairchild, Smink, & Stewart (2009) indicated that 35 states have statutes or administrative codes with policies for summer remediation and twelve of those states offer summer remediation programs for students not scoring as a proficient reader. Within the state of Florida, third grade students must pass the Florida Comprehensive Assessment Test (FCAT) in reading or face retention (Student Progression, 2011). Florida State Statute 1008.25 outlines grade level promotion requirements, which includes demonstrating proficiency in reading by the end of third grade (Student Progression, 2011). A minimum number of possible exemptions to mandatory retention, including demonstrating grade level competencies in reading on an alternative assessment are outlined (Student Progression, 2011). Priority for funding allocations for remedial

and supplemental instruction are to first be spent on students who have not demonstrated proficiency in reading (Student Progression, 2011).

To meet requirements outlined in this statute, a large urban school district in Central Florida provides summer reading camp to third grade students who do not meet proficiency in reading based on the FCAT by scoring an achievement level one. At the conclusion of the program, students are assessed with the Iowa Test of Basic Skills (ITBS), which is used as the alternative assessment for exemption of mandatory retention.

Research studies regarding summer school do not generally provide a cost analysis (Kim & White, 2011). Sloan McCombs et al. (2011) indicated that the cost of summer school can range from \$1,109-\$2,801 per student for a quality summer program. Klibanoff and Haggart (1981) noted based on their review of certain summer programs, the intensity of the summer school intervention was not enough to "... expect much effectiveness and/or cost/effectiveness" (p. 84).

Yeh (2010) researched the cost-effectiveness of twenty-two different instructional approaches aimed at increasing reading and math achievement. Utilizing the median effect size identified by the meta-analysis conducted by Cooper et al. (2000) of 0.19, and the cost of \$1,515 per student identified by Borman and Dowling (2006) in their study of the Teach Baltimore program, the effectiveness-cost ratio of summer school was identified as 0.000125. This placed summer school as 9th on the list of approaches identified by Yeh (2010) to raise student achievement in reading.

Statement of the Problem

Currently, there is no research on the effectiveness of participating in the reading camp provided by the school district on improving reading proficiency and no analysis has been conducted to determine the cost-effectiveness of providing this intervention. This study laid the foundation for further reading intervention research within this school district in order to determine the most effective reading intervention for the cost.

Purpose of the Study

The purpose of this study was to determine what effect participation in the third grade summer reading camp had on student achievement in reading immediately following participation in the 2009 program based on ITBS scores, as well as, one and two years after attendance based on FCAT Reading Developmental Scale Score (DSS). Another purpose of this study was to provide an effectiveness-cost ratio for providing the program to third grade students who scored an achievement level one on the FCAT Reading assessment. Analyses from this study allowed for the identification and creation of recommendations that will assist in the improvement of reading interventions for students enrolled in the school district.

Significance of the Study

The significance of this study was to increase student reading achievement outcomes for the students who attended the third grade summer reading camp offered by

the school district and to determine the cost-effectiveness of providing this intervention. Conducting this study added to the current body of literature on the effectiveness of summer reading programs. This study provided a cost-effective analysis to add to the current body of literature on the cost-effectiveness of summer reading programs. This will allow districts that have programs structured similarly to this program, and who have similar demographics, to make educated decisions about the programs their district offers.

Cooper et al. (2000) identified in their conclusion three out of four analyses which indicated that as time elapsed, there was diminishing effects of summer school participation; however, they cautioned using this as a blanket statement because of the influence of confounding variables such as nonparticipants accessing similar programs during the school year and discrepancies in matching participants and nonparticipants. This current study identified the pattern the summer school program had on student achievement for those who participated in 2009.

Another aspect identified by current research is the limited amount of information on the effectiveness-cost ratio of summer school programs (Kim & White, 2011). This study identified the effectiveness-cost ratio of providing the current prescribed summer school reading program.

Definition of Terms

Achievement Level: Achievement levels range from 1 (lowest) to 5 (highest) (Florida Department of Education, 2009). An achievement level 3 is considered to be on grade level. Each achievement level is linked to a DSS or FCAT Equivalent DSS range (Florida Department of Education, 2009). For example, achievement level one for third grade students consists of all DSS and FCAT Equivalent DSS scores between 86-1045 (Florida Department of Education, 2009 & Florida Department of Education, 2011). Students who score an achievement level one on the third grade reading FCAT must repeat third grade if they do not meet the requirements of a good cause exemption (Student Progression, 2011).

Cost-Effectiveness Analysis: Cost-effectiveness refers to comparing the cost of a program with its measured effectiveness on producing a particular result and comparing the effectiveness-cost ratio of the program to other programs with the same objective (Levin, 1983).

Cost of summer school: The total cost of summer school was derived utilizing the cost of teacher salaries, benefits, program materials, and transportation.

Developmental Scale Score (DSS): FCAT scores are reported as a DSS (Florida Department of Education, 2009). DSS ranges from 86-3008 across all grades assessed (Florida Department of Education, 2009). This allows for the measurement of achievement over time (Florida Department of Education, 2009).

Effect size: Many research studies report effect size to determine how meaningful the difference is between groups. Based on the research studies reviewed in this paper,

studies report a Cohen's d for effect size. A small effect size is considered less than 0.20, a medium effect size is 0.50, and a large effect size is 0.80 or greater (Steinberg, 2011). Effect size r is also reported in this study. A small effect size is considered less than 0.25, a medium effect size is considered between 0.25 and 0.40, and a large effect size is larger than 0.40 (Steinberg, 2011).

Florida Comprehensive Assessment Test (FCAT): The FCAT is a criterion-referenced multiple-choice test that assesses mastery of the Sunshine State Standards (Florida Department of Education, 2009).

Florida Comprehensive Assessment Test 2.0 (FCAT 2.0): FCAT 2.0 is a criterion-referenced multiple-choice test administered in 2011 to assess mastery of the Next Generation Sunshine State Standards (Florida Department of Education, 2011). Throughout this study FCAT will be used to represent FCAT and FCAT 2.0 (Florida Department of Education, 2011).

FCAT Equivalent Developmental Scale Score (FCAT Equivalent DSS): FCAT Equivalent DSS is also referred to as the FCAT Equivalent Score (Florida Department of Education, 2011). The FCAT Equivalent DSS is the developmental scale score reported on the FCAT 2.0 which ranges from 86-3008 (Florida Department of Education, 2011). This allows for the measurement of achievement over time (Florida Department of Education, 2011). The FCAT Equivalent DSS score is matched to the DSS score on the original FCAT scale (Florida Department of Education, 2011). Throughout this study the term FCAT DSS refers to FCAT DSS reported on the original scale and FCAT Equivalent DSS.

Good Cause Exemption: A provision within Florida Statute § 1008.25 that allows students who score an achievement level one on the FCAT Reading assessment to be promoted to the next grade level (Student Progression, 2011). Good cause exemptions outlined by this statute include: students identified as Limited English Proficient and who have received instruction in English for Speakers of Other Languages for less than two years (A1 exemption), students with disabilities who meet exemption criteria to participate in the FCAT (A2 exemption), students who demonstrate mastery of the state standards on an alternate assessment (A3 exemption), students who demonstrate mastery of state standards through a portfolio (A4 exemption), students with disabilities who have already been retained (A5 exemption), and students who have been retained more than two years (A6 exception) (Student Progression, 2011).

Iowa Test of Basic Skills (ITBS): The ITBS is a norm-referenced test administered as the alternative assessment for FCAT in order for students to receive a good cause exemption. This test is administered at the conclusion of summer school. Students who score at or above the 50th percentile meet requirements for a good cause exemption (A3) and are promoted to the next grade level (Orange County Public Schools, 2009).

Learning Gains: Learning gains are obtained if a student increases an achievement level from one year to the next, maintains an achievement level of 3, 4, or 5 from one year to the next, or increases a predetermined point value on the DSS within levels 1 or 2 to constitute one year's worth of growth (Florida Department of Education, 2009 & Florida Department of Education 2011). In 2010, an increase of 230 points was

needed to equal one year's worth of growth and in 2011, 166 points was needed (Florida Department of Education, 2010 & Florida Department of Education, 2011).

Passing Summer School: An exemption is not received for passing summer school. However, at the conclusion of summer school students participate in an alternative assessment. If students pass the alternative assessment, they are promoted to the next grade level with an A3 exemption. For the purpose of this study, students who meet these criteria are considered to have passed summer school.

School district: The school district in this study is a high-performing, large, urban district in Central Florida. In 2009, there were 175,363 students enrolled with 64% White, 32% Hispanic, 28% Black, 4% Asian, 3% Multiracial, and 1% American Indian/Alaska Native. The student population represented 212 countries and 166 languages within 180 schools (Pocket Facts, 2009).

Third Grade Reading Camp (Summer School): Students who score an achievement level one on the third grade reading FCAT are provided with a research-based reading summer program. At the conclusion of the program, students are assessed with the ITBS to determine if they may be promoted to the next grade level with an A3 exemption (Orange County Public Schools, 2009).

Conceptual Framework

The conceptual framework supporting this study is rooted in the purpose of summer school. Cooper et al. (2000) indicated summer programs for remediation fall

within four categories. The categories identified by Cooper et al. (2000) include: (a) to provide an opportunity for students to meet requirements for graduation or placement into the subsequent grade level; (b) to provide an opportunity to pass failed coursework; (c) to provide Free Appropriate Public Education (FAPE) for students with disabilities; and, (d) to provide students from disadvantaged families high-quality supplemental services to avoid summer learning loss.

Cooper et al. (2000) predicted a continued rise in summer programs being offered for multiple reasons. These reasons include noted changes in family structures, the need to compete globally, and to meet the required proficiency levels on increased educational standards.

Levin (1984) observed the movement to reform education has identified costly programs that could easily deplete the resources of a state or local schools with programs where one would have to guess at the expected effectiveness. Applying the concept of cost-analysis to the field of education; Levin (1983) states that politicians, administrators, and program evaluators can choose programs that will produce the best outcome for the financial resources available. Possible cost analysis techniques include cost-effectiveness, cost-benefit, cost-utility and cost-feasibility (Levin, 1983).

Levin (1983) further provides descriptions of each form of analysis. Cost-feasibility refers to estimating the total cost of a program and if it is determined to be outside budgetary constraints, one does not implement that program. While cost is taken into account, the effectiveness of the program is not. Cost-utility refers to the comparison of the program cost to the estimated value of the results (Levin, 1983). Levin (1983)

notes this process has a high rate of subjectivity due to estimating the value of the results. Cost-benefit refers to the comparison of the cost of a program with its benefit expressed in monetary terms. The disadvantage of this form of analysis is the difficulty on placing a monetary value on such outcomes as student achievement or learning gains. The final form of cost-analysis reviewed is cost-effectiveness. Cost-effectiveness refers to comparing the cost of a program with its measured effectiveness on producing a particular result and comparing the cost-effectiveness of the program to other programs with the same objective (Levin, 1983).

In order to determine the cost utilized in cost-analysis, Levin (1988) suggests the use of an ingredients-method in which all of the resources utilized to implement the intervention are the ingredients of the cost in providing the intervention. Resources to consider in addition to the materials of the intervention program include teacher salaries, transportation, facilities, utilities, and technology used in implementation.

Research Questions and Hypotheses

These research questions were developed based on consultation with representatives from the school district to address the effectiveness of the third grade reading summer camp program offered and to determine if it is the best intervention to provide students for the cost.

Research Question 1

To what extent do students demonstrate a difference in proficiency on third grade reading skills following summer school participation as identified by utilizing FCAT reading scores as a pretest and ITBS scores as the post-test?

Hypothesis 1

Students participating in summer school will show a difference in reading proficiency at the conclusion of summer school.

Research Question 2

To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

Hypothesis 2

Students who participated in the summer reading program will show a difference in reading Developmental Scale Score based on the 2010 and 2011 FCAT test administration compared to students who did not participate but were promoted with a good cause exemption.

Research Question 3

To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended the 2009 summer reading camp and passed compared to those who scored an achievement level two or higher and did not attend summer school?

Hypothesis 3

There will be a difference in Developmental Sale Scores for reading on the 2010 and 2011 FCAT test administrations between students who scored an achievement level one and attended summer school in 2009 compared to those who scored an achievement level two or higher on the FCAT and did not attend summer school.

Research Question 4

What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

Hypothesis 4

There will be a difference in cost-effectiveness compared to other programs identified by Yeh (2010) that are utilized to increase reading achievement.

Variables

The independent variable identified for questions 1-3 within this study is the prescribed curriculum for the third grade summer reading camp. The dependent variable to determine the immediate impact of summer school participation on student reading achievement was the ITBS scores. The dependent variable, to determine the long term impact of summer school on student reading achievement was the FCAT Reading DSS for 2010 and 2011.

For the final question of cost versus effectiveness, the independent variable is the cost of providing summer school per student and the dependent variable is the effectiveness of the summer program. The effectiveness of the program was determined based on FCAT and ITBS scores utilized to measure student reading achievement. However, ITBS scores were not available from the school district; therefore, 2010 FCAT Reading DSS was used to calculate the effect size of summer school on reading achievement. Cost was determined based on the school district's records of the value of the needed requirements that encompassed this intervention. These inputs included salaries, benefits, materials, supplies, and transportation.

The formula for determining the cost-effectiveness ratio was in alignment to Yeh (2010) in which the effect size of the program is divided by the total cost per student for program implementation. For example, Yeh (2010) reviewed a study in which the use of Rapid Assessment in reading produced an overall effect size of 0.27 at a total cost of \$9.45 per student. This produced an effectiveness-cost ratio of 0.028571 in reading. This effectiveness-cost ratio was compared to the effectiveness-cost ratios of other

interventions designed to increase reading achievement (Yeh, 2010). Yeh (2010) annualized all costs to 2006. To provide as close of a comparison to Yeh's 2010 study as possible, the cost for the 2009 summer school program was annualized to 2006 utilizing the Consumer Price Index Inflation Calculator provided by the United States Department of Labor.

Limitations

Due to the fact this research study was conducted utilizing historical data; there are extraneous variables that have impacted the results of the study. These variables included (a) amount of teacher planning time, (b) resources received on time, (c) teacher implementation of the program, (d) student attendance, (e) student motivation, (f) parental support, (g) tutoring in addition to summer school, (h) educational resources provided by the family at home, and, (i) accuracy of student and program records stored by the district. All records received from the school district regarding students who participated in summer school and those who received good cause exemptions were received in hard copy form in a binder without student numbers. Many of the records were hand written making it hard to read the names. Other names had holes through them in order to place the paperwork in a binder, which made the name unable to be read. During the process of matching student names to student numbers, a database of 49,000 student names and numbers were reviewed. No other identifier, such as grade level, was included in the database. Multiple students were discovered to have the same name

which made matching student numbers difficult. There were also many spelling errors in the hand written records which also proved to make matching student data difficult.

Limitations due to the structure of this study included (a) FCAT Reading assessment being utilized as the pretest for summer school due to the time elapsing between the test administration and the beginning of summer school, (b) FCAT Reading assessment being utilized as the pretest and ITBS as the post-test for summer school because each test measures skills differently, (c) rigor of state standards changed from Sunshine State Standards to Next Generation Sunshine State Standards in 2011, (d) FCAT and FCAT 2.0 are different assessments which measure different standards, (e) results of this study may only be generalized to districts with similar demographics and similar summer school programs, and, (e) since ITBS scores were not available to be utilized as a post-test measure, 2010 FCAT Reading assessment scores were utilized which does not exclude the impact of an additional year of interventions and education. The process employed for this study does not match the process utilized in the studies reviewed by Cooper et al. (2000) which calculated effect size was used by Yeh (2010) to derive the effectiveness-cost ratio for summer school. The structure of the summer program and the data maintained did not allow for this matching. Therefore, caution should be used in interpreting these results in comparison to Yeh's effectiveness-cost ratios.

Delimitations

Participation in this study was restricted to third grade students who were enrolled in the school district during the 2008-2009 school year, remained in the district for the 2009-2010 school year for fourth grade and the 2010-2011 school year for fifth grade, and participated in both FCAT administrations. No students within the samples for research question two and three were retained during these school years.

Methods

FCAT Reading and ITBS test data were collected from all third grade students who participated in the third grade summer reading camp during the summer of 2009. Students who attended and passed the summer reading program by scoring at or above the 50th percentile on the ITBS received a good cause promotion to fourth grade. All summer school participants whose data were available were used in the data analysis for question one. Only students who passed the summer reading program and who had FCAT Reading assessment data for the 2010 and 2011 test administrations were utilized for the quantitative analysis for questions two and three of this study. This was a total of 130 students.

The comparison group for question two was derived from a random sample of 130 students who scored an achievement level one on the 2009 FCAT Reading assessment and who did not attend summer school but received a good cause promotion

for the 2009-2010 school year. All students in the sample had FCAT Reading scores for the 2010 and 2011 test administrations.

The comparison group for question three was a random sample of 130 students from all students who participated in the 2009 FCAT Reading test administration who passed the FCAT Reading assessment with a score at or above an achievement level two. All students in the sample had FCAT Reading scores for the 2010 and 2011 test administrations.

The 2009 FCAT Reading assessment and ITBS scores were utilized to determine the immediate impact summer school had on student achievement in reading. The 2009 FCAT Reading assessment was administered in March of 2009 and was utilized as the pretest for summer school participants. The ITBS was administered at the conclusion of the summer reading program in July of 2009. The ITBS scores were utilized as the post-test for summer school. To determine the long term impact of summer school on student achievement one and two years later, FCAT Reading scores for the experimental and comparison groups from the 2009 administration were compared to FCAT Reading scores from the 2010 and 2011 test administrations.

Effectiveness-cost ratios alone do not provide sufficient data for decision making. As expressed in Levin (1988) and Hummel-Rossi & Ashdown (2002), effectiveness-cost ratios must be compared to those of alternative interventions in order to derive meaning. Therefore, at the conclusion of this study, the effectiveness-cost ratio of the summer reading program was compared to the effectiveness-cost ratios of 22 reading interventions obtained by Yeh (2010).

Data collection for the group of students who participated in summer school was as follows:

1. In March 2009, the FCAT Reading assessment was administered. This was utilized as the pretest for summer school for this study.
2. Students participated in the prescribed summer school curriculum if they scored an achievement level one on the FCAT Reading assessment.
3. In July 2009, the ITBS was administered and was utilized as the post-test for summer school for this study.
4. In March 2010 and April 2011, the FCAT Reading assessment was administered to all students.
5. In September of 2012, student data were requested of students who participated in the 2009 summer program. This information was provided in late October in hard copy form and did not include student numbers. An SPSS database of the student names that had been received in hard copy was sent to the district with a request for the 2009, 2010, and 2011 FCAT Reading assessment data and 2009 ITBS scores. The district requested student numbers to identify students so assessment data could be retrieved and sent the researcher a database of 49,000 students to look-up student numbers. Student numbers were matched and returned to the district in November 2012. In the later part of December 2012, an SPSS file with de-identified student records were received with only FCAT Reading assessment information. Multiple attempts were made to receive ITBS scores. When a request for data

for an alternative test was made, the district shared ITBS scores were requested from the test publisher. At the time of this writing, scores had not been received. In March 2013, methodology was changed to allow for analysis of the research questions that utilized this data. Original methodology, as well as, amended methodology is presented in this paper.

6. All students with complete assessment data were utilized in the data analysis.

Data collection for the comparison groups in questions two and three was as follows:

1. In March 2009, 2010 and April 2011 the FCAT Reading assessment was administered to all students.
2. In September 2012, student names were requested of students who received good cause exemptions for the 2009-2010 school year. Records were received in hard copy form without student numbers. The district requested student numbers to identify students so assessment data could be retrieved and sent the researcher a database of 49,000 students to look-up student numbers. Student numbers were matched and returned to the district in November 2012. In the later part of December 2012, an SPSS file with de-identified student records were received with 2009, 2010, and 2011 FCAT Reading assessment data. Student records for those who scored a level 2 or above were also requested for the same years. The district shared the researcher would have to provide the names or student numbers so that records could be matched and FCAT Reading assessment data retrieved. The researcher did not have access

to a list of names of students who passed the 2009 FCAT Reading assessment to draw a random sample; therefore, data could not be retrieved for this group.

3. A random sample of 130 students who received a good cause exemption was drawn from useable data. A random sample of 130 students who passed the FCAT Reading assessment was to have been drawn from useable data if received. Useable data was determined to be student records with complete assessment data for 2009, 2010, and 2011 school years.
4. Budget summary reports and records of materials purchased for the third grade reading camp were obtained from the budget and curriculum departments. Utilizing this number, the cost of third grade summer reading camp was divided by the total number of students who participated in summer school to determine the cost per student for the program.

To determine the immediate impact of summer school on student achievement, a Mann-Whitney U test was conducted to compare the change in median scores between the FCAT Reading assessment and ITBS utilizing SPSS. This statistical analysis was chosen because scores for the FCAT are reported as DSS and ITBS are reported as percentiles which are different scales. All student participants in summer school scored an achievement level one on the 2009 FCAT Reading assessment. Passing the ITBS is considered to be any score at or above the 50th percentile. An effect size is calculated from the Mann-Whitney U test by dividing the U statistic derived from SPSS by the product of the total number of participants in each group (Erceg-Hurn & Mirosevich, 2008). The effect size of the Mann Whitney U is known as the probability of superiority

(PS) (Erceg-Hurn & Mirosevich, 2008). This calculation of effect size can be compared to a Cohen's d with Cohen's $d = 0$ is the same as $PS = 0.50$ (Erceg-Hurn & Mirosevich, 2008). This allows us to determine the significance of the change in the median scores. This effect size will be utilized in the calculations for the cost-effectiveness analysis.

To determine the effects passing summer school had on the reading FCAT DSS one and two years after attendance compared to students who received a good cause exemption without attending summer school, a t-test with independent samples was conducted. To determine the impact passing summer school had on the reading FCAT DSS one and two years after attendance compared to students who passed the FCAT Reading assessment, a t-test with independent samples was conducted.

To determine the effectiveness-cost ratio of participating in the summer school program, the effect size was divided by the cost per student. Since ITBS scores were not obtained for analysis of this question, a paired-samples t-test was conducted utilizing 2009 FCAT Reading DSS as the pretest and 2010 FCAT Reading DSS as the post-test measure. From this analysis, a Cohen's d was calculated. Yeh (2010) calculated the effectiveness-cost ratio of 22 interventions utilized to raise reading and math achievement. The results of this study were compared to the effectiveness-cost ratio of the reading interventions reviewed by Yeh (2010).

Organization of the Study

Chapter One included background information, problem statement, purpose and significance of the study, definition of terms, conceptual framework, research questions and hypotheses, limitations, delimitations, and an overview of the methodology.

There are an additional four chapters presented in this research study. Chapter Two includes the review of the literature. Chapter Three further defines the methodology of this study. Chapter Four presents the findings and data analysis. Chapter Five presents a summary, discussion, and conclusions of the research.

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Third grade students who are not proficient in reading have a four times greater chance of dropping out of high school than third grade students who demonstrate proficiency in reading (Rose & Schimke, 2012). To address this dire consequence for non-proficient readers, thirty-two states have developed statutes with the intent to increase reading proficiency for students in third grade, with fourteen states enacting their policies during 2012 (Rose, 2012). The focus of the states' policies was to outline identification procedures through assessment and the requirement to provide remedial interventions (Rose, 2012).

Rose (2012) found twenty-nine states and the District of Columbia have policies in place to offer interventions or remediation for students not proficient in reading, with six states requiring summer school as an intervention, eleven states and the District of Columbia recommending summer school as an intervention, and seven states allowing retention if students did not participate in a reading intervention, such as summer school, prior to their fourth grade year. With the prevalence of policies related to reading proficiency and the increased offerings of summer school as an intervention, Borman (2000) posed the following question more than a decade ago, but is relevant to ask today, "What are the longitudinal effects of single-year programs?"

Fourteen states have mandatory retention for students who score below proficiency levels on their state's assessment; however, eight states allow exemptions

from retention for students who demonstrate proficiency in reading on an alternate assessment (Rose, 2012). Eleven states allow for exemptions for students with disabilities; seven states allow exemptions for students identified as English Language Learners; five states allow exemptions for students who have been previously retained once and three states have exemptions for students previously retained twice; four states allow exemptions based on principal or teacher recommendation; and one state allows a placement committee to determine exemption (Rose, 2012).

With the increased expense of many programs within education, stakeholders want confirmation the programs result in increased student achievement (Hummel-Rossi & Ashdown, 2002). However, research studies regarding summer school generally do not provide a cost analysis of the program (Kim & White, 2011).

This research study sought to determine the effect participation in the third grade summer reading camp had on student achievement in reading immediately following participation in the program, as well as, one and two years after attendance. Another purpose of this study was to derive an effectiveness-cost ratio for providing the program to third grade students who scored an achievement level one on the FCAT Reading assessment.

This chapter lays the foundation for this study by exploring the historical and present purpose of summer school, Florida's statute on student progression, current research on summer school programs, a description of the school district's summer school program with good cause exemptions received by the students, and the need to conduct cost-effectiveness analysis in education for intervention programs.

Purpose of Summer School

Summer school has served many educational and societal purposes (Cooper et al., 2000). Summer school began in the early 1900's primarily to provide recreational activities for students (Austin, Rogers, & Walbesser, 1972). In 1956, New York City implemented Demonstration Guidance Project which included a remediation component (Austin et al., 1972). In the 1960's, Title I funding was used for summer learning opportunities for children from low socioeconomic backgrounds in hopes of ending the poverty cycle (Cooper et al., 2000). Prior to the use of Title I funding for summer school, parents paid for summer services (Austin et al., 1972). In 1994, the Elementary and Secondary Education Act was reauthorized and addressed the need for programs to close the gap in student performance between rich and poor which could include additional instruction outside of the traditional school day (Cooper et al., 2000). Cooper et al. (2000) explained summer school was also seen as a vehicle to provide enrichment opportunities, allow student to accumulate credits for graduation at an increased rate, and provide teachers not only extra income, but a chance to refine instructional practices.

Cooper et al. (2000) indicated summer programs for remediation fall within four categories. The categories identified by Cooper et al. (2000) include: (a) to provide an opportunity for students to meet requirements for graduation or placement into the subsequent grade level; (b) to provide an opportunity to pass failed coursework; (c) to provide Free Appropriate Public Education (FAPE) for students with disabilities; and, (d) to provide students from disadvantaged families high-quality supplemental services to avoid summer learning loss.

Cooper et al. (2000) predicts a continued rise in summer programs offered for multiple reasons. These reasons include noted changes in family structures, the need to compete globally, and to meet the required proficiency levels on increased educational standards.

Florida Statute § 1008.25

In 2002, Florida implemented FS §1008.25 which outlined student progression from third to fourth grade is dependent upon a score at an achievement level two or higher on the FCAT Reading assessment (Office of Program Analysis & Government Accountability, 2006). Students who score an achievement level one are retained in third grade unless they meet one of six good cause exemptions (Office of Program Analysis & Government Accountability, 2006). If students are retained, they must be allowed to attend the district's summer reading camp (Office of Program Analysis & Government Accountability, 2006). Good cause exemptions outlined by this statute includes: students identified as Limited English Proficient and who have received instruction in English for Speakers of Other Languages for less than two years (A1 exemption); students with disabilities who meet exemption criteria to participate in the FCAT (A2 exemption); students who demonstrate mastery of the state standards on an alternate assessment (A3 exemption); students who demonstrate mastery of state standards through a portfolio (A4 exemption); students with disabilities who have already

been retained (A5 exemption); and, students who have been retained more than two years (A6 exception) (Student Progression, 2011).

Good Cause Exemptions

The Office of Program Analysis & Government Accountability (2006) reported, “Many students scoring at a level 1 are promoted for one of six statutorily defined ‘good cause’ exemptions. The subsequent performance of these students is generally lower than that of retained level 1 students” (p.1). The Office of Program Analysis & Government Accountability (2006) findings indicated “...students who were promoted, based on an alternative assessment or a portfolio, also improved their performance in subsequent years. Level 1 students who were promoted because of other good cause exemptions were less likely to improve their performance” (p. 3).

During the 2002-2003 school year, 34% of level 1 students in Florida received good cause exemptions from retention (Office of Program Analysis & Government Accountability, 2006). In 2003-2004, this percentage increased to 43% of level 1 students, with 19% of students receiving an exemption based on passing an alternative assessment (Office of Program Analysis & Government Accountability, 2006). Based on 2002-2003 data, 70% of students who were promoted to fourth grade based on demonstrating reading proficiency on an alternative assessment (N = 2,611), scored at or above a level 2 on the following year’s FCAT Reading assessment, with 34% scoring at a

level 2 and 36% scoring a level 3 or above (Office of Program Analysis & Government Accountability, 2006).

Current Research

In the era of high stakes accountability students face possible retention within a grade level when they do not demonstrate proficiency on end-of-year assessments. To address this concern, school districts are utilizing summer school for remediation of low-achieving students (Paris et al., 2004). However, the effects of summer school remedial programs are mixed (Cooper et al., 2000).

One of the leading studies conducted on the effectiveness of summer school programs was conducted by Cooper et al. (2000) who gathered data on 93 summer school studies for programs offered to students in Kindergarten through 12th grade with goals for remediation, promotion, acceleration, and multiple goals other than remediation or acceleration. Their results indicated the weighted effect size across all studies considered was 0.26 with a median effect size of 0.19 (Cooper et al., 2000). However, effect sizes varied based on student and program characteristics (Cooper et al., 2000). As identified by Cohen (as cited by Steinberg, 2011) a small effect size is considered less than 0.20, a medium effect size is 0.50, and a large effect size is 0.80 or greater.

Cooper et al. (2000) made the following conclusions from all of the studies reviewed: students participating in a remedial summer program could have a fifth of a standard deviation increase in their performance over the control group; summer

programs with a goal of acceleration or multiple outcome goals have a positive effect similar to remedial programs; middle-class students have a greater positive effect than disadvantaged students; the smaller the scale of the summer remedial program, the greater the effect size; and, programs that offer individualized and small group instruction had the greatest impact.

Cooper et al. (2000) identified in their conclusion three out of four analyses indicated that as time elapsed, there was diminishing effects of summer school participation; however, they cautioned using this as a blanket statement because of the influence of confounding variables, such as, nonparticipants accessing similar programs during the school year and discrepancies in matching participants and nonparticipants.

Luftig (2003) studied the impact of two summer programs, which ranged in length between two and three weeks. One program was conducted by a school district and one program was conducted by a for-profit organization. He then analyzed the programs' impact on reading achievement of economically disadvantaged at-risk students in grades two through four. Luftig (2003) also reviewed the impact of a two to three week long program provided by the school district to at-risk first grade students who were economically disadvantaged. All student groups were compared to students who did not participate in a reading intervention program during the summer (Luftig, 2003). The school district program provided small group tutoring (4 students to 1 teacher) using the district-wide reading program which focused on phonics and did not utilize computers (Luftig, 2003). The for-profit program focused on small group and individual instruction and utilized computers (Luftig, 2003).

First grade students participating in the district provided program demonstrated greater gains in reading achievement over the control group, with a 12.5% increase in phonological skills, 1.6% increase in letter sounds, 10.7% increase in storytelling, and a 22.5% increase in story comprehension (Luftig, 2003). For second through fourth grade students, there was little difference in the average gains of students participating in the two interventions. A 3.56 month gain was seen for those participating in the school district's program versus a 3.26 month gain for those participating in the for-profit program even though students participating in the for-profit program received more instructional time (Luftig, 2003). The control group lost on average -0.09 months of reading skills (Luftig, 2003).

Roderick, Jacob, & Bryk (2004), studied Chicago Public School's Summer Bridge Program implemented in 1996, which students were required to attend after third, sixth, and eighth grade if they did not meet a predetermined score on the Iowa Test of Basic Skills (ITBS). Students attended school 3 hours a day for 6 weeks for remediation (Roderick et al., 2004). Class sizes consisted of approximately 16 students who participated in a structured district developed curriculum aligned to the ITBS (Roderick et al., 2004). Program implementation was monitored (Roderick et al., 2004). Teachers were given daily lesson plans and all materials (Roderick et al., 2004). Over the 3 year study, third grade students performed inconsistently and had a smaller effect size than other grade levels studied, with an effect size of 0.30 during the summer of 1997, an effect size of 0.13 during the summer of 1998, and an effect size of 0.23 during the summer of 1999 (Roderick et al., 2004). These results are similar to those found in

previous summer school studies (Roderick et al., 2004). The results indicated among all grade levels studied (third, sixth, and eighth grade), students did make gains across all ethnic categories; however, there were questions regarding sustained learning gains. The authors noted the students who participated in the 1997 Summer Bridge program, "... maintained learning gains, on average, over 2 years. These students continued to have lower-than-average learning growth during the school year" (p. 99).

Portz (2004) studied students participating in the Boston Public Schools Transition Services Program during the summers of 2000 and 2001. This program was mandatory for students who failed to meet grade level promotion standards in grades 2, 3, 5, 6, 8, and 9. This program operated 4 days per week, 4 hours a day over 5 weeks (Portz, 2004). This program also provides support throughout the school year (Portz, 2004). One thousand one hundred sixty eight third grade students participated in 2000 in which class sizes were small (median = 12 students) with opportunities for individualized instruction during the 120 minute block for English Language Arts instruction (Portz, 2004). Curriculum materials and instruction was left to the teacher to develop based on learning goals identified by the district (Portz, 2004). Of those, 66% of participating students were promoted after the 2000 summer school program and 34% were retained based on their performance using the Scholastic Reading Inventory (Portz, 2004). In 2001, 68% of all students participating in the summer program were promoted to the next grade level (Portz, 2004).

Paris et al. (2004) evaluated summer programs throughout six school districts in the state of Michigan in 1999 provided to students in Kindergarten through third grade.

The programs were 3 hours a day but varied in length from 16 to 34 days (Paris et al., 2004). From their analysis, the effect size of the summer programs was 0.33 which was higher than that found by Cooper et al. The authors determined that participation in the summer reading programs provided a “buffer” to the summer learning loss but students did not perform at a higher rate than nonparticipants the following school year (Paris et al., 2004). Characteristics of high performing programs that were studied included direct themed instruction utilizing scaffolding techniques and reading one-on-one with the classroom teacher (Paris et al., 2004).

Roberts & Nowakowski (2004) studied the effects of Voyager’s TimeWarp summer programs. The purpose of the programs was to increase students reading ability and narrow the achievement gap by providing an additional 80 hours of reading instruction over the summer (Roberts & Nowakowski, 2004). TimeWarp was created by reading specialists based on research from NASA and the University of Oregon (Roberts & Nowakowski, 2004). Students participated four hours a day over four weeks in collaborative, discovery based learning activities that integrated multiple content areas in real-world problem solving (Roberts & Nowakowski, 2004). The overall effect size of the TimeWarp Egypt program provided to second and third grade students was 0.41, with a combined effect size of 0.42 for all TimeWarp programs offered through seventh grade. The authors compare their results to Cooper et al. (2000) meta-analysis of summer programs in which the mean effect size was 0.26. The authors concluded this was a 62% increase over the effect size derived from the Cooper study.

Schacter & Jo (2005) conducted research on a seven week summer reading camp for first grade students who came from economically disadvantaged homes. This camp was conducted from July 9 until August 24, 2001 from 8:00 a.m. to 5:00 p.m., with the first two hours of the day set aside for reading instruction (Schacter & Jo, 2005). Utilizing basal readers and Open Court 2000, students were provided direct instruction in the skills of decoding, comprehension, vocabulary, and writing (Schacter & Jo, 2005). The average number of students per class was fifteen (Schacter & Jo, 2005). The researchers monitored the effects immediately following program participation, as well as, three and nine months after participating (Schacter & Jo, 2005). Schacter & Jo (2005) findings indicated, compared to students who did not participate in the program, those who did participate, had a 41% increase in their post test scores for comprehension immediately after the program and "... maintained a 39% advantage for three months, and at the end of the year were performing 18% better than controls" (p. 166). However, gains in decoding were not sustained one year later (Schacter & Jo, 2005).

Borman & Dowling (2006) studied the long term effects of participation in the multi-year Teach Baltimore summer program provided to students in high poverty. This program placed volunteer college students as instructors who participated in a three week training program prior to the seven week summer school program (Borman & Dowling, 2006). Three hours of the students' instructional day consisted of intensive instruction in phonics, vocabulary, comprehension, and writing (Borman & Dowling, 2006). The effect size of receiving this intervention over the performance of those who did not receive the intervention was 0.32 in vocabulary, 0.28 in comprehension, and 0.30 in total reading

(Borman & Dowling, 2006). Based on the results of this study, students who participated for two summers began school the following year 0.5 standard deviations higher than similar performing peers who did not participate in the program (Borman & Dowling, 2005).

Lauer et al. (2006) conducted a meta-analysis on out-of-school-time programs for students at-risk in reading and math. Of the summer school studies included in the analysis for reading, Lauer et al. (2006) derived an effect size of 0.05 compared to after school programs for reading which derived an effect size of 0.07. Lauer et al. (2006) concluded that the effect size of out-of school programs for reading had a larger effect on K-2 students (0.22) versus students in grades 3-5 (-0.03). In this meta-analysis, Lauer et al. (2006) found tutoring had one of the strongest effects but was only offered in the after school program studies reviewed while summer school programs studied included large group instruction. In their conclusion, Lauer et al. (2006) determined that when the out of school program is implemented does not influence the effectiveness of the program; therefore, factors of duration, cost, and implementation should be considered with a focus on instruction in one-on-one or small group settings.

Kubina, Commons, and Heckard (2009) reviewed a four day per week, six-week summer program targeting students who performed at or below the 25th percentile on the state assessment in first, through fourth grade. Class size for the summer program ranged from 10 to 14 with a teacher and assistant. The program utilized Reading Mastery Rainbow Editions I, II, and III as, as well as, Precision Teaching (Kubina et al., 2009). Based on the comparison of pretest and posttest measures of participants, students

increased letter sound fluency by 21.8 sounds, decoding fluency increased by 45.09 words, and reading fluency increased by 16.84 words (Kubina et al., 2009). All gains were statistically significant at $p < .0005$ level (Kubina et al., 2009). The effect size of letter sound fluency was 0.51, the effect size of decoding fluency was .60, the effect size of passage fluency was 0.40, the effect size for word identification was 0.18, the effect size for word attack skills was 0.16, and the effect size for passage comprehension was 0.25 (Kubina et al., 2009).

Zvoch and Stevens (2011) assessed the success of a summer school program offered to early elementary students who were not meeting proficiency scores on formative assessments. The program was provided for 3.5 hours per day, 4 days a week for 5 weeks with a class size of less than 20 students (Zvoch & Stevens, 2011). Whole group and small group instruction was provided focusing on phonemic awareness, alphabetic skills, and fluency utilizing Reading Mastery, Open Court, and Horizons (Zvoch & Stevens, 2011). Results indicated students gained 5.7 words per minute in fluency which was a 0.40 standard deviation difference between students who participated in the summer program compared to those who did not (Zvoch & Stevens, 2011). Long-term performance of students who participated in the summer program indicated that the students increased their fluency at a slower rate than nonparticipating peers during the following school year (Zvoch & Stevens, 2011).

Description of Summer School Program

During the 2009 third grade summer reading camp offered by the school district, there were 34 center schools that received students from all elementary schools throughout the district (Orange County Public Schools, 2009). Schools were allocated one classroom teacher for every 18 students they received (Orange County Public Schools, 2009). Schools also received one paraprofessional to assist the classroom teacher for schools with enrollment up to 80 students with 2 paraprofessionals if enrollment was above 81 students (Orange County Public Schools, 2009). Schools were also allocated one Exceptional Student Education Teacher and Speech Language Therapist for school sites with an enrollment over 40 students (Orange County Public Schools). Based on the school district's records, 3,012 students participated in the 2009 summer school program.

Teachers received one day of training for seven hours two days before the summer program began, four hours of preplanning the day before summer school began, and two and a half hours of post planning on the last day of summer school (Orange County Public Schools, 2009). Students attended school for four hours per day beginning on June 10, 2009 and ending on July 9, 2009 (Orange County Public Schools, 2009). There was one day off for teachers and students for the Fourth of July holiday (Orange County Public Schools, 2009).

The summer reading program utilized intensive, research-based activities with the goal of improving reading proficiency for students who scored an achievement level one on the FCAT (Orange County Public Schools, 2009). During the development of the

third grade summer reading camp, the school district followed the Department of Education guidelines in respect to the program structure, materials, teacher knowledge, and processes (Orange County Public Schools, 2009).

At the conclusion of the summer reading camp, students who demonstrated mastery of state standards by scoring at or above the 50th percentile on the ITBS or through the portfolio process met good cause exemption criteria to be promoted to the fourth grade (Orange County Public Schools, 2009).

An example of the instructional day included: (a) 15 minutes for whole group language activities; (b) 25 minutes of whole group reading comprehension activities; (c) 60 minutes of small group instruction segmented into 20 minutes each for teacher lead instructional reading, independent reading skills practice, and independent reading time; (d) 20 minutes of whole group vocabulary instruction; (e) 30 minutes of small group activities segmented into 10 minutes of teacher lead phonics instruction, 10 minutes of independent fluency practice, and 10 minutes of independent writing; (f) 25 minutes of whole group writing instruction; (g) 20 minutes of read aloud; and, (h) 15 minutes of test taking strategies (Orange County Public Schools, 2009).

Instruction was delivered utilizing *After the Bell* by Scholastic, which is an intensive reading intervention program that addresses phonemic awareness, phonics, fluency, vocabulary, and comprehension (Orange County Public Schools, 2009). During vocabulary instruction, *Elements of Reading: Vocabulary* by Steck Vaughn was utilized as the instructional program (Orange County Public Schools, 2009). Additional supplemental materials for students to use during independent practice were provided

(Orange County Public Schools, 2009). Teachers monitored student progress weekly through curriculum monitoring materials and Dynamic Indicators of Basic Early Literacy Skills fluency probes (Orange County Public Schools, 2009).

Assessments

The FCAT is a criterion referenced test that assesses third grade students' mastery of the Sunshine State Standards in reading and math through multiple choice questions each worth one point (Florida Department of Education, 2009). Scores are reported as achievement levels ranging from one to five, with one being the lowest achievement level (Florida Department of Education, 2009). In addition, DSS ranges are listed for each achievement level so growth from year to year can be measured (Florida Department of Education, 2009). DSS scores range from 86 to 3008 (Florida Department of Education, 2009).

The FCAT Reading assessment for third grade includes informational and literary passages for students to read and then multiple choice questions in the following areas: (a) Words and Phrases; (b) Main Idea, Plot, and Purpose; (c) Comparisons and Cause/Effect; and, (d) Reference and Research (Florida Department of Education, 2009).

The ITBS is administered as the alternative assessment for FCAT for good cause exemption at the conclusion of summer school (Orange County Public Schools, 2009). Students who score at or above the 50th percentile meet requirements for a good cause exemption and are promoted to the next grade level (Orange County Public Schools,

2009). Hoover, Hieronymus, Frisbie, and Dunbar (as cited by VanDerHeyden, Witt, and Naquin, 2003), reported an internal consistency for the ITBS falls between 0.80 to 0.91.

Cost-effectiveness Analysis

Levin (1984) observed the movement to reform education has identified costly programs that could easily deplete the resources of a state or local schools with programs where one would have to guess at the expected effectiveness. Giving more money to education will not guarantee increased student achievement (Hummel-Rossi & Ashdown, 2002). Applying the concept of cost-analysis to the field of education; Levin (1983) states that politicians, administrators, and program evaluators can choose programs that will produce the best outcome for the financial resources available. Possible cost analysis techniques include cost-effectiveness, cost-benefit, cost-utility and cost-feasibility (Levin, 1983).

Levin (1983) further provides descriptions of each form of analysis. Cost-feasibility refers to estimating the total cost of a program and if it is determined to be outside budgetary constraints, one does not implement that program. While cost is taken into account, the effectiveness of the program is not. Cost-utility refers to the comparison of the program cost to the estimated value of the results (Levin, 1983). Levin (1983) notes this process has a high rate of subjectivity. Cost-benefit refers to the comparison of the cost of a program with its benefit expressed in monetary terms. The disadvantage of this form of analysis is the difficulty on placing a monetary value on such outcomes as

student achievement or learning gains. The final form of cost-analysis reviewed is cost-effectiveness. Levin (1988) identified "...cost-effectiveness assesses outcomes in educational terms" (p.52) and, therefore, this form of cost analysis is the most useful to educational decision makers. Cost-effectiveness refers to comparing the cost of a program with its measured effectiveness on producing a particular result and comparing the cost-effectiveness of the program to other programs with the same objective. The analysis results in a cost-effectiveness ratio where the programs with the "... lowest costs relative to effects should have the highest priority for decisions" (Levin, 1988, p. 56).

Fitzpatrick, Sanders, and Worthen (2011) discuss the advantages and disadvantages of the different types of cost analyses and note that when a choice must be made between programs with the same goal, cost-effectiveness analysis is the correct option. An advantage of cost-effectiveness is benefits do not have to be expressed in dollar amounts; the disadvantage is, unlike cost-benefit, only one benefit can be isolated at a time (Fitzpatrick et al., 2011). Therefore, if multiple benefits are to be considered, multiple cost-effectiveness analyses are needed (Fitzpatrick et al., 2011).

In order to determine the cost utilized in cost-analysis, Levin (1988) suggests the use of an ingredients-method in which all of the resources utilized to implement the intervention are the ingredients of the cost in providing the intervention. Resources to consider in addition to the materials of the intervention program include teacher salaries, transportation, facilities, utilities, and technology used in implementation.

Pisapia (1994) lays out a detailed plan on conducting cost-effectiveness analysis with the following steps: (a) determine the cost of alternative programs; (b) determine

effectiveness of all programs; then, (c) calculate and compare ratios. Pisapia (1994) notes 4 questions that one should answer prior to making decisions with cost analysis which include: (a) is the size of the program implementation the same for all programs being reviewed; (b) have results been over generalized; (c) does the analysis correctly identify the extent of the differences between alternatives; and, (d) are there bias's to short-term results over long-term? Not only do the answers to these questions influence decisions, but programs must match the values and the beliefs of those who are making the decisions (Pisapia, 1994). Hummel-Rossi and Ashdown (2002) also note benefits beyond short-term should be considered, such as the impact of providing literacy interventions to elementary students could impact college attendance which would then impact society's tax base.

Research studies regarding summer school do not generally provide a cost analysis (Kim & White, 2011). Hummel-Rossi and Ashdown (2002) note lack of cost analysis in education may be due to limited knowledge on its application, knowledge on how to make decisions based on analysis, and the lack of incentives to use cost-analysis in decision making.

Borman and Dowling (2006) reported in their study on summer school an approximate cost of \$1,515 per student. This included \$700 donation per student in space, books, lunch, grants, supervisors, and mentors (Borman & Dowling, 2006). Approximately \$815 per student was spent on evaluations and small stipends paid to TRUE Master's Program students who taught the summer program (Borman & Dowling, 2006). Sloan McCombs et al. (2011) utilized 31 documents in their review of cost of

summer school. After their review, they estimated the cost of providing summer programs to a large number of students six hours a day for five weeks (Sloan McCombs et al., 2011). Excluding transportation, food, and facilities, the average cost was \$1,109-\$2,801 per student (Sloan McCombs et al., 2011). Transportation was not included in the cost due to the fact not all programs provided transportation (Sloan McCombs et al., 2011). Food and facilities were not included in the price per student since many of the programs received free services or funding was providing from money external to that set aside for summer school (Sloan McCombs et al., 2011).

Summary

This chapter began with an overview of the purpose summer school has served society. Current research on the effectiveness of summer school in raising student achievement in reading was discussed. Based on summer school research, Cooper (2000) found the effects of summer school remedial programs mixed. The long-term impact of participating in summer school on student achievement is also unclear based on the reviewed studies. Research studies regarding summer school do not generally provide a cost analysis (Kim & White, 2011). However, applying the concept of cost-analysis to the field of education; Levin (1983) states that politicians, administrators, and program evaluators can choose programs that will produce the best outcome for the financial resources available. Giving more money to education will not guarantee increased student achievement (Hummel-Rossi & Ashdown, 2002). This study measured both

short and long-term outcomes for students participating in the third grade summer reading camp provided by the school district and measured its benefits and cost to other similar programs. The following chapters outline the methodology, data analysis, and provide a discussion of the results.

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study was to determine the effect participation in the third grade summer reading camp had on student achievement in reading immediately following participation in the 2009 program based on ITBS scores, as well as the effect on FCAT Reading DSS one and two years post attendance. Another purpose of this study was to derive an effectiveness-cost ratio for providing the program to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment.

The methodology utilized to test the research questions is outlined in this chapter. The following topics will be examined (a) selection of participants, (b) instrumentation, (c) data collection, and (d) data analysis.

Selection of Participants

The first research questions states: To what extent do students demonstrate a difference in proficiency on third grade reading skills following summer school participation as identified by FCAT reading scores utilized as a pretest and ITBS scores utilized as the post-test? Third grade student participants were selected based on scoring an achievement level one on the 2009 FCAT Reading assessment.

Research question two states: To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test

administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

Names and student numbers were gathered of all students who participated in the 2009 third grade summer reading camp and for those who received good cause exemptions during the summer of 2009. A Statistical Package for the Social Sciences (SPSS) database of 2,139 student FCAT Reading assessment records was provided by the school district for these students for the 2009, 2010, and 2011 test administrations. After review, records with incomplete data, records that were not able to be accurately matched, or records for students retained in 2009 or 2010 were removed. Seven hundred eighty student records remained. Of those records, 415 students attended summer school with 130 students receiving a good cause exemption for passing the alternative assessment. These 130 students comprise the group of students who have been considered as passing the summer school program for this research paper. Three hundred sixty-five students in the data set of 780 did not participate in summer school. Since the number of students who did not participate in summer school was over twice as large as the group of students who passed summer school, a random sample of 130 students from the non-summer school participant group was generated using SPSS. All students in the data set scored an achievement level one on the 2009 FCAT in reading and had received a good cause exemption for promotion to fourth grade for the 2009-2010 school year. Table 1 lists demographic information of the 260 students who comprised the data set utilized to conduct the data analysis for this question.

Table 1

Demographic Information of Student Records for Analysis

Descriptor n=260	Summer School Participants n=130	Non-Summer School Participants n=130
Male	66	74
Female	64	56
White	23	26
Hispanic	41	55
African American	59	38
Asian/Pacific Islander	2	8
Multiracial	5	3
English Learners	42	68
Free and Reduced Lunch	111	108
Exceptional Education	16	73

Of the 16 students identified in an Exceptional Education program within the group of students who passed summer school, two were identified as included in the Language Impaired program, nine were identified as included in the Specific Learning Disabilities program, one was identified as included in the Autism Spectrum Disorders program, and four were identified as included in the Other Health Impaired program. Of the 73 students identified as included in an Exceptional Education program within the group of students who did not participate in the summer school program, one was identified as included in the Orthopedically Impaired program, four were identified as included in the Language Impaired program, three were identified as included in the

Emotionally Handicapped program, 50 were identified as included in the Specific Learning Disabilities program, four were identified as included in the Autism Spectrum Disorder program, four were identified as included in the Other Health Impaired program, and seven were identified as included in the Intellectually Disabled program.

Students who scored an achievement level one on the FCAT Reading assessment are invited to attend summer school. At the conclusion of summer school, students participate in the ITBS which serves as the alternative assessment for the FCAT Reading assessment. Students who pass this assessment are promoted to the next grade level (A3 exemption). Other good cause exemptions received include: (a) English language learners with less than two years of instruction in English (A1 exemption); (b) students exempt from the FCAT (A2 exemption); (c) students who demonstrate grade level proficiency in reading based on a portfolio (A4 exemption); (d) students identified as having a disability based on an Individual Education Plan or 504 Plan, who have received more than two years of intensive reading remediation and who have previously been retained once (A5 exemption); and, (e) students who have been previously retained twice and have received at least two years of intensive reading remediation (A6 exemption) (Student Progression, 2011). Students who attended summer school and received a good cause exemption for passing the alternative assessment (A3 exemption) are considered to have passed summer school for the purpose of this research.

Table 2 outlines how many students qualified for each good cause exemption from the data set of 260 students. All 130 students who comprised the group passing summer school received a good cause exemption for passing the alternative assessment

(A3 exemption). The other 130 students who did not attend summer school all received good cause exemptions as well.

Table 2

Number of Exemptions Received Based on the 2009 FCAT for Data Analysis Group

Good Cause n=260	Summer School Participants n=130	Non-Summer School Participants n=130
A1	0	37
A2	0	0
A3	130	12
A4	0	9
A5	0	68
A6	0	4

Research question three states: To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended the 2009 summer reading camp and passed compared to those who scored an achievement level two or higher and did not attend summer school?

FCAT reading scores were requested for third grade students who scored a level two or higher during the 2009 test administration. A random sample of 130 students was

generated utilizing SPSS. This random sample of students was compared to the same random sample of 130 students who passed summer school from question two. Since student data for those who scored a level two or higher was not obtained, no demographic information is available for this group.

The final question is: What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

Student records received for all summer school participants in question one was to be utilized in deriving the effect size of summer school for this question. Since ITBS data were not available, 2010 FCAT Reading DSS was utilized to derive an effect size of summer school participation on student reading achievement. Based on the school district's records, 3,012 students attended summer school. Complete data for analysis, which included 2009 and 2010 FCAT Reading scores, were only available for 1,226 students. Demographic information for this group is discussed in Chapter Four, Table 8.

Instrumentation

The FCAT is a criterion referenced test that assesses third grade students' mastery of the Sunshine State Standards in reading and math through multiple choice questions each worth one point (Florida Department of Education, 2009). The third grade reading FCAT is a 50-55 item multiple choice test that assess mastery of the Reading Sunshine

State Standards in the areas of: (a) Words and Phrases; (b) Main Idea, Plot, and Purpose; (c) Comparisons and Cause/Effect; and, (d) Reference and Research (Florida Department of Education, 2009).

To determine internal reliability of the FCAT questions, Item Response Theory (IRT) marginal reliabilities and Cronbach's Alpha (α) is reported. In 2006, the IRT marginal reliability for the third grade reading FCAT was reported at 0.92 and $\alpha = 0.89$ (Harcourt, 2007).

Scores for the FCAT reading assessment are reported as DSS and as achievement levels (Florida Department of Education, 2009). DSS are reported on a scale from 86-3008 (Florida Department of Education, 2009). Each achievement level reflects a range of (Florida Department of Education, 2009). The range of DSS for an achievement level one is 86-1045 (Florida Department of Education, 2009). DSS ranges are listed for each achievement level so growth from year to year can be measured (Florida Department of Education, 2009). The 2009 Reading FCAT scores were utilized to determine eligibility for the 2009 third grade summer reading camp.

The ITBS was utilized as the alternative assessment in reading for good cause promotion. The ITBS is a norm-referenced multiple-choice test. The internal reliability was reported by Hoover, Hieronymus, Frisbie, & Dunbar as a range between 0.80 and 0.91 (as cited by VanDerHeyden, Witt, & Naquin, 2003).

To determine the cost for the cost-effectiveness analysis, information from the 2009 school district's budget was gathered for expenditures in salaries, benefits, materials, supplies and transportation. These inputs were calculated for total expenditure

for these items. These inputs were chosen in consultation with district representatives. These inputs included transportation which was not included in the cost of summer school identified by Borman and Dowling (2006) that was utilized by Yeh (2010) in the effectiveness-cost ratio analysis. However, this is not a cost that can be ignored within the budget of summer school for this district because it is a large expense associated with summer school. Since cost for summer school was computed in Yeh's study using the value of dollars in 2006, the cost per student was adjusted for inflation to represent the cost in 2006 dollars in order to make as close a comparison as possible to Yeh's findings.

Data Collection

This quantitative study utilized archived student assessment data from the 2009, 2010, and 2011 FCAT Reading assessment, 2009 ITBS, and records of students who received good cause exemptions, and participated in summer school that were maintained by the school district. Prior to this study, consent was obtained from the school district's Office of Accountability, Research, and Assessment and from the Institutional Review Board at the University of Central Florida (see Appendix A and B).

In March 2009, third grade students were administered the 2009 FCAT Reading assessment. Students who scored an achievement level one were invited to attend the 2009 third grade summer reading camp. After participation in the summer reading camp, students were administered the reading assessment of the ITBS. Students, who scored at or above the 50th percentile on the ITBS, were promoted to fourth grade for the 2009-

2010 school year. Students who scored an achievement level one on the 2009 FCAT Reading assessment but met one of the other good cause exemption requirements were promoted to the fourth grade for the 2009-2010 school year. The FCAT Reading assessment was administered in March of 2010 and in April 2011.

Requests for student records were made in September 2012. All records received from the school district regarding students who participated in summer school and those who received good cause exemptions were received in hard copy form in a binder without student numbers. Many of the records were hand written making it hard to read the names. Other names had holes through them in order to place the paperwork in a binder, which made the name unable to be read. During the process of matching student names to student numbers, a database of 49,000 student names and numbers were reviewed. No other identifier, such as grade level was included in the database. Multiple students were discovered to have the same name which made matching student numbers difficult. There were also many spelling errors in the hand written records which also proved to make matching student data difficult.

Testing information was received from the school district in an SPSS database for the 2009, 2010, and 2011 FCAT Reading assessment. Student names and numbers were erased by the school district prior to obtaining the data to keep the assessment information confidential. ITBS data were not received. When results of an alternate assessment was requested, the school district designee shared a request was made for an electronic copy of the 2009 ITBS scores from the test publisher but had not been received. No alternate assessment data were received for data analysis.

Data for the cost-effectiveness analysis were obtained from the school district's budget summary sheets for the summer months of 2009 for schools that hosted summer school and for the Transportation Department. Cost for materials and supplies were obtained from information about purchases made for summer school.

Data Analysis

Research Question 1

The first research questions states: To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

To determine the immediate impact of summer school on student achievement, a Mann-Whitney U test was conducted to compare the change in median scores between the FCAT Reading assessment and ITBS utilizing SPSS. This statistical analysis was chosen because the results of the FCAT Reading assessment and ITBS are reported on different scales. All student participants in summer school scored an achievement level one on the 2009 FCAT Reading assessment. Passing the ITBS is considered to be any score at or above the 50th percentile. An effect size is calculated from the Mann-Whitney U test by dividing the U statistic derived from SPSS by the product of the total number of

participants in each group (Erceg-Hurn & Mirosevich, 2008). The effect size of the Mann Whitney U is known as the probability of superiority (PS) (Erceg-Hurn & Mirosevich, 2008). This calculation of effect size can be compared to a Cohen's d with Cohen's $d = 0$ is the same as $PS = 0.50$ (Erceg-Hurn & Mirosevich, 2008). This allows us to determine the significance of the change in the median scores. However, data for the ITBS were not able to be obtained to conduct the analysis for this question.

Research Question 2

Research question two states: To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

For the purpose of this study, passing summer school is defined as attending summer school and then receiving a good cause for passing the alternative assessment which is an A3 exemption. One hundred thirty student records from the data set met these criteria. These students were compared to a random sample of 130 students who received a good cause exemption and did not participate in summer school. This random sample was generated through SPSS. All students in the data set had obtained a level 1 on the 2009 FCAT Reading assessment and all students had FCAT reading scores for the 2010 and 2011 FCAT Reading administrations. The data set for analysis contained 260 students.

Student assessment data were entered into SPSS to conduct the statistical analysis. A t-test for independent samples was conducted to compare reading FCAT DSS between students who attended summer school and passed to those students who received a good cause for promotion but did not attend summer school for the 2010 and 2011 test administrations.

Research Question 3

Research question three states: To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended the 2009 summer reading camp and passed compared to those who scored an achievement level two or higher and did not attend summer school?

The 130 students who were promoted to fourth grade by passing summer school were compared to an equal-sized random sample of third grade students who scored a level 2 or higher on the FCAT. A t-test for independent samples was conducted to compare the DSS between the two groups for the 2010 and 2011 FCAT Reading test administrations. However, data for students passing FCAT were not able to be obtained.

Research Question 4

The final question is: What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

Financial statements were obtained regarding expenditures for personnel, transportation, materials, and supplies for the 2009 third grade summer reading camp. This number was divided by the total number of students who participated in summer school to derive a cost per student. Cost was adjusted to 2006 dollars to match the year under investigation by Yeh (2010).

Cost-effectiveness analysis requires an effect size derived from determining the impact summer school has on student reading achievement. The effect size was to be obtained from the findings of question one. However, science ITBS data were not available to be utilized as the post-test measure, 2010 FCAT Reading DSS were used as the post-test measure for summer school effectiveness and an effect size was calculated. A paired samples t-test was conducted utilizing these assessment scores and a Cohen's *d* effect size was calculated. Once the cost per student was determined, the effect size was divided by this number to determine the effectiveness-cost ratio.

Summary

This chapter began with a review of the purpose of this study. A detailed explanation was presented for selection of participants, instrumentation, data collection, and data analysis. Original methodology along with adjustments made due to the lack of test data available were explained for the cost-effectiveness analysis. Chapter Four provides the data analysis for this study and Chapter Five provides a discussion of the findings, implications of practice, and recommendations for further research.

CHAPTER FOUR: PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to determine what effect participation in the third grade summer reading camp had on student achievement in reading immediately following participation in the 2009 program based on Iowa Test of Basic Skills (ITBS) scores, as well as the effect on reading comprehension as measured by the Florida Comprehensive Assessment Test (FCAT) Developmental Scale Scores (DSS) one and two years post attendance. Another purpose of this study was to provide an effectiveness-cost ratio for providing the program to third grade students who scored an achievement level one on the FCAT Reading assessment. Analysis of this study allowed for the identification and creation of recommendations that will assist in the improvement of reading interventions for students enrolled in this school district.

This chapter provides the results obtained from the statistical methods outlined in the previous chapter to answer the research questions. First, descriptive statistics are provided for each research question. Then the results of the statistical tests are presented along with additional analyses of the data set pertinent to further investigation of the research questions.

Descriptive Statistics

Data from ITBS scores of those who attended the 2009 summer school program were not available. Research question one was developed in consultation with the school

district and confirmation of data for analysis took place during the proposal process; however, data were not available for statistical analysis because ITBS scores were not available. Attempts were made to contact the school district designee to discuss the use of alternative information for answering this question. When contact was made, the school district designee stated that a request for ITBS scores was made to the test publisher. Follow-up was made but scores were not received for the ITBS or for an alternative test.

To answer the second research question, a database of 2,139 students was provided by the school district of FCAT Reading assessment results for the 2009, 2010, and 2011 school years, as well as, demographic information for students who received good cause exemptions for promotion to the next grade level and for students who attended summer school. After review of the data set, students without complete assessment data, students who were unable to be matched appropriately with data or students who were retained for the 2009-2010 or the 2010-2011 school years were removed from the data set. This left 780 student records with complete data for further analyses. From this data, 415 students attended summer school with 130 students being promoted to the next grade level based on passing the alternative assessment (A3 exemption). These 130 students comprised the group of students who passed summer school for the purpose of this study. Three hundred sixty-five students received good cause exemptions who did not attend summer school. Due to the large difference between the number of students passing summer school and those who did not attend but received a good cause exemption, a random sample of 130 students was derived from the

365 non-summer school participants. This equaled to 260 student records for analysis for this question.

Achievement levels and DSS were reviewed to determine how many students in the sample made learning gains and what type of learning gain was made. Table 3 summarizes the number of students within the data set who scored at each achievement level during the 2010 and 2011 test administrations for each group.

Based on 2002-2003 data for the state, 70% of students who were promoted to fourth grade based on demonstrating reading proficiency on an alternative assessment (N=2,611), scored at or above a level two on the following year's FCAT Reading assessment, with 34% scoring at a level two and 36% scoring a level three (proficient) or above (Office of Program Analysis & Government Accountability, 2006). Table 3 indicates 70% of students who passed the alternative assessment in this school district scored at or above a level two in 2010, with 34.6% scoring a level two and 35.4% score a level three (proficient) or above. However, the majority of both groups of students continued to score below proficient, which is a level one or two, on the reading portion of the FCAT in the subsequent year.

Table 3

Achievement Levels for 2010 and 2011 for FCAT Reading

Achievement Level	Summer School Participants who Passed ITBS n=130		Non-Summer School Participants promoted for Good Cause n=130	
	2010	2011	2010	2011
1	39 (30.0%)	49 (37.7%)	102 (78.5%)	99 (76.5%)
2	45 (34.6%)	38 (29.2%)	20 (15.4%)	19 (14.6%)
3	43 (33.1%)	42 (32.3%)	6 (4.6%)	10 (7.7%)
4	3 (2.3%)	1 (.8%)	2 (1.5%)	1 (.8%)
5	0	0	0	1 (.8%)

Students can achieve learning gains in reading through three different methods: (1) students increase an achievement level from one year to the next; (2) maintains an achievement level of three, four, or five from one year to the next; or, (3) increases a predetermined point value on the DSS within levels one or two to constitute one year's worth of growth (Florida Department of Education, 2009). In 2010, fourth grade students who scored a level one on the FCAT Reading assessment had to increase their reading DSS by 230 points to account for one year's worth of learning and in 2011, fifth grade students had to increase their DSS by 166 points to account for one year's worth of learning (Florida Department of Education, 2010 & Florida Department of Education, 2011).

All students in the data set scored an achievement level one on the 2009 FCAT. Table 4 outlines what type of learning gains were made based on the 2010 and 2011 FCAT Reading assessment administration for the group of students who passed summer school and those who received good cause exemptions and were promoted but did not attend summer school. Of the summer school participants, 90% achieved learning gains the following year followed by 44.6% making learning gains in 2011. Comparing this to students who did not participate in summer school, 59.2% of students made learning gains in 2010 followed by 48.4% of non-summer school participants making learning gains in 2011.

Table 5 tracks the 119 students from the data set of 260 students who made learning gains in 2010 based on the criteria of increasing one or more FCAT levels. Ninety-one students had participated in summer school while 28 students had not. Of the

students who made this type of learning gain in 2010, 70 (58.8%) did not make learning gains in 2011. Table 6 tracks the 75 students of the 260 students in the entire sample who made learning gains based on increasing their FCAT Reading DSS in 2010. These results indicate 44 (58.7%) did not make learning gains the following year. Based on this, no matter which type of learning gain a student demonstrated in 2010, regardless of summer school participation, more than half of the students did not demonstrate a learning gain the following year. Performance between the two groups of students indicated little variance between their 2010 and 2011 learning gains.

Table 7 outlines the descriptive statistics for each group of students in the data set for the 2010 and 2011 school years. Based on this table, the mean score between student groups who passed summer school was higher than the mean for the student group who received good cause exemptions based on their 2010 and 2011 FCAT Reading scores. The difference between the means was not as great for the 2011 FCAT administration.

Table 4

Number of Students by Type of Learning Gain for 2010 and 2011

Learning Gain	Summer School Participants who passed n=130		Non-Summer School Participants with Good Cause n=130	
	<u>2010</u>	<u>2011</u>	<u>2010</u>	<u>2011</u>
Maintained level 3, 4, or 5	0	22 (16.9%)	0	2 (1.5%)
Increase DSS	26 (20.0%)	6 (4.6%)	49 (37.7%)	42 (32.3%)
Increase 1 or more levels	91 (70.0%)	30 (23.1%)	28 (21.5%)	19 (14.6%)
No Learning Gains	13 (10.0%)	72 (55.4%)	53 (40.8%)	67 (51.5%)

Table 5

Comparison of 2010 Learning Gain for Increasing 1 Level to Learning Gain in 2011

Learning Gain	Summer School Participants n=91	Non-Summer School Participants who Passed with Good Cause n=28
Maintained level 3, 4, or 5	22 (24.2%)	2 (7.1%)
Increased DSS by 166 points	1 (1.1%)	0
Increased one or more levels	17 (18.7%)	7 (25.0%)
No Learning Gains	51 (56%)	19 (67.9%)

Table 6

Comparison of 2010 Learning Gains for Increasing DSS to 2011 Learning Gains

Learning Gain	Summer School Participants who Passed n=26	Non-Summer School Participants with Good Cause n=49
Increased DSS by 166 points	1 (3.8%)	8 (16.3%)
Increased one or more levels	11 (42.3%)	11 (22.4%)
No Learning Gains	14 (53.8%)	30 (61.2%)

Table 7

FCAT DSS Comparison of Summer School Participants and Non-Participants

	Assessment	N	Mean	SD	St. Error Diff.
2010 Summer School Participants	2010 FCAT	130	1376.91	227.95	19.84
2010 Non-Summer School Participants	2010 FCAT	130	1035.91	340.18	29.84
2011 Summer School Participants	2011 FCAT	130	1400.58	199.99	17.54
2011 Non-Summer School Participants	2011 FCAT	130	1170.28	291.23	25.54

Data analysis for students who passed the FCAT in 2009 was not available to answer research question three. Attempts were made via phone messages and emails to obtain this data; however, contact was not made. Therefore, descriptive statistics of the sample is unavailable.

Financial statements were obtained regarding expenditures for personnel, transportation, materials, and supplies for the 2009 third grade summer reading camp. The sum of these numbers was adjusted for inflation and reported in 2006 dollars and was then divided by the total number of students who participated in summer school to derive a cost per student. The adjustment for inflation was made in order to compare results to those from Yeh (2010) that reported cost of summer school per student in 2006 dollars.

Cost-effectiveness analysis requires an effect size derived from determining the impact summer school has on student performance. The original methodology for this study was to utilize the effect size obtained from the findings utilizing ITBS scores from research question one. Once the cost per student was determined, the effect size was divided by this number to determine the effectiveness-cost ratio. Data to answer question one were not obtained because ITBS scores were not available. Attempts were made to contact the school district designee to discuss the use of alternative information for answering this question. The school district designee reported a request to the test publisher had been made; however, ITBS scores and scores for an alternative assessment were not obtained. Since this information was not available, the 2010 FCAT Reading DSS was utilized as the post-test measure.

Of the 3,012 students who participated in summer school, 1,445 students were matched to a record. Of those, 67 students did not have 2009 FCAT Reading scores which left 1,378 students. Of these students, 152 did not have matching 2010 FCAT Reading assessment data leaving 1,226 students for analysis. Table 8 highlights the demographic information for these students. Of the students in Exceptional Education, one student was identified as included in the Orthopedically Impaired program, nine students were identified as included in the Speech Impaired program, 42 students were identified as included in the Language Impaired program, nine students were identified as included in the Emotionally Handicapped program, 249 students were identified as included in the Specific Learning Disabilities program, two students were identified as included in the Gifted program, two students were identified as included in the Dual Sensory Impaired program, 12 students were identified as included in the Autism Spectrum Disorder program, one student was identified as included in the Traumatic Brain Injury program, 27 students were identified as included in the Other Health Impaired program, and 28 students were identified as included in the Intellectually Disabled program.

Table 8

Demographic Information of Summer School Participants

Descriptor	n
Male	694
Female	530
White	162
Hispanic	503
African American	514
Asian/Pacific Islander	23
Multiracial	18
Indian	4
English Learners	582
Free and Reduced Lunch	1067
Exceptional Education	381

**Two student records missing gender and race*

Testing the Research Questions and Hypotheses

Research Question 1

To what extent do students demonstrate a difference in proficiency on third grade reading skills following summer school participation as identified by utilizing FCAT reading scores as a pretest and ITBS scores as the post-test?

Data from ITBS scores of those who attended the 2009 summer school program were not available. This question was developed in consultation with the school district and confirmation of data for analysis took place during the proposal process; however,

data were not available for statistical analysis. The school district designee reported a request for the 2009 ITBS scores had been made to the publisher, but scores were not obtained. Attempts were made to contact the school district designee to discuss the use of alternative information for answering this question, but contact was not made regarding alternative tests.

Research Question 2

To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

An independent t-test was utilized to assess this question. These analyses determined if there was a difference in the FCAT Reading DSS for 2010 and 2011 between students who passed the 2009 summer reading camp versus students who did not participate in summer school but were promoted with a good cause exemption.

As shown in Table 9, results indicate a statistically significant difference with a large effect size between the student group who passed the 2009 summer reading camp versus the student group who did not participate but received a good cause exemption for the 2010 FCAT Reading assessment, $t(258) = -9.50, p = .000$, effect size $r = 0.51$. Steinberg (2012) outlines the significance of effect size r derived by Cohen as less than 0.25 as small, 0.25-.40 as medium, and greater than 0.40 as large.

Results in Table 9 indicate there is a statistically significant difference with a large effect size between the student group who passed the 2009 summer reading camp versus the student group who did not participate but received a good cause exemption on the 2011 FCAT Reading assessment, $t(258) = -7.43$, $p = .000$, effect size $r = 0.42$.

Table 9

T-Test Results of DSS Comparison for Students who Passed Summer School versus Non Participants

Assessment Participation	n	Mean	SD	t	df	Sig.	St. Error Diff.	Mean Diff.	Effect Size r
2010 FCAT									
Yes	130	1376.91	227.95	-9.50	258	.000	35.92	-341.00	.51
No	130	1035.91	340.18						
2011 FCAT									
Yes	130	1400.58	199.99	-7.43	258	.000	-291.32	-230.31	.42
No	130	1170.28	291.23						

Research Question 3

To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended the 2009 summer reading camp and passed compared to those who scored an achievement level two or higher and did not attend summer school?

Data for analysis of students who passed the FCAT Reading assessment in 2009 were not available to answer question three. Attempts were made via phone messages and emails to obtain this data; however, contact was not made. Therefore, analysis for question three was not conducted.

Research Question 4

What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

There were 34 schools that hosted the summer school program. This program employed 154 teachers and 44 paraprofessionals. The suggested Student Teacher ratio was 18:1. Schools received an Exceptional Student Education Teacher and Speech Teacher if they had more than 40 students. All schools were allocated a paraprofessional up to 80 students. Enrollment of 81 students or more received an additional paraprofessional. Based on allocations, salaries with benefits totaled \$629,488.00. After review of actual expenditures, schools spent \$600,888.29 for salaries and benefits for 198 staff members.

Supplies for summer school, including workbooks, classroom kits, warehouse supplies and shipping, totaled \$142,406.74. School district records indicate \$1,104,086 was spent on providing transportation for all summer programs. There were 268 bus runs for the 2009 summer program with 45 of the runs for the 2009 Third Grade Summer

Reading Camp. This averages to \$4,119.72 per bus run. To compare these costs with those associated with the summer school program identified by Yeh, costs were adjusted to 2006 dollars utilizing the Consumer Price Index Inflation Calculator (United States Department of Labor, n.d.). Table 10 reflects the amount of money spent in each of these areas for the 2009 summer school program offered by the school district and the adjustment made to report cost in 2006 dollars. Based on this information, the total cost of summer school was \$928,682.60 in 2009 and the adjusted cost was \$872,681.23.

This number was divided by the total number of students who participated in summer school to derive a cost per student. The total number of students who attended summer school was 3,012; therefore, the cost per student, excluding food and facilities, was \$308.33 in 2009 with an adjusted 2006 cost per student of \$289.74. This is significantly less than the \$1,515 reported by Borman and Dowling (2006) that Yeh utilized and is also lower than the range of \$1,109-\$2,801 found by Sloan McCombs et al. (2011).

Table 10

Expenditures for the 2009 Third Grade Summer School Program with 2006 Adjustment

	2009 Total	2006 Adjustment
Salaries w/Benefits	\$600,888.29	\$564,653.55
Materials/Supplies	\$142,406.74	\$133,819.34
Transportation	\$185,387.57	\$174,208.34
Grand Total	\$928,682.60	\$872,681.23

Cost-effectiveness analysis requires an effect size derived from determining the impact summer school has on student performance. Data to answer this question were to be derived from the analysis of question one. However, data were not obtained to calculate an effect size with ITBS scores. Attempts were made to contact the school district designee to discuss the use of alternative information for answering this question; however, alternative test scores were not obtained. Therefore, 2010 FCAT Reading DSS was utilized. A paired t-test utilizing 2009 FCAT Reading DSS as the pretest and 2010 FCAT Reading DSS as the post-test was conducted. Results indicate there is a statistically significant difference with a large effect size in student performance in reading after participating in summer school as measured by the 2010 FCAT Reading DSS, $t(1225) = 40.82, p = .000, d = 1.23, \text{effect size } r = 0.52$.

Yeh (2010) derived the effectiveness-cost ratio of summer school by dividing the effect size reported as d by the cost per student for summer school. The effect size

utilized by Yeh (2010) was 0.19 from Cooper et al. (2000) and the cost was reported at \$1,515 which derived an effectiveness-cost ratio of 0.000125. This cost was based on the cost of providing summer school in 2006 as identified by Borman & Dowling (2006).

Utilizing Cohen's $d = 1.23$ as the effect size for this program and cost per student of \$308.33, the effectiveness-cost ratio for providing the 2009 summer reading camp was 0.003989. Utilizing the same effect size but adjusting price to 2006 cost per student of \$289.74, the effectiveness-cost ratio for providing the summer school intervention was 0.004245. This is higher than the effect size of 0.000125 derived by Yeh (2010) for summer school and higher than all effectiveness-cost ratios for reading interventions other than Rapid Assessment.

Additional Analysis

Information for the overall data set of 780 students was reviewed in Table 11 so readers may compare this data to their student population.

Table 11

Demographic Information of Complete Student Data Set

Descriptor N=780	Summer School Participants N=415	Non-Summer School Participants N=365
Male	226	220
Female	189	145
White	69	72
Hispanic	165	142
African American	164	128
Asian/Pacific Islander	6	16
Multiracial	10	6
Indian	1	1
English Learners	199	172
Free and Reduced Lunch	354	309
Exceptional Education	175	200

Of the 175 students classified in Exceptional Education for summer school participants, one student was identified as included in the Speech Impaired program, 13 students were identified as included in the Language Impaired program, five students were identified as included in the Emotionally Handicapped program, 122 students were identified as included in the Specific Learning Disabilities program, one student was identified as included in the Gifted program, six students were identified as included in the Autism Spectrum Disorder program, 14 students were identified as included in the Other Health Impaired program, and 13 students were identified as included in the Intellectual Disabilities program. Of the 200 students classified as participating in

Exceptional Education who did not participate in summer school, nine students were identified as included in the Orthopedically Impaired program, seven students were identified as included in the Language Impaired program, three students were identified as included in the Deaf and Hard of Hearing program, eight students were identified as included in the Emotionally Handicapped program, 130 students were identified as included in the Specific Learning Disabilities program, nine students were identified as included in the Autism Spectrum Disorder program, 16 students were identified as included in the Other Health Impaired program, and 25 students were identified as included in Intellectual Disabilities program.

Table 12 indicates how many students received each type of exemption based on their 2009 FCAT scores for the complete data set of 780 students. One student was matched as receiving a good cause exemption because (s)he was exempt from the FCAT; however, this student had FCAT data for all three years investigated.

Table 12

Number of Exemptions Received based on the 2009 FCAT for the Overall Dataset

Good Cause N=780	Summer School Participants N=415	Non-Summer School Participants N=365
A1	75 (18.1%)	81 (22.2%)
A2	0	1 (.3%)
A3	130 (31.3%)	56 (15.3%)
A4	46 (11.1%)	27 (7.4%)
A5	149 (35.9%)	177 (48.5%)
A6	15 (3.6%)	23 (6.3%)

Table 13 outlines how many students in the dataset of 780 scored at each achievement level for 2010 and 2011 and Table 14 indicates how each of the good cause exemptions was achieved for all students in the overall dataset.

Table 13

Achievement Levels for 2010 and 2011 FCAT Reading

Level	Summer School Participants N=415		Non-Summer School Participants N=365		Overall N=780	
	<u>2010</u>	<u>2011</u>	<u>2010</u>	<u>2011</u>	<u>2010</u>	<u>2011</u>
1	229 (55.2%)	230 (55.4%)	260 (71.2%)	245 (67.1%)	489 (62.7%)	475 (60.9%)
2	105 (25.3%)	101 (24.3%)	63 (17.3%)	80 (21.9%)	168 (21.5%)	181 (23.2%)
3	75 (18.1%)	79 (19.0%)	37 (10.1%)	37 (10.1%)	112 (14.4%)	116 (14.9%)
4	6 (1.4%)	5 (1.2%)	4 (1.1%)	2 (.5%)	10 (1.3%)	7 (.9%)
5	0	0	1 (.3%)	1 (.3%)	1 (.1%)	1 (.1%)

Table 14

Number of Students who made Learning Gains in 2010 and 2011

Learning Gain	Summer School Participants N=415		Non-Summer School Participants N=365	
	<u>2010</u>	<u>2011</u>	<u>2010</u>	<u>2011</u>
Maintain 3, 4, or 5	0	35 (8.4%)	0	10 (2.7%)
Increase DSS	126 (30.4%)	75 (18.1%)	118 (32.3%)	91 (24.9%)
Increase 1 level	186 (44.8%)	76 (18.3%)	105(28.8%)	60 (16.4%)
No Learning Gains	103 (24.8%)	229 (55.2%)	142 (38.9%)	204 (55.9%)

The data set used for statistical analysis was very small because research question two pertained only to comparing students who attended and passed summer school to

others who did not attend summer school but received a good cause exemption. To determine the effect of summer school on DSS scores for all who attended summer school and had complete assessment data compared to all who did not attend summer school and had complete assessment data, an independent t-test was conducted. Descriptive statistics were analyzed for the group and Table 15 outlines the mean, standard deviation, and the results of the t-tests for the 2010 and 2011 FCAT Reading assessments.

As shown in Table 15, results of the t-test indicate a statistically significant difference between students who participated in the 2009 summer reading camp and were promoted based on good cause for passing the alternative assessment versus those who received a good cause exemption and did not participate in summer school on the 2010 FCAT Reading assessment; however the effect size fell within the small range $t(778) = -4.22, p = .000$, effect size $r = .15$.

Also outlined in Table 15, there is a statistically significant difference between the student group who participated in the 2009 summer reading camp and were promoted based on good cause for passing the alternative assessment on the 2011 FCAT Reading assessment compared to the student group who received a different good cause exemption and did not participate in summer school; however the effect size was small, $t(778) = -3.69, p = .000$, effect size $r = .13$.

Table 15

*DSS Comparison of Summer School Participants and Non Participants for 2010 and**2011 FCAT*

Assessment Participation	n	Mean	SD	<i>t</i>	<i>df</i>	Sig.	St. Error Diff.	Mean Diff.	Effect Size <i>r</i>
2010 FCAT									
Yes	415	1194.18	345.50	-4.22	778	.000	24.85	-104.82	.15
No	365	1089.35	347.11						
2011 FCAT									
Yes	415	1268.00	279.60	-3.69	778	.000	20.60	-75.90	.13
No	365	1192.11	295.30						

Of the data set of 780 students, 186 received a good cause exemption for passing the alternative assessment (A3 promotion). One hundred thirty of these students attended summer school. Further analysis was conducted to determine if students who received an exemption for passing the alternative assessment regardless of summer school participation outperformed students who received a different good cause exemption.

There was a statistically significant difference with a large effect size between the student group who received good cause promotion for passing the alternative assessment (A3 promotion) compared to the student group who had English as a second language with less than two years of instruction in English (A1 promotion) in 2010, $t(340) = -7.709$, $p = .000$, effect size $r = .39$ and in 2011, $t(340) = -5.556$, $p = .000$, effect size $r =$

.29. Of the 156 students who received A1 exemptions, 75 (48.1%) attended summer school.

Due to an inappropriate comparison between A3 promotions and students who are exempt from the FCAT (A2 promotions), an analysis was not conducted.

There was a statistically significant difference with a small effect size between the student group who received a good cause promotion for passing the alternative assessment (A3 promotion) versus the student group who received a good cause promotion for completing a portfolio (A4 promotion) in 2010, $t(257) = -2.01, p = .045$, effect size $r = .12$; however there was no statistical significance between these two group in 2011, $t(257) = -1.290, p = .198$. Of the 73 students who received an A4 promotion, 46 (63%) attended summer school.

There was a statistically significant difference with a large effect size between students who receive a good cause exemption for passing the alternative assessment (A3 promotion) compared to students with a disability who had already been previously retained (A5 promotion) in 2010, $t(510) = -14.042, p = .000$, effect size $r = .53$ and in 2011, $t(510) = -12.681, p = .000$, effect size $r = .49$. Of the 326 students with an A5 promotion, 149 (45.7%) attended summer school.

There was a statistically significant difference with a medium effect size for students with an A3 exemption compared to students who had already been retained for two years (A6 promotion) in 2010, $t(222) = -6.159, p = .000$, effect size $r = .38$ and in 2011, $t(222) = -5.152, p = .000$, effect size $r = .33$. Of the 38 students who received an A6 promotion, 15 (39.5%) attended summer school.

Table 16 outlines the comparison between passing the alternative assessment (A3 exemption) versus other exemptions. Based on this information, it can be determined as long as a student can demonstrate mastery of grade level standards either through the alternative assessment or by a portfolio; these students demonstrate a higher level of reading achievement as measured by the FCAT versus those who receive other good cause exemptions even two years after their third grade year.

Table 16

Comparison between Good Cause Exemptions 2010 and 2011

Assessment Participation	n	Mean	SD	t	df	Sig. Diff.	St. Error	Mean Diff.	Effect Size r
2010 A1 to A3	A1: 156 A3: 186	1139.56 1377.73	349.10 216.19	-7.71	340	.000	30.90	-238.17	.30
2011 A1 to A3	A1: 156 A3: 186	1250.06 1401.2	296.77 204.15	-5.5	340	.000	27.21	-151.20	.29
2010 A4 to A3	A4: 73 A3: 186	1317.05 1377.73	224.43 216.19	-2.01	257	.045	30.18	-60.67	.12
2011 A4 to A3	A4: 73 A3: 186	1364.23 1401.26	217.03 204.15	-1.29	257	.198	28.71	-37.03	NA
2010 A5 to A3	A5: 326 A3: 186	979.57 1377.73	350.49 216.19	-14.04	510	.000	28.36	-398.16	.5
2011 A5 to A3	A5: 326 A3: 186	1101.50 1401.26	283.052 204.15	-12.68	510	.00	23.64	-299.76	.49
2010 A6 to A3	A6: 38 A3: 186	1125.47 1377.73	298.58 216.19	-6.16	222	.000	40.95	-252.25	.38
2011 A6 to A3	A6: 38 A3: 186	1207.53 1401.26	243.45 204.15	-5.15	222	.000	37.60	-193.73	.33

Summary

This chapter began with an overview of the purpose of the study and descriptive statistics of the student records received. Based on the analysis for research question two, there is a statistically significant difference with a large effect size between DSS on the 2010 and 2011 FCAT Reading assessment between students who received good cause exemptions by passing summer school compared to those who received good cause exemption without attending summer school. Analysis also tracked students who made learning gains for increasing their DSS or for increasing at least one level on the 2010 FCAT Reading assessment and compared this to their 2011 FCAT Reading assessment scores.

The effectiveness-cost ratio of the 2009 summer school program, even when adjusted to 2006 dollars, indicated a higher effectiveness-cost ratio than all other reading interventions identified by Yeh (2010) other than Rapid Assessment.

Further analysis of the complete data set was provided for learning gains, achievement levels, exemptions received, FCAT Reading DSS, and demographics so readers can compare the larger data set to their student population. Further analysis was also conducted to determine the difference between performances of students who received an A3 exemption for passing the ITBS compared to students who received other exemptions.

Complete analysis for research questions one and three could not be conducted with available data.

Chapter Five provides a discussion of these findings, implications for practice, and suggestions for further research.

CHAPTER FIVE: SUMMARY, DISCUSSION, AND CONCLUSIONS

Introduction

This chapter provides a synthesis of the information from the preceding chapters by summarizing the study and providing a discussion of the findings. Implications for practice are then considered to determine how this information can be used to further increase student achievement in reading. Recommendations for further research the school district should consider are outlined.

Summary of the Study

Currently, there is no research on the effectiveness of participating in the reading camp provided by the school district on improving reading proficiency and no analysis has been conducted to determine the cost-effectiveness of providing this intervention. This study laid the foundation for further reading intervention research within this school district in order to determine the most effective reading intervention for the cost.

The purpose of this study was to determine what effect participation in the third grade summer reading camp had on student achievement in reading comprehension immediately following participation in the 2009 program based on ITBS scores, as well as, one and two years after attendance based on FCAT Reading DSS. Another purpose of this study was to provide an effectiveness-cost ratio for providing the program to third grade students who scored an achievement level one on the FCAT Reading assessment.

The framework that supported the foundation of this study was derived from the analyses conducted by Cooper et al. (2000) in which a review of the historical goals of summer school programs was discussed. Goals of summer school have been to provide for graduation, prevent loss of skills over the summer, to provide FAPE for students with disabilities, and to allow for students to master standards not achieved during the school year (Cooper et al., 2000).

Applying the concept of cost-analysis to the field of education; Levin (1983) states that politicians, administrators, and program evaluators can choose programs that will produce the best outcome for the financial resources available. Utilizing these findings, and conducting further research on reading interventions will allow the school district to make informed decisions of the most effective interventions that will allow for fiscal responsibility.

This study focused on the four following research questions that were created with input from representatives of the school district:

1. To what extent do students demonstrate a difference in proficiency on third grade reading skills following summer school participation as identified by utilizing FCAT reading scores as a pretest and ITBS scores as the post-test?
2. To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

3. To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended the 2009 summer reading camp and passed compared to those who scored an achievement level two or higher and did not attend summer school?
4. What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

Student assessment data were not able to be obtained to complete analysis for questions one and three. A sample of 260 students was analyzed for question two. This sample consisted of 130 students who attended and passed summer school. Their reading performance on the 2010 and 2011 FCAT Reading assessment was compared to the performance of 130 students who were promoted to the fourth grade based on a good cause exemption other than for passing summer school. A t-test for independent samples was utilized to answer this question.

A modification to the original methodology to conduct the cost-effectiveness analysis was made due to not having data to address the immediate impact summer school had on reading achievement. To remedy this, 2010 FCAT Reading DSS were utilized as the post-test measure for summer school and compared to the students' 2009 FCAT Reading DSS as the pretest measure. This introduced variables that may have impacted the results that were outlined in Chapter One. A paired-samples t-test was conducted utilizing test scores for 1,226 summer school participants. This information

was used to derive a Cohen's *d* effect size. Yeh (2010) utilized the Cohen's *d* effect size derived by a meta-analysis conducted by Cooper et al. (2000).

Yeh (2010) utilized the cost of summer school that was reported in 2006 dollars by Borman and Dowling (2006) and divided the effect size by this cost to calculate an effectiveness-cost ratio. In order to compare the findings of this study as closely as possible to those found by Yeh, the cost of summer school per student was converted to 2006 dollars utilizing the Consumer Price Index Inflation Calculator (United States Department of Labor, n.d.).

Discussion of the Findings

Data were not available to conduct analysis for research questions one and three; therefore, these questions are not discussed within this section.

Research Question 2

To what extent is there a difference in Developmental Scale Scores in reading based on the 2010 and 2011 FCAT test administrations for students who attended summer school in 2009 and passed compared to those who did not attend summer reading camp but were promoted with a good cause exemption?

Findings suggest that even though there was a statistically significant difference between performances of students who attended summer school and passed versus those receiving a different good cause exemption, the increase in performance diminished over

time. This is supported by the research of Cooper et al. (2000) who cautiously noted, three out of four analyses indicated that as time elapsed; there was diminishing effects of summer school participation. The findings of Schacter and Jo (2005) revealed students "... maintained a 39% advantage for three months, and at the end of the year were performing 18% better than controls" (p. 166). However, gains in decoding were not sustained one year later. This too supports how achievement gains diminish over time.

When comparing the performance of students who received a good cause for passing summer school compared to those who received different good cause exemption, summer school students out-performed students in all good cause categories except for students who demonstrated mastery of standards based on a portfolio. Between these two groups of students, there was no statistically significant difference. Therefore, it can be concluded as long as a student can demonstrate a form of mastery of grade level standards, either by attending summer school and passing or by a portfolio assessment of their work, the student will perform at a higher level than those who do not demonstrate mastery of the skills.

Even though students who participated in the summer program increased their level of achievement with 90% of summer school participants made learning gains as defined by the state, 2010 and 2011 FCAT Reading DSS indicate that the majority of student scores were still below proficiency. More of these students fell below proficiency as time elapsed. Therefore, the question is raised, if students are demonstrating mastery on an alternative assessment by scoring at or above the 50th percentile to be promoted to the next grade level, is the assessment in alignment with Florida's standards and measure

the rigor and level of understanding needed to be successful the next school year? Another question for consideration is, if 90% of summer school participants make learning gains the following school year compared to 59% of non-summer school participants, what supports can be put in place during subsequent school years and summer months to continue this growth?

Research Question 4

What are the results of a cost-effectiveness analysis of providing summer reading camp to third grade students who scored an achievement level one on the 2009 FCAT Reading assessment as compared to the cost-effectiveness of other reading interventions as identified by Yeh (2010)?

The Florida Statute regarding student progression outlines priority for funding allocations for remedial and supplemental instruction are to first be spent on students who have not demonstrated proficiency in reading (Student Progression, 2011). With the increased expense of many programs within education, stakeholders want confirmation the programs result in increased student achievement (Hummel-Rossi & Ashdown, 2002). Giving more money to education will not guarantee increased student achievement (Hummel-Rossi & Ashdown, 2002).

As expressed in Levin (1988) and Hummel-Rossi & Ashdown (2002), effectiveness-cost ratios must be compared to those of alternative interventions in order to derive meaning. A cost-effectiveness analysis in this study indicated, compared to other reading interventions, the summer school program provided by the school district

had a higher effect size relative to its cost than all other reading interventions reviewed by Yeh (2010) except for Rapid Assessment. However, if the majority of students are performing below proficiency one and two years later, can this really be said to raise student achievement and be cost effective?

Based on the findings of research question two, 90% of summer school participants made a learning gain as defined by the state on the 2010 FCAT Reading assessment. Of the sample of students who passed summer school, 64.6% and 66.9% scored a level one or two on the 2010 and 2011 FCAT Reading assessment respectively. If raising student achievement is defined as closing the achievement gap, based on the analysis indicating the effects of participation diminish over time, it could be surmised that the program did not raise achievement; however, caution is noted in making this judgment since immediate impact of participation could not be accurately calculated. Utilizing the following school year's assessment data for analysis introduced confounding variables such as the impact of additional interventions and supports given during the subsequent school year. One would not expect with the limited length of time of summer school, that students performing significantly below proficiency would increase to the level of proficiency (level 3) on the FCAT Reading assessment. However, with the promising aspect of 90% of participants meeting the criteria for a learning gain on the following year's FCAT Reading assessment, summer school opportunities should be provided during subsequent summers to maintain and increase these gains. Currently, additional opportunities for summer school are not provided until

eighth grade which may contribute to the finding of diminishing effects of participation as time elapsed.

Why is there such a large positive cost-effectiveness ratio? Possible reasons for this large discrepancy may be the lower cost reported for the school district's summer school program than that utilized by Yeh (2010) and the significant difference in effect size. The school district reported spending \$1,225.26 less when adjusted for inflation than that utilized by Yeh (2010). Yeh (2010) utilized the cost derived from the Teach Baltimore Study by Borman and Dowling (2006) of \$1,515. Individual costs for all ingredients of the Teach Baltimore program were not outlined, but one contributing difference could be the cost for personnel. Personnel in Maryland generally make more in salary than that of teachers in Florida.

As noted in Chapter One, a year's worth of education and reading interventions were provided prior to the post-test measure. The effect size used in the analysis was not of the immediate impact of summer school on student reading achievement as was the effect size utilized by Yeh (2010) from the studies reviewed by Cooper et al. (2000). By using a post-test measure administered one year after participation in summer school, student achievement could have increased or decreased. There is no way to tell from the data received.

Implications for Practice

The results of this study indicate summer school had a positive impact at raising the number of student making learning gains the following school year in reading for those who attend based on a post-test measure one and two years after participation; however, the majority of students still performed below grade level expectations and the effects diminished over time. This could indicate when students are provided an intensive level of support with the instructional strategies and structure of summer school, student achievement in reading can rise but further study using an immediate post-test measure is needed. If immediate post-test measures indicated summer school did raise student achievement, schools should determine how aspects of summer school can be implemented, whether it is the structure, strategies, or materials, within the normal school year. Not only should instruction for these students be raised to the level of intensity as summer school during the school year, supports should be provided during subsequent summer months to possibly help alleviate the loss of reading skills. Characteristics of successful summer school programs are outlined in the research of Paris et al. (2004), Cooper et al. (2000), and Lauer et al. (2006) that indicate a focus should be placed on small group or individual instruction.

In order to accurately isolate the impact summer school has on reading achievement, a pretest and post-test measure should be given at the beginning and at the conclusion of summer school in order to eliminate the changes in learning that can occur between the FCAT administered in April and the ITBS administration in July. Another aspect to consider when selecting a pretest and post-test measure would selecting

assessments reported on the same scale, or preferably, different forms of the same assessment. This will eliminate error from the statistical adjustments needed to compare and analyze assessments reported on different scales.

Summer school within the school district had mostly been offered to elementary students who are in special education and students who do not pass the FCAT. In 2012, second grade students in Title I schools were offered summer school. Based on Lauer et al. (2006) findings the effect size of out-of school programs for reading had a larger effect on K-2 students (0.22) versus students in grades 3-5 (-0.03). This should be taken into consideration for expanding summer school offerings to younger grade level students who do not demonstrate mastery of grade level standards.

Another consideration for practice is allowing students to demonstrate mastery of skills in various ways versus just one test. This is supported by the findings that indicated whether a student demonstrated mastery of the standards by passing the alternative assessment or by a portfolio of work, all had similar changes in reading achievement. However, the alternative assessment must be in alignment with the standards students are expected to achieve and a plan to maintain growth must be implemented so gains do not diminish over time.

Due to the difficulty of collecting accurate data for this study, systems and structures should be put in place to maintain the integrity of the data. The school district should consider having an electronic database to store all summer school information. Names reported by schools for students who attend summer school and for those who receive good cause should all be submitted with the student number and the student's

legal name, not a nickname or alias. This will increase accurate record keeping and minimize the loss of data due to spelling errors, minimize confusion between the records of students with the same first and last name, and eliminate the destruction of records from simply storing hard copies of student records in binders. Maintaining all assessment data, such as the ITBS utilized for the alternative assessment, electronically will assist in obtaining all data for analysis. After discussions with the school district designee, ITBS data was stored electronically after 2009. Adhering to these measures will allow for matching students to assessment data quickly and allow for accurate analysis. Financial records related to all aspects of implementing the summer school program, or any other intervention, should be kept in a centralized location and take into consideration all criteria identified by Levin (1988). During the data collection for this study, multiple departments had to be contacted for costs and in many cases; the cost for summer school was not separated from other costs incurred during the same summer.

Recommendations for Further Research

It is recommended this study be conducted again with consideration to the fact that particular data is needed to accurately analyze what is happening in regards to student achievement. First, a pretest and post-test measure should be developed and administered at the beginning and conclusion of summer school so school district staff can determine the effectiveness of this intervention. To better align with other summer

school studies, a control group should be established by administering the pretest and post-test to students who qualify for the summer program but choose not to attend.

With diminishing effects of the summer school program over time, it may be of interest to research if the ITBS assessment used for good cause exemption measures the rigor of the standards in the same manner or to the same level of the FCAT. Superficial mastery and assessment of the standard may be a contributing factor to the diminishing reading performance on those who obtain good cause exemptions with this criterion.

The Office of Program Analysis & Government Accountability (2006) reported, “Many students scoring at a level 1 are promoted for one of six statutorily defined ‘good cause’ exemptions. The subsequent performance of these students is generally lower than that of retained level 1 students” (p.1) based on their findings from the state level. This may be a topic of further research to determine if this holds true with the school district. However, the purpose of retention and summer school should be the same; closing the achievement gap. Research should be conducted at the state level to determine if currently approved practices of providing good cause exemptions should continue or if these exemptions are perpetuating the growth of the achievement gap.

With student achievement diminishing over time, it is apparent that what is provided during the school year is not sufficient unless there is a shift in instructional practice. Therefore, supports should be put in place for students over the summer and these supports should be monitored for their effectiveness but also for long-term support in raising student achievement and closing the achievement gap. Within the school district, the next summer school offering is in eighth grade. It would be of interest to

determine how many students who participated in the third grade reading camp required the summer school services in eighth grade.

As stated above, based on Lauer et al. (2006) findings the effect size of out-of-school programs for reading had a larger effect on K-2 students (0.22) versus students in grades 3-5 (-0.03). This should be taken into consideration for expanding summer school offerings to younger grade level students who do not demonstrate mastery of grade level standards. If summer school offerings are expanded, systems should be put in place to monitor the effectiveness and determine which grade levels to best implement summer school.

Programs with the "...lowest costs relative to effects should have the highest priority for decisions" (Levin, 1988, p. 56). However, only having the cost-effectiveness analysis for the summer school program is not sufficient alone in determining if this is the most successful program the school district offers in respect to student achievement and cost. Therefore, continuing cost-effectiveness analysis on other reading intervention programs is necessary to determine the most cost-effective interventions.

Data analysis of research question two indicated a drop in the number of students making learning gains from 2010 to 2011 based on the FCAT Reading assessment. During these year's there was a shift in the rigor of the state standards, from Sunshine State Standards to Next Generation Sunshine State Standards. With a shift in standards from the Next Generation Sunshine State Standards to Common Core State Standards, careful monitoring of the effectiveness of summer school and a comparison between the

standards and instruction is needed to determine that standards are being appropriately instructed during summer school.

The school district's practice of providing good cause exemptions to students who pass an alternative assessment is in alignment with Florida's Student Progression Statute. The ITBS was approved to be an assessment used for good cause exemption. This study found 90% of student made learning gains as defined by the state but the majority of students who received this form of good cause exemption continued to perform below grade level expectations (proficiency) in subsequent years. This student group however significantly outperformed students who received other good cause exemptions. It is imperative, in order to meet the spirit of the law in closing the achievement gap, that we not only continue to provide summer school to raise student achievement, but to expand these offerings in order to keep the momentum of achievement moving in a positive direction.

Conclusions

This study laid the foundation for further comparison of effectiveness, cost, and long term impact of reading interventions provided by this school district. Students who participated in summer school demonstrated a significant increase in reading achievement; however, the majority of students still performed below grade level one and two years later with the achievement gap increasing as time elapsed. The school district must develop ways to sustain and multiply this growth.

Can this program say that it promotes student achievement and is cost-effective?

When looking at this program one year and two years after participation without any other subsequent summer intervention provided, one would say participation in a one summer program does not contribute to long term rise in student achievement. However, this conclusion cannot be a definitive answer since immediate impact on student achievement could not be analyzed. If this program were to show immediate positive impact on student achievement, then the school district would know to continue to provide services in subsequent summers.

As a shift in instructional practice and assessment is taking place with the implementation of new standards, continual investigation of the impact these changes have on student reading achievement must be monitored through the development of systems that allow for accurate data collection for all aspects studied. Only then can it be determined if the effectiveness and cost of the interventions are meeting the needs of the students and the school district.

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

From : **UCF Institutional Review Board #1
FWA00000351, IRB00001138**
To : **Krista M. Bixler**
Date : **July 17, 2012**

Dear Researcher:

On 7/17/2012 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review: Not Human Research Determination
Project Title: A STUDY OF A THIRD GRADE SUMMER READING
CAMP: DOES IT PROMOTE STUDENT
ACHIEVEMENT AND IS IT COST EFFECTIVE?
Investigator: Krista M. Bixler
IRB ID: SBE-12-08563
Funding Agency:
Grant Title:
Research ID: NA

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 07/17/2012 01:59:24 PM EDT

IRB Coordinator

APPENDIX B: DISTRICT RESEARCH REQUEST FORM APPROVAL

Submit this form and a copy of your proposal to: **Orange County Public Schools**
 Accountability, Research, and Assessment
RESEARCH REQUEST FORM

RECEIVED JUL 09 2012

Your research proposal should include:
 • Project Title
 • Purpose and Research Problem
 • Instruments
 • Procedures and Proposed Data Analysis

Requester's Name Krista Bixler Date 6-26-12
 E-mail [redacted]@knights.ucf.edu Phone [redacted]
 Address [redacted] City, State [redacted] Zip [redacted]
 Institutional Affiliation University of Central Florida
 Project Director or Advisor Dr. Barbara Murray Phone [redacted]

Degree Sought (check one):
 Associate Bachelor's Master's Specialist
 Doctorate Not Applicable

Project Title: A study of a third grade summer reading camp: Does it promote student achievement and is it cost effective?

ESTIMATED INVOLVEMENT			
PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY SCHOOLS BY NAME AND NUMBER OF TEACHERS, ADMINISTRATORS, ETC.
Students			
Teachers			
Administrators			
Schools/Centers			
Others (specify)	<u>3</u>	<u>6 hours</u>	<u>District Administrators</u>

Specify possible benefits to students/school system: The immediate impact of reading camp on student achievement will be measured, as well as one and two years post attendance to determine long term impact. A cost-effectiveness analysis will be conducted to determine if program is effective for its cost compared to other programs.

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the [redacted] County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director, Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature Krista Bixler

Approval Granted: Yes No Date: 7-9-12
 Signature of the Senior Director for Accountability, Research, and Assessment: [Signature]

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal who has the option to refuse participation depending upon any school circumstance or condition. The original Research Request Form is preferable to a faxed document.

Reference School Board Policy GCS, p. 249

OCPS1044ARA (Revised 2/10)

APPENDIX C: DISSERTATION DEFENSE ANNOUNCEMENT

Announcing the Final Examination of Mrs. Krista M. Bixler for the degree of Doctor of Education

Date: May 30, 2013

Time: 1:00 p.m.

Room: COE 305

Field Study Title: A Study of a Third Grade Summer Reading Camp: Its Promotion of Student Achievement and Its Cost Effectiveness

The purpose of this study was to determine the immediate and long term impact of participation in the 2009 Third Grade Summer Reading Camp, and determine the cost-effectiveness of providing this program compared to the cost-effectiveness of reading interventions identified by Yeh (2010). All students in this study scored an achievement level one on the 2009 FCAT and either attended the summer reading camp or received a good cause exemption for promotion to the next grade level. One hundred thirty students who attended the program and passed were compared to a random sample of 130 students who received another good cause exemption. Results of an independent t-test indicated students who passed summer school outperformed students who received another good cause exemption; however, the majority of students who attended summer school and passed performed below grade level on the 2010 and 2011 FCAT.

Based on district records, the total cost of summer school was calculated and adjusted for inflation to 2006 dollars so a comparison could be made to Yeh's (2010) study. The annualized cost per student was \$289.74. Data to determine the immediate impact of summer school was not available; therefore, student performance on the 2009 FCAT was compared to their performance on the 2010 FCAT by calculating a paired samples t-test.

Based on this information, implications for practice and recommendations for further investigation were discussed.

Major: Educational Leadership

Committee in Charge:
Dr. Barbara A. Murray
Dr. Kenneth Murray
Dr. Rosemary Taylor
Dr. Lee Baldwin

Educational Career:
B.S., 1998, University of Central Florida
M.Ed., 2008, University of Central Florida

Approved for distribution by Barbara A. Murray, Committee Chair on May 9, 2013.

The public is welcome to attend.

LIST OF REFERENCES

- Austin, G. R., Rogers, B. G., & Walbesser, H. H. (1972). The effectiveness of summer compensatory education: A review of the research. *Review of Educational Research, 42*(2), 177-181.
- Borman, G. D. (2000). The effects of summer school: Questions answered, questions raised. *Monographs of the Society for Research in Child Development, 65*(1), 119-127.
- Borman, G. D., & Dowling, N. M. (2006). Longitudinal achievement effects of multiyear summer school: Evidence from the Teach Baltimore randomized field trial. *Educational Evaluation and Policy Analysis, 28*(1), 25-48.
- Cooper, H., Charlton, K., Valentine, J. C. & Muhlenbruck, L. (2000). Making the most of summer school: A meta-analytic and narrative review. *Monographs of the Society for Research in Child Development, 65*(1), 1-118.
- Erceg-Hurn, D.M., & Mirosevich, V.M. (2008). Modern robust statistical analysis: An easy way to maximize the accuracy and power of your research. *American Psychologist, 63*(7), 591-601.
- Fairchild, R., Smink, J., Stewart, A. B., & Wallace, F. (2009). *It's time for summer: An analysis of recent policy and funding opportunities*. Retrieved from the Wallace Foundation website: <http://www.wallacefoundation.org/knowledge-center/summer-and-extended-learning-time/summer-learning/Documents/Its-Time-for-Summer.pdf>

- Fitzpatrick, J. L., Sanders, J.R., Worthen, B.R. (2011). *Program evaluation: Alternative approaches and practical guidelines* (4th ed.). New Jersey: Pearson Education.
- Florida Department of Education. (2009). *Understanding FCAT reports 2009*. Retrieved from http://fcat.fldoe.org/pdf/ufr_2009.pdf
- Florida Department of Education. (2010). *2010 Guide to calculating school grades*. Retrieved from <http://schoolgrades.fldoe.org/pdf/0910/2010SchoolGradesTAP.pdf>
- Florida Department of Education. (2011). *2011 Guide to calculating school grades*. Retrieved from <http://schoolgrades.fldoe.org/pdf/1011/SchoolGradesTAP2011.pdf>
- Florida Department of Education. (2011). *Understanding FCAT 2.0 reports 2011*. Retrieved from <http://fcat.fldoe.org/fcat2/pdf/11ufrfinal.pdf>
- Harcourt Assessment & Human Resources Research Organization. (2007). *Reading and mathematics: Technical report for the 2006 FCAT test administrations*. Retrieved from Florida Department of Education website: <http://fcat.fldoe.org/pdf/fc06tech.pdf>.
- Hummel-Rossi, B. & Ashdown, J. (2002). The state of cost-benefit and cost-effectiveness analyses in education. *Review of Educational Research*, 72(1), 1-30.
- Kim, J. S. & White, T. G. (2011). Solving the problem of summer reading loss. *Phi Delta Kappan*, 92(7), 64-67.
- Klibanoff, L. S., Haggart, S. A., (1981). *Summer growth and the effectiveness of summer school* (Technical Report No. 8). Study of the Sustaining Effects of

Compensatory Education on Basic Skills. Mountain View, CA: RMC Research Corp.

Kubina, R. M., Commons, M. L., & Heckard, B. (2009). Using precision teaching and direct instruction in a summer school program. *Journal of Direct Instruction*, 9(1), 1-12.

Lauer, P. A., Akiba, M., Wilkerson, S. B., Apthorp, H. S., Snow, D., & Martin-Glenn, M. L. (2006). Out-of-school-time programs: A meta-analysis of effects for at-risk students. *Review of Educational Research*, 76(2), 275-313.

Levin, H.M. (1983). *Cost-effectiveness: A primer*. Beverly Hills: Sage Publications.

Levin, H.M. (1988). Cost-effectiveness and educational policy. *Educational Evaluation and Policy Analysis*, 10(1), 51-69.

Levin, H.M., et al. (1984). *Cost-effectiveness of four educational interventions*. Stanford University, CA: Institution for Research on Educational Finance and Governance.

Luftig, R. L. (2003). When a little bit means a lot: The effects of a short-term reading program on economically disadvantaged elementary schoolers. *Reading Research and Instruction*, 42(4), 1-13.

Office of Program Policy Analysis & Government Accountability. (2006). *Third grade retention policy leading to better student performance statewide* (OPPAGA Report No. 06-66). Retrieved from

<http://www.oppaga.state.fl.us/MonitorDocs/Reports/pdf/0666rpt.pdf>

Orange County Public Schools (2009). *Third grade summer reading camp* [Data file].

Retrieved from <https://www.ocps.net/Pages/default.aspx>

- Paris, S., Pearson, P., Cervetti, G., Paris, A., Martineau, J., et al. (2004). Assessing the effectiveness of summer reading programs. In G. D. Borman & M. Boulay (Eds.), *Summer learning: Research, policies, and programs* (pp. 121-161). Mahwah, NJ: Lawrence Erlbaum.
- Pisapia, J. (1994). How to conduct a cost-effectiveness analysis. (Research Brief No.16). Richmond, VA: Metropolitan Educational Research Consortium. Retrieved from <http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno+ED411354>
- Portz, J. (2004). Summer school 2000 and 2001: The Boston Public Schools transition services program. In G. D. Borman & M. Boulay (Eds.), *Summer learning: Research, policies, and programs* (pp. 103-119). Mahwah, NJ: Lawrence Erlbaum.
- Roberts, G. & Nowakowski, J. (2004). Addressing the summer learning loss: An evaluation of the Voyager summer reading intervention program. In G. D. Borman & M. Boulay (Eds.), *Summer learning: Research, policies, and programs* (pp. 165-181). Mahwah, NJ: Lawrence Erlbaum.
- Roderick, M., Jacob, B., Bryk, A. (2004). Summer in the city: Achievement gains in Chicago's summer bridge program. In G. D. Borman & M. Boulay (Eds.), *Summer learning: Research, policies, and programs* (pp. 73-102). Mahwah, NJ: Lawrence Erlbaum.
- Rose, S. (2012). *Third grade reading policies*. Retrieved from Education Commission of the States website: <http://www.ecs.org/clearinghouse/01/03/47/10347.pdf>

- Rose, S. & Schimke, K. (2012). *Third grade literacy policies: Identification, intervention, retention*. Retrieved from Education Commission of the States website:
<http://www.ecs.org/clearinghouse/01/01/54/10154.pdf>
- Schacter, J., & Jo, B. (2005). Learning when school is not in session: A reading summer day-camp intervention to improve the achievement of exiting first-grade students who are economically disadvantaged. *Journal of Research in Reading*, 28(2), pp. 158-169.
- Sloan McCombs, J., Augustine, C. H., Schwartz, H. L., Bodilly, S. J., McInnis, B., Lichter, D. S., & Brown, A. (2011). *Making Summer Count: How Summer Programs Can Boost Children's Learning [Monograph]*. Santa Monica, CA: RAND Corporation. Retrieved from
<http://www.rand.org/pubs/monographs/MG1120.html>
- Steinberg, W. J. (2011). *Statistics alive* (2nd ed.). Los Angeles, CA: SAGE Publications.
- Student Progression, Fla. Stat. § 1008.25 (2011).
- United States. Department of Labor. Bureau of Labor Statistics. (n.d.). *CPI inflation calculator*. Retrieved from http://www.bls.gov/data/inflation_calculator.htm
- VanDerHeyden, A. M., Witt, J. C., & Naquin, G. (2003). Development and validation of a process for screening referrals to special education. *School Psychology Review*, 32(2), 204-227.
- Yeh, S. (2010). The cost effectiveness of 22 approaches for raising student achievement. *Journal of Education Finance*, 36(1), pp. 38-75.

Zvoch, K. & Stevens, J. J. (2011). Summer school and summer learning: An examination of the short- and longer term changes in student literacy. *Early Education and Development*, 22(4), 649-675.