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Project Child And Non-project Child School Performance On Fcat Reading, Mathematics And Writing

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PROJECT CHILD® AND NON-PROJECT CHILD® SCHOOL PERFORMANCE ON FCAT® READING, MATHEMATICS AND WRITING

by

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ABSTRACT

Project CHILD® (Changing How Instruction for Learning is Delivered) provides an avenue for educational change using a triangulated approach. Using data from the Florida Department of Education, this research studies the Project CHILD® learning approach on preparing students for success on portions of the Florida Comprehensive Assessment Test (FCAT®) using results from fifteen charter schools in the state of Florida, seven participating in Project CHILD® and eight non-participating charter schools for the 2008-2009 school-year. Dispersion statistics such as range and standard deviation as well as independent *t* tests are computed to compare the percentage of students in grades three to five scoring levels 3 and higher on the reading and mathematics portions, and fourth grade students scoring a 3.5 or higher on the writing assessment of the FCAT®. Project CHILD® schools had smaller ranges and standard deviations in the majority of the comparisons. Descriptively, this suggests that students in the Project CHILD® schools are performing closer to the school average. There were no statistically significance differences between the Project CHILD® schools and non-Project CHILD® schools for grade level comparisons, nor on any grade level aggregate outcomes (i.e., grades 3-5 school FCAT® reading, mathematics, or writing mean). However moderate effect sizes were seen for reading in grade four and writing assessments in grade four. The non-statistically significant findings were likely due to low power, and the moderate effect sizes suggest evidence of practical significance.

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LIST OF ACRONYMS / ABBREVATIONS

FCAT®	Florida Comprehensive Assessment Test
DOE	Florida Department of Education
FSU	Florida State University
ISI	Institute for School Innovation
NCLB	No Child Left Behind Act of 2001
P21	Partnership for 21st Century Skills
PC	Project CHILD®
Project CHILD®	Changing How Instruction for Learning is Delivered
SSS	Sunshine State Standards

CHAPTER ONE: INTRODUCTION

This chapter will discuss the theoretical background for the research study, a description of the purpose and significance of the study, a listing of specific research questions, applicable delimitations and limitations, and an explanation of all operational definitions.

Theoretical Background

Two main forces are currently marking the path and future of education: high stakes testing and technology driven developments. Even before the No Child Left Behind (NCLB) Act in 2001, many states relied on standardized testing for accountability purposes. Now, under the direction and law of NCLB, each state administers reading and mathematics testing in grades 3 – 8 and once again in high school (Jennings & Rentner, 2006). In response to NCLB, McMurrer (2008) notes that in a nationally representative sample of 349 school districts, 62% of the school districts reported increases in instructional time spent in English language arts and math. English language arts was increased an average of 43% more, adding an average of 141 more minutes a week, and math instruction was increased by an average of 32%, or an average of eighty-nine minutes a week. As a result, 72% of the districts reporting an increase in English language arts and math instructional time reported decreasing time spent in other subjects such as science, social studies, physical education, arts and recess by at least seventy-five minutes a week.

Increasingly, there is a need for students and high school graduates to move beyond the rote and basic knowledge of twenty years ago. Interestingly, the next driving force behind educational reform, technological development, has resulted in a distance from the 'back to the basics' movements of the 1990s (Partnership for 21st Century Skills [P21], 2007). From a nationwide poll of 800 registered voters, 66% of voters recognized the necessity for curriculum to integrate more than the basics into core content (P21, 2007). Technological developments and advances have sparked a need for 21st century learning skills, beginning in elementary education, in order to keep up with the demands of the global economy and workplace. The Partnership for 21st Century Skills (P21) insists upon 21st century skills in the classroom, described best as an incorporation of reading, writing and mathematics with critical thinking and problem solving, communication, collaboration, and creativity and innovation (P21, 2009). While the catalyst for 21st century skills is new evolving technologies that change the way we live, the backbone of 21st century skills involves a need to not only to gain knowledge in core subjects, but for students to "know how to use their knowledge and skills-by thinking critically, applying knowledge to new situations, analyzing information, comprehending new ideas, communicating, collaborating, solving problems, and making decisions," (P21, 2002).

It would seem that NCLB and 21st century skills would be contradictory: teaching to a test does not coincide with guiding students' creativity and higher order thinking skills. As developer of the Project CHILD® system, Dr. Sarah (Sally) Butzin realizes the potential of NCLB in "transforming the old style of education for the 21st century," (Butzin, 2007, p. 768). The Project CHILD® system provides an avenue for merging the demands of accountability and 21st century thinking while also adding specific benefits of the system, as will be discussed more thoroughly in Chapter Two.

Purpose

The purpose of this study is to explore the Project CHILD® system and elementary students' FCAT® reading, mathematics and writing scores compared to the scores of students not enrolled in Project CHILD® classrooms. Project CHILD® (Changing How Instruction for Learning is Delivered), formerly Computers Helping Instruction and Learning Development, classrooms are built around the CHILD® teaching methods, including the collaboration of three specialist teachers (one each in reading, writing and mathematics) and delivering instruction to three grade levels and for three consecutive years (i.e. looping). Each Project CHILD® classroom utilizes whole group instruction, independent stations, and reflective learning, and inclusion of technology.

Significance

Educators and advocates are constantly searching for educational avenues and teaching models that positively influence diverse learners, teachers and communities. Project CHILD® is a curriculum system that prepares students for 21st century learning in an innovative way. Project CHILD® merges multiple successful factors, such as looping, departmentalizing, differentiated instruction and student-centered technology integration into one educational program (Institute for School Innovation [ISI], 2010b). Accordingly, this study will compare student academic performance (aggregated to the school level) of schools fully immersed in the Project CHILD® methods to those without Project CHILD®.

Research Questions

The following research questions guided this study.

1. Is there a mean difference in the 3rd-5th grade average percentage of students scoring level 3 and above on FCAT® reading in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
2. Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?

3. Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
4. Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
5. Is there a mean difference in the 3^{rd}-5^{th} grade average percentage of students scoring level 3 and above on FCAT® mathematics in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
6. Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
7. Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
8. Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?
9. Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® writing assessment during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools?

Delimitations

For the purpose of this study, the sample was delimited to charter elementary schools in the state of Florida that had adopted Project CHILD® school-wide and charter elementary schools that had not adopted Project CHILD® school-wide. Specifically, the charter elementary schools used in this study included only those under the direction of the Imagine Schools organization of charter schools. The study was also delimited to schools that had available 2008-2009 FCAT® performance data. The FCAT® reading, mathematics and writing score data is publicly shared at the Florida Department of Education website (www.fldoe.org) under the heading of Data and Statistics: FCAT® Demographic Results.

Limitations

One limitation of the study is that individual student scores were not used, rather school wide percentages.

Also, the two groups of schools, Project CHILD® (PC) and non Project CHILD® (non PC) were matched only on charter school status, being under the direction of Imagine Schools organization and either school-wide implementation or non school-wide implementation of the Project CHILD® system. School memberships according to minority rates or the number of students on free and reduced lunch were not completely matched among Project CHILD® schools and non Project CHILD® schools. Student, teacher, and school characteristics were not matched. Refer to Table 2 in chapter three for a discussion about the membership for each school.

Equally important, as discussed Project CHILD® is a program incorporating many factors, some of which this study was not able to resourcefully consider. In using the Project CHILD® schools on the basis of full immersion, the sample of Project CHILD® schools included schools in their first year of operation. Another limitation in this study is that most schools in the sample have only been implementing the Project CHILD® system for one year so the participants tested would not have the full benefit of looping. For example, schools with the full benefit would have fifth graders in their third year of rotation with the same three teachers, and third graders would have recently completed a three year rotation from grades kindergarten through second.

For the schools participating in this study, all but one Project CHILD® school was in its first year of operation for the 2008-2009 school year in which data has been collected (see Table 1). Butzin (2001) was able to show higher academic achievement for Project CHILD® students in their third year of rotation with non Project CHILD® students from the same schools. This study would be appropriate to replicate in the next two years as students in the Project CHILD® schools complete their second and third years of rotation. A clearer picture of the effects of looping and completion of Project CHILD® cluster rotations on FCAT® data would be provided.

Table 1

Summary of Project CHILD School Openings

PC School	School Year In Which Operation Began	Years of Operation in 2008-2009 School Year
PC School 1	2008-2009	One
PC School 2	2008-2009	One
PC School 3	2006-2007	Three
PC School 4	2008-2009	One
PC School 5	2008-2009	One
PC School 6	2008-2009	One
PC School 7	2008-2009	One

Operational Definitions

Some operational definitions are needed to clarify terms involved in this research study. In this study, the Project CHILD® system may be seen abbreviated as PC. The schools chosen for this study are only those charter schools in the state of Florida under the direction of the Imagine Schools organization. Therefore, those charter schools with a school-wide implementation of the Project CHILD® system are termed Project CHILD® or PC, and those charter schools without a school-wide implementation of the Project CHILD® system will be termed as non-Project CHILD® or non PC.

CHAPTER TWO: LITERATURE REVIEW

This chapter will present an overview of the Project CHILD® system, looping, departmentalization, technology in the classroom and current research on Project CHILD®.

Overview of the Project CHILD® System

Project CHILD® is a research based teaching program that focuses on a triangulated approach to learning. Research and development of Project CHILD® began in 1988 by Dr. Sarah (Sally) Butzin at Florida State University (FSU). Since 1995, Project CHILD® has been operated by the Institute for School Innovation (ISI) under the direction of Founder and Executive Director, Dr. Butzin. Butzin (2005) aptly describes a triangulated approach as a "metaphor for strength" (p. 22) utilizing the following methods: three core subjects, three-teacher expert teams, three grade clusters, three-classroom rotations, three + three learning stations, three learning modes and three years of continuous progress. Unlike traditional 'one teacher, one class' methods, Project CHILD® collaborates three teachers across three grade levels, either kindergarten, first and second, or third, fourth and fifth grades in elementary school. Each teacher becomes a master of one academic domain including reading, writing and mathematics. While each teacher has a homeroom class, they teach all three grades, with the students moving between the three classrooms each and every day. In this way, students receive a complete ninety-minute reading, writing, and mathematics block each day. Science and social studies curriculums are interwoven (ISI, 2020b).

In addition, the three dimensional approach is connected in each classroom. First, the Project CHILD® approach is centered upon the design of independent station work in each academic area. After the direct instruction from the teacher, students participate in teacher created, child-selected learning stations which include three modes of learning; paper/pencil activities, hands on learning, and technology (Butzin, 2005). Second, the curriculum design includes a Project CHILD® developed tool called a Passport (Butzin, 2000). A Passport is a student's tool for planning (which work to finish or station to visit), learning (which objectives are covered by each station assignment) and reflecting (what was learned at each station) in each classroom.

Third, and an important component, are Project CHILD® clusters, in which the cluster groups of three teachers loop with each group of students for three continuous years. Therefore, students who begin the program in kindergarten (or third grade for intermediate grades) then stay with the same teachers and classmates through three consecutive years (Butzin, 2005). Teachers are then able to begin the second and third years with the students, knowing where each student stands academically, behaviorally, socially, emotionally, etc. In effect, teachers develop relationships and collaborations with parents and family over the course of three years.

Looping

An important aspect of Project CHILD® that separates the program from the majority of traditional elementary classrooms is the looping factor. Looping refers to the practice in which a group of students remain with the same teacher for two or more years, in the case of Project CHILD®, three years. Although a student's homeroom teacher changes each year, the student remains with the same three teachers for three consecutive years in Project CHILD® (ISI, 2010b).

Cistone, & Shneyderman (2004) provide Rudolf Steiner, creator of Waldorf Schools in Germany, as preparing the foundation for looping in the early 1900s. Waldorf Schools loop groups of students with teachers for grades one through eight, on the idea that students would benefit from the lasting relationships (Cistone, & Shneyderman, 2004). Even now, teachers in

Germany continue to loop students through grades one to four (Northeast and Islands Regional Educational Laboratory at Brown University, 1997).

Summaries of first-hand accounts of looping report substantial benefits. From their implementation of looping with first graders to second grade at a school in Vermont, Mazzuchi and Brooks (1992) note the increases in language and social skills of students and the increased parent participation in the second year of rotation. In another personal account, published in *Teaching Pre K-8,* Jacoby (1994) recalls the strong bonds of friendships and trust that were formed by first graders in her classroom in Chicago, IL over the two year looping period from first grade to second grade. She emphasizes the deep relationships that students grew, supporting and encouraging each other, just by spending another year together. Further, Jacoby exemplifies that looping enables teachers to learn the strengths and weaknesses of students and apply that information in a way that couldn't be done in one year. She states, 'I had watched my students' skills emerge and solidify. I was able to reinforce those skills in a style that was consistent over two years," (Jacoby, 1994, p. 59).

A teacher in Virginia who looped with students from first grade to fifth grade remarked about the more solid sense of community (O'Neil, 2004) that is built between peers and gives students confidence to take more risks in learning. From another account, a principal in New York brings to mind that teachers who loop extend their knowledge of the curriculum as a whole when faced with the responsibility of teaching more than grade level year (Delviscio & Muffs, 2007).

Consequently, the additional time with students increases more than relationships. In one particular school system in Massachusetts, all teachers in grades one to eight are required to loop with their students for two years. An extra 'bonus' for this Massachusetts area, as Hanson

(1995), one of the teachers says, is the additional teaching time that replaces the getting-to-know-you period at the beginning of the year. From the students' perspective, this translates to less anxiety and stress about the first day of school with new classmates and a new teacher (Hanson, 1995). From a parent survey of preschool children, many parents referred to the continuation using the words 'familiarity and consistency,' (Hegde & Cassidy, 2004).

Furthermore, in the case of academic achievement, Cistone, & Shneyderman (2004), compared the FCAT® reading and mathematics scores of a looping sample of students ranging in grades from second to fifth with a matched sample of non-looped students and found better academic achievement for the looping sample in both test results. In their study, Cistone & Shneyderman (2004) were able to match students in eleven Florida public schools that looped with those that did not according to gender, race/ethnicity, status on free and reduced lunch, primary exceptionality, and English for Speakers of Other Languages (ESOL) levels. Each sample consisted of 612 students, with 410 also being matched on previous academic achievement on the 1998 Standard Achievement Test. Specifically, the looping sample (M = 634, SD = 42) outperformed 56% of the matching sample (M = 628, SD = 44), in reading and 58% of the matching sample in mathematics. Therefore, looping has shown to create the benefits of student achievement, as well as the social advantages discussed.

Departmentalizing and Team Teaching

Not to be confused with co-teaching, departmentalization occurs when a teacher is responsible for teaching one specialized area of curriculum, such as language arts or science. While the terms co-teaching and team teaching are often interchangeable with departmentalization, for this study, the term departmentalization and team teaching will be used to describe content area specialist teachers: teachers that are accountable for the curriculum of one subject area, working alongside another teacher (or teachers) that are responsible for more than one class of students. As an example, a third grade reading teacher who has three classes of students rotate throughout her room each day. Most commonly, departmentalization is observed in middle and high schools, where teachers teach one subject, possibly to many grade levels (Mac Iver & Epstein, 1993). Also commonly noted, many elementary schools departmentalize physical education, music, art, and even computer as special area activities. In Project CHILD®, this is detected in the three main areas of academics; reading, writing and mathematics which are departmentalized, while science curriculum is integrated with mathematics, and social studies with writing.

Information on departmentalization in elementary education states some possible effects including better utilization of teaching time, increased teacher satisfaction and decreased workload, and smooth transitions to middle school (Chan & Jarman, 2004). A study conducted by Gerretson, Bosnick, and Schofield (2008) surveyed principals from 32 schools in Duval County, Florida, with a focus on the organizational methods of instruction most commonly used in each school. Respondents indicated that 53% utilized content area specialists for third grade, 75% did so for fourth grade, and 78% did for fifth grade, but no more than 3% reported content area specialist teachers for first, second and sixth grades.

Respondents in the survey study also reported an increase in professional development participation when implementing a content area specialist or team teaching model, as termed in the particular survey (Gerretson et al., 2008). For elementary teachers, professional development opportunities, meetings and trainings would be more intriguing. For example, at the Institute for School Innovation's (ISI) annual Project CHILD® conference, sessions for both primary and intermediate teachers in all three subject areas are available, presenting each discipline with strategies for improvement. Delviscio (2007) confirms that after implementation of a departmentalized curriculum, teachers in grades three through five experienced increased enthusiasm, “when they began spending more time working in subject areas that are most interesting to them,” (para. 10). Reys & Fennell (as cited in Geretson et al., 2008, p. 303) view the impracticality for specialized knowledge in every subject area, when many areas, such as mathematics as in Reys & Fennell’s example, require understanding at a conceptual level. Lowery (as cited in Geretson et al., 2008 p. 304) supports this stating better prospect for teachers to focus on subject area and pedagogical content, and instructional strategies at a deeper level and increase expertise.

Technology In The Classroom

Before 2002, the CHILD® acronym stood for Computers Helping Instruction and Learning Development (ISI, 2010a). Roots of the Project CHILD® curriculum are based on technology integration, with each of the three classrooms utilizing technology on a daily basis in teacher instruction and student learning stations.

Stated by Flynt & Brozo (2010), “Clearly one would have to be naïve not to recognize the important influence visual culture is having on the current generation of children and youth who are native to the Internet and the digital world,” (pg. 526). Technology integration, not merely use of technology, is most advantageous for learning; moreover, technology should be integrated into the curriculum, not vice versa (Keengwe & Onchwari, 2009).

Consequently, this implies that the multimedia content itself may not always be favorable, for example, watching videos: instead technology should be rooted with the concepts the teacher is seeking as a supplement to instruction (Chambers et al, 2008). In their study, Chambers et al (2008) discovered that embedding technology in classroom and tutorial instruction positively supports at-risk first graders' reading abilities and added over half a standard deviation to their reading performance (median effect size = +0.53). The content of the multimedia in this case, is a computer assisted tutoring program called Alphie's Alley, which "presents engaging animations, tracks children's progress, accommodates student diversity, and provides consistent feedback and scaffolding," (Chamber et al, 2008, pg. 6).

Likewise, Means (2010) proposes a myriad of recommendations for the technologically inclusive classroom consisting of constantly reviewing software, realizing the potential of assessment data (as recalled in Alphie's Alley), and applying the teacher as a facilitator to encourage a student-centered classroom. The premise of student-centered technology integration is also noted by others (Crocco & Cramer, 2005; Hofer & Swan, 2006). Hofer & Swan (2006) illustrate that a student-centered classroom is one that goes beyond applying technology in similar ways to teacher-centered models of presentation, for example merely replacing a PowerPoint™ presentation with an overhead projector is teacher-centered (as cited in Doolittle & Hicks, 2003). In contrast, technology integration that includes word processing, presentation software and the Internet has been found to be more positively related to student-centered learning (Inan, Lowther, Ross, & Strahl, 2010).

Research on the Project CHILD® System

Project CHILD® research spans back to the early '90s when the program was initially introduced as a technology infused program. Although much of the research for Project CHILD® has been collected by Dr. Butzin and the Institute for School Innovation, private organizations, such as Florida TaxWatch and the Program Effectiveness Panel of the National Diffusion Network, and school districts have taken part in additional research that supports Project CHILD® for school improvement and student learning gains. Dr. Butzin's articles can be found in many peer reviewed journals including the *Phi Delta Kappan, Journal of Research on Computing in Education,* and *Education Digest.* The Institute for School Innovation (2010) and Berquist (2010) have assembled and summarized much of the research from school districts, organizations and ISI, all found at ISI's website (www.ifsi.org). In summary, Project CHILD® has revealed lower retention rates, higher comparison student achievement on validated tests, school-wide improvement, and positive long term effects.

To illustrate, a 1992 study (Berquist, 2010) compared 1,500 students from nine Florida public schools that participated in Project CHILD® with students from the same schools that did not participate in Project CHILD®. The study showed retention rates to be 1% for Project CHILD® students and 3% for non Project CHILD® students from nine schools in Florida. Likewise, in 2005, 93% of the CHILD® students from twenty seven Florida schools passed the FCAT® and were promoted as compared to the state average of 89% (ISI, 2010). Continuing, school-wide implementation of Project CHILD® aided a failing Kentucky elementary school to surpass expectations in four short years (Berquist, 2010). Last, a follow-up study showed that middle school students that participated in Project CHILD® scored five to ten percentiles higher than non Project CHILD® students on a comprehensive test and nearly half (41.6%) compared to 25.5% were enrolled in advanced math classes.

In another area, Butzin (2001) conducted a study designed to compare student academic performance from two Miami-Dade County public schools; one Project CHILD® school and one non Project CHILD® school with similar demographics and similar technology-rich characteristics. Both schools contained a comparable ratio of instruction computers per student, about five students per computer. Standardized test scores from grades two and five were chosen to illustrate the effect of a full three-year cycle in Project CHILD®. Students in the Project

CHILD® group scored higher on all test areas than the non-Project CHILD® group, proposing that technology usage is more effective in transformed learning environments that include all of the components of the Project CHILD® system, rather than in a traditional approach to classroom teaching (i.e. one teacher with one group of students teaching all subject areas). Mean scale scores for grade two Project CHILD® students (N= 109) were higher (reading comprehension M= 582.514, SD= 43.892; mathematics computation M= 583.545, SD= 53.721; mathematics applications M= 578.327, SD= 43.047) than non Project CHILD® students' (N= 188) mean scale scores (reading comprehension M= 574.505, SD= 38.021; mathematics computation M= 582.293, SD= 43.862; mathematics applications M= 565.229, SD= 37.290). Small effect sizes for each test were shown for the second grade comparisons as follows: reading comprehension, d= .195, mathematics computation, d= .026, and mathematics applications, d= .352. The same results showed for fifth grade Project CHILD® students' (N= 94) mean scale scores (reading comprehension M= 657.596, SD= 30.453; mathematics computation M= 674.58, SD= 52.080; mathematics applications M= 675.351, SD= 45.246) and non Project CHILD® students (N=188) mean scale scores (reading comprehension M= 647.691, SD= 31.114; mathematics computation M= 658.187, SD= 34.291; mathematics applications M= 664.809, SD= 40.067). Small effect sizes for each test were shown for the fifth grade comparisons as follows: reading comprehension, d= .322, mathematics computation, d= .372, and mathematics applications, d= .247. In summary, Butzin (2001) showed that it is all the components of the Project CHILD® system enacted that support effective technology integration.

Necati, Davis, Zhang, & Pershin (2005) discuss Phase IV, which compared Project CHILD® and non Project CHILD® students from Marion and Osceola counties in Florida on areas of the SAT-9 and FCAT® tests. In this comparative study, six schools from each district, two of which from each district had implemented Project CHILD®, were used as comparisons. Most importantly, Necti et al (2005) showed that according to mean scale score comparisons, African American and Hispanic Project CHILD® students outperformed the non Project CHILD® counterparts six out of ten times on SAT-9 and FCAT® reading areas, and Hispanic Project CHILD® students outperformed their counterparts six out of ten times on mathematics portions. What's more, Necti et al (2005) note an affirmative trend in all student achievement as participation in Project CHILD® is increased within schools and even within districts. Their study showed that all Project CHILD® students performed better on the reading and math tests in their second year of Project CHILD® participation.

CHAPTER THREE: METHODOLOGY

This chapter will provide a thorough overview of the research design, population setting of the research, sources of data, instrumentation, and data analysis.

Design

This study reflects a non-experimental design that retrieved data directly from the Florida Department of Education (Florida Department of Education [DOE], n.d.b)

Population

While many public elementary schools in Florida contain Project CHILD® cluster teams, few use the program school-wide. Thus academic performance at the school level reflects both children that did and children that did not participate in Project CHILD®, making interpretations of Project CHILD® at the school-level difficult. Therefore for the purposes of this study, all public charter schools under the direction of the Imagine Schools organization that implemented Project CHILD® school-wide during 2008-2009 were selected ($n = 8$). All public charter schools under the direction of the Imagine Schools organization that did not implement Project CHILD® school-wide during 2008-2009 were selected as comparison schools ($n = 7$). There were two public charter schools under the direction of the Imagine Schools organization that implemented Project CHILD® school-wide but that did not begin operation until the 2009-2010 school year thus were excluded from the study due to lack of sufficient data available. Some characteristics of public charter schools include receipt of public education monies, tuition free education, and most pertinent, choice enrollment.

Setting for the Study

Although the schools span twelve counties in the State of Florida, including Palm Beach, Broward, Leon, Manatee, Sarasota, Pinellas, Lake, Indian River, Flagler, Brevard, Osceola, and

Pasco, the percentages of students on free and reduced lunch are not congruent with one another. As an illustration, the percentage of students on free and reduced lunch for the PC sample schools range from 6.3% to 46.6% while the non PC samples range from 0.4% to 89.2%. Table 2 below displays the total membership for each school and percentages of white, African American, Hispanic, Asian, Indian and multiracial students for the 2008-2009 school year. This data was obtained from the Florida Department of Education, Florida School Indicators Report (DOE, n.d.a). As seen in Table 2, non PC samples include both the largest and smallest percentages of white students (83.2%, 2.9%) and also the largest and smallest percentages of African American students (79.4%, 0.9%). From the membership numbers, we can also calculate that the average PC school membership is 317 while the average non PC school membership is 524. Given that six of the PC schools are in the first year of inception, smaller overall membership would be expected. Table 2 conveys the limitation of unmatched samples in this study.

Table 2

PC and non PC School Memberships for the 2008-2009 School Year

School	Total Membership 2008-2009	% White	% African American	% Hispanic	% Asian	% Indian	% Multiracial
PC School 1	348	59.8	15.2	14.1	5.5	0.3	5.2
PC School 2	326	66.0	19.3	3.4	3.4	0.9	7.1
PC School 3	249	66.7	9.6	16.9	4.4	0.0	2.4
PC School 4	60	76.7	11.7	3.3	0.0	0.0	8.3
PC School 5	393	73.8	3.8	10.4	6.1	0.3	5.6
PC School 6	512	75.4	3.3	11.1	2.1	0.6	7.4
PC School 7	328	39.6	44.8	4.6	0.9	0.0	10.1
non PC School 1	750	24.7	7.7	56.0	3.3	0.1	8.1
non PC School 2	408	33.6	45.3	13.0	0.0	0.5	7.6
non PC School 3	244	70.1	12.3	8.6	2.9	0.8	5.3
non PC School 4	434	83.2	5.8	7.1	1.2	0.0	2.8
non PC School 5	701	62.8	7.0	21.8	5.1	0.7	2.6
non PC School 6	536	56.2	13.2	19.6	1.7	0.2	9.1
non PC School 7	306	2.9	79.4	10.5	4.2	0.7	2.3
non PC School 8	813	38.0	0.9	56.9	2.7	0.2	1.2

Data Source

Information about Imagine Schools, an organization that operates public charter schools, in many states including Florida, and each particular Imagine School's website is found online (www.imagineschools.com). Program information and participation in Project CHILD® for each school is summarized at the Imagine Schools website, or each school's website. School level FCAT® score data for this research study was taken directly from the Florida Department of Education (DOE, n.d.b). In addition, membership information of the schools included in this study was obtained from the Florida School Indicators Reports (DOE, n.d.a).

Instrumentation

FCAT®

In Florida, the Florida Comprehensive Assessment Test (FCAT®) is a criterion-referenced test used to assess student achievement in reading, mathematics, writing and science. Specifically, the FCAT® tests the higher-order thinking skills related to the Sunshine State Standards (SSS) (DOE, 2009).

FCAT® Reading

The FCAT® reading examination is given in grades 3 – 10. Content tested at each grade level includes words and phrases in context, main idea, plot and purpose, comparisons and cause/effect, and reference and research. In third and fifth grade, students are given 50 – 55 multiple questions; in fourth grade, students are given 45 – 50 multiple choice questions and 5 – 7 short and extended response questions (DOE, 2009). Short and extended response questions are graded holistically, on a two point scale for short response questions and a four point scale for extended response questions (Orr, n.d.).

FCAT® Mathematics

The FCAT® mathematics examination is given in grades 3 – 10. Content tested at each grade level includes number sense, concepts, and operations, measurement, geometry and spatial sense, algebraic thinking, and data analysis and probability. In third and fourth grade, students are given 50 – 55 multiple questions; in fifth grade, students are given 35 - 40 multiple choice questions, 10 – 15 gridded response questions and 5 – 8 short and extended response questions (DOE, 2009). Short and extended response questions are graded holistically, on a two point scale for short response questions and a four point scale for extended response questions (Orr, n.d.).

FCAT® Writing

The FCAT® writing examination is given in grades 4, 8 and 10. Students are given one prompt in either of the following three modes of writing; narrative, expository or persuasive. In fourth grade, only narrative and expository prompts are given (DOE, 2009). Writing prompts are graded holistically, incorporating writing elements of focus, organization, support and conventions, on a six point scale (Orr, n.d.).

Score Creation

Frequencies and percentages of students scoring at levels 1-5 were obtained from the Florida Department of Education (www.fldoe.org). For reading and mathematics, the percentages for levels three, four and five were added together to determine the percentage of students in each grade level with a passing score of 3 or higher. Although a score of 2 in generally considered a passing score, a level 2 score is defined as “limited success,” (DOE, 2008) A score a 3, however, is defined as “partial success with the challenging content of the *Sunshine State Standards*, but performance is inconsistent,” (DOE, 2008, p. 1). For the purposes of this research, scores of levels 3, 4, and 5 were used. In order to obtain a school-wide percentage of students passing with a score of 3 or above, the three percentages from each grade level were averaged.

In terms of the FCAT® writing assessment scores, percentages were found for students scoring 3.5 and higher on a point scale ranging from 1 to 6 and including half points. DOE calculates school percentages of scores 3.5 and higher, thus making them readily available for this research. FCAT® writing assessments in 2009 were scored by two readers, meaning that scores of 4 and 3 were given to obtain a total score of 3.5 (www.fldoe.org). Achievement levels (i.e. passing or not passing) for writing assessments are not defined. Percentages for scores of 3.5, 4.0, 4.5, 5.0, 5.5, and 6.0 were added for both expository and narrative prompts. These percentages were averaged to find a total percentage for each school.

Data Analysis

Looking at each specific research question, data were analyzed in the following manners.

Is there a mean difference in the 3^{rd}-5^{th} grade average percentage of students scoring level 3 and above on FCAT® reading in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Variables include the average percentage of all third, fourth and fifth grade students in each school with a passing score of 3 or above in reading for this composite score. The percentages for grades three, four and five were added together and averaged to determine the percentage of students school-wide with a score of 3 and above on reading assessments. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students school-wide with a score of 3 and above on reading assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of third grade students scoring level 3 and above in reading were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in third grade with a passing score of 3 or higher in reading. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in third grade with a score of 3 and above on reading assessments) based on whether the school was a Project CHILD® charter school as compared to non Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of fourth grade students scoring level 3 and above in reading were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in fourth grade with a passing score of 3 or higher in reading. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in fourth grade with a score of 3 and above on reading assessments) based on whether the school was a Project CHILD® charter school as compared to non Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of fifth grade students scoring level 3 and above in reading were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in fifth grade with a passing score of 3 or higher in reading. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in fifth grade with a score of 3 and above on reading assessments) based on whether the school was a Project CHILD® charter school as compared to non Project CHILD® charter school.

Is there a mean difference in the 3rd-5th grade average percentage of students scoring level 3 and above on FCAT® mathematics in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Variables include the average percentage of all third, fourth and fifth grade students in each school with a passing score of 3 or above in mathematics for this composite score. The percentages for grades three, four and five were added together and averaged to determine the percentage of students school-wide with a score of 3 and above on mathematics assessments. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students school-wide with a score of 3 and above on mathematics assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of third grade students scoring level 3 and above in mathematics were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in third grade with a passing score of 3 or higher in mathematics. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in third grade with a score of 3 and above on mathematics assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of fourth grade students scoring level 3 and above in mathematics were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in fourth grade with a passing score of 3 or higher in mathematics. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in fourth grade with a score of 3 and above on mathematics assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of fifth grade students scoring level 3 and above in mathematics were used for this comparison. The percentages for levels three, four and five were added together and averaged to determine the percentage of students in fifth grade with a passing score of 3 or higher in mathematics. An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in fifth grade with a score of 3 and above on mathematics assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

Is there a mean difference in the percentage of students scoring point 3.5 and above on fourth grade FCAT® writing assessment during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? Only the percentage of fourth grade students scoring point 3.5 and above in on the writing assessment were used for this comparison. The percentages for points 3.5 - 6 were determined from the DOE website (DOE, n.d.b). An independent *t* test was then conducted to determine if there was a mean difference in the dependent variable (percentage of students in fourth grade with a score of 3.5 and above on writing assessments) based on whether the school was a Project CHILD® charter school as compared to non-Project CHILD® charter school.

CHAPTER FOUR: RESULTS

The following chapter presents an analysis of the results, specifically addressing research question comparisons. While this study focuses on the combined reading, mathematics and writing FCAT® scores of grades, three, four and five for each school, data comparisons for each individual grade level will also be discussed in this chapter. The academic areas of reading and mathematics will be noted first by combined average percentage and then by each individual grade level. The FCAT® writing test is only administered in fourth grade and will be noted by individual school averages.

Descriptive Comparisons of Project CHILD ® and non Project CHILD® Schools

Descriptive statistics were computed including of average percentages of students scoring level 3 and above in reading, mathematics and writing FCAT® scores for Project CHILD and non Project CHILD schools.

Reading Scores

The first analysis conducted was for FCAT® reading scores. Table 3 displays the percentage of students scoring a level three and above in each grade level followed by a combined average percentage for all three grades. Percentages and combined averages are listed by schools designated as Project CHILD® (PC) or non-Project CHILD® (non PC). From Table 3, the highest (96%) and lowest (46%) combined averages are from non PC schools, non PC School 8 and non PC School 2, respectively.

Table 3

Percentages of Students Scoring Levels 3 – 5 on FCAT® Reading

Schools PC/non PC	Grade 3	Grade 4	Grade 5	Combined Average
PC School 1	87	87	73	82
PC School 2	87	68	64	73
PC School 3	71	80	48	66
PC School 4	69	84	84	79
PC School 5	81	84	86	84
PC School 6	84	78	72	78
PC School 7	47	55	44	49
non PC School 1	82	73	68	74
non PC School 2	55	32	50	46
non PC School 3	76	66	60	67
non PC School 4	77	72	79	76
non PC School 5	77	78	83	79
non PC School 6	73	78	68	73
non PC School 7	41	51	58	50
non PC School 8	96	96	97	96

Figure 1 below displays the boxplots for combined FCAT reading score averages grouped by Project CHILD® (PC) or non-Project CHILD® (non PC) status.

The median score of the PC schools is slightly higher than the non PC schools, yet the non PC schools have a much higher range and top score. The non PC schools have the largest range of scores above the third quartile. Also notice that the PC schools have one outlier, denoted by the red dot. Looking back at Table 1, PC school 7 had a combined average of 49%, producing an outlier for these averages. The PC schools' range (*Range*= 35.00) and standard deviation (*SD*= 12.17) for combined FCAT reading score averages in grade three, four and five are both lower than the non PC schools' (*Range*= 50.00; *SD*= 16.05).

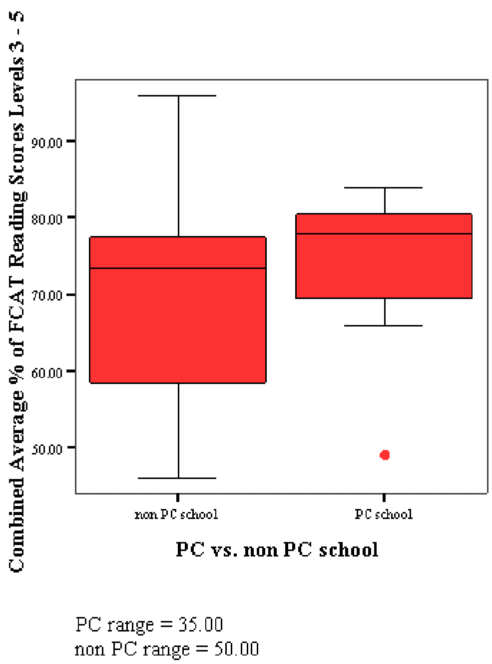

Figure 1. Combined school averages of FCAT® reading scores levels 3 – 5.

Reading Scores Grade 3

Moving on to the individual grades, the percentage of students scoring level 3 and above in third grade FCAT® reading is presented in Figure 2 below. Seemingly, both groups have the largest range of percentage scores below the first quartile. The PC schools' median is slightly higher than the non PC schools' median, but again, the non PC schools have a much larger range (*Range*=55.00) than the PC schools (*Range*=40.00). Standard deviation for PC schools (*SD*= 14.38) is again lower the non PC schools (*SD*= 16.87).

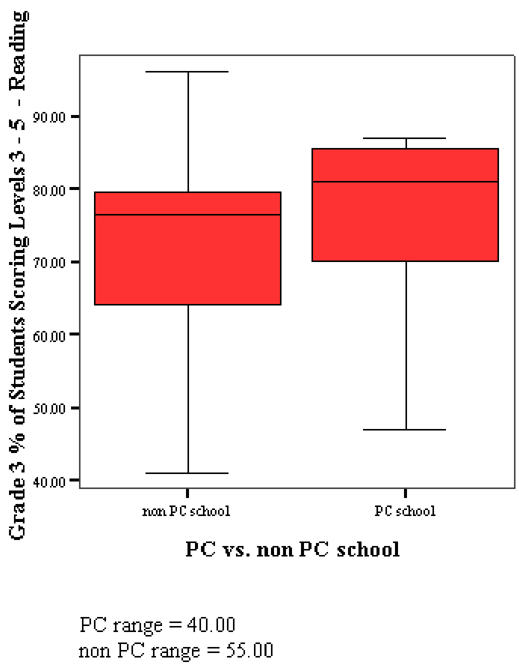

Figure 2. Grade three average percentages of FCAT® reading scores levels 3 and higher.

Reading Scores Grade 4

Figure 3 is discussed next, providing data on the percentage of fourth grade students scoring levels 3 and higher in FCAT® reading. PC school scores show a dramatically smaller range (*Range*= 32.00) that is half the size of the non PC school range (*Range*=64.00), with the majority of scores being higher than the non PC school median score. Referring back to Table 1, the outlier in the PC school data is again PC School 7 with a value of 55%. Standard deviations are note that PC schools' (*SD*= 11.34) is much lower than the non PC schools' (*SD*= 19.32).

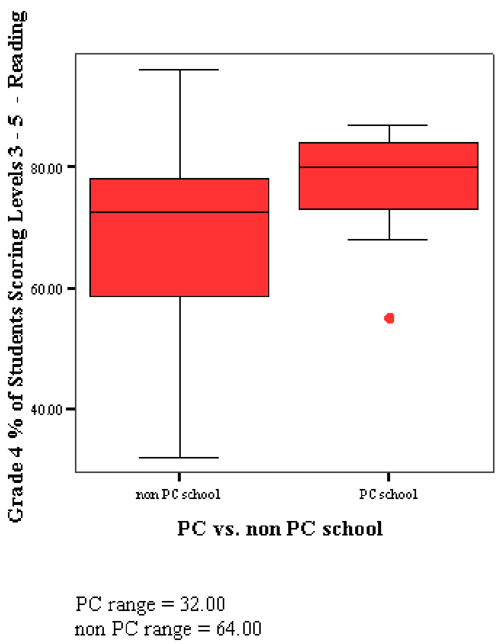

Figure 3. Grade four average percentages of FCAT® reading scores levels 3 and higher.

Reading Scores Grade 5

Last in the analysis of FCAT® reading scores, is the percentage of fifth grade students scoring levels 3 and higher in FCAT® reading, presented in Figure 4 below. In Figure 4, one can see that although the median percentage of students in the PC schools is higher than the median for the non PC school group, the non PC schools have the highest percentage scores. The overall range (PC schools, *Range*=42.00; non PC schools, *Range*=47.00) and interquartile range, reflected by the middle 50% of the data between the first and third quartiles, are similar for both PC and non PC schools. In this comparison, the non PC schools have a very slightly lower standard deviation (*SD*= 15.26) than the PC school group (*SD*= 16.38).

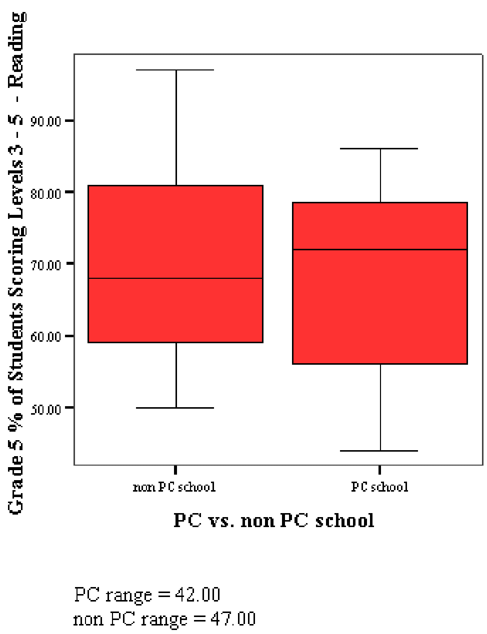

Figure 4. Grade five average percentages of FCAT® reading scores levels 3 and higher.

Standard Deviations

While the ranges are labeled and easily shown in each box and whisker plot, standard deviations are also more aptly compared in bar graph form, as shown in Figure 5. Grade 5 represents the only comparison in which the non PC schools have a lower standard deviation than the PC schools. Grade 4 displays the largest difference in standard deviation, also being the comparison that resulted in the largest difference of ranges. This suggests that less students in PC schools deviate from the average percentage at each school. Independent *t* tests will be examined further on to compare school averages.

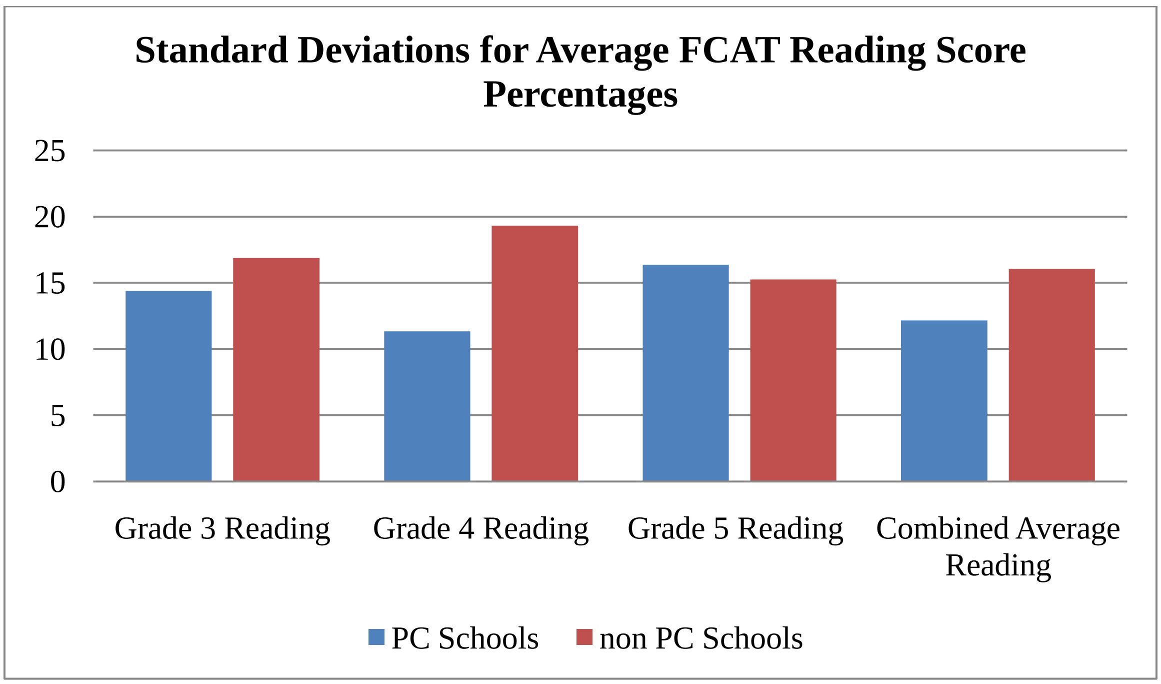

Figure 5. Standard deviations for average FCAT® reading score percentages.

Mathematics Scores

Proceeding on, the next group of analysis is on the FCAT® math score percentages data. Table 4 lists the FCAT® math score percentages by grade level and then combined for each school, grouped by PC or non PC status. In this data, the PC schools have the lowest combined average of percentage of students scoring levels 3 and higher in FCAT® math for all grades (PC school 7 at 32%) while the non PC schools have the highest combined average percentage of students scoring levels 3 and higher in FCAT® math for all grades (non PC school 8 at 97%).

Table 4

Percentages of Students Levels 3 – 5 on FCAT® Mathematics

Schools PC/non PC	Grade 3	Grade 4	Grade 5	Combined Average
PC School 1	77	74	70	74
PC School 2	76	56	34	55
PC School 3	76	80	47	68
PC School 4	65	80	58	68
PC School 5	82	48	49	58
PC School 6	72	69	51	64
PC School 7	37	37	23	32
non PC School 1	75	72	57	68
non PC School 2	42	27	33	34
non PC School 3	71	60	24	52
non PC School 4	77	62	59	66
non PC School 5	76	64	69	69
non PC School 6	77	84	63	75
non PC School 7	43	37	20	33
non PC School 8	99	96	96	97

Figure 6 begins the visual analysis of FCAT® math score data. Figure 6 shows the combined percentage of students scoring levels 3 and higher in FCAT® math for grades three, four and five, grouped by Project CHILD® or non Project CHILD® status, as Figure 1 did for FCAT® reading scores. Most noticeable in Figure 6 is the distribution of FCAT® scores for each group. While the range of scores for the non PC schools (*Range*= 64.00) is much greater than the PC schools (*Range*= 42.00), most of the PC schools' scores are concentrated near and around 60%. Standard deviations include (*SD*= 13.86) for the PC schools and (*SD*= 21.45) for the non PC schools. Note again that the PC schools have one outlier in this particular data set, denoted by the red dot. Looking back at Table 2, one can see that PC School 7 had a combined average of 32%, producing an outlier for these averages.

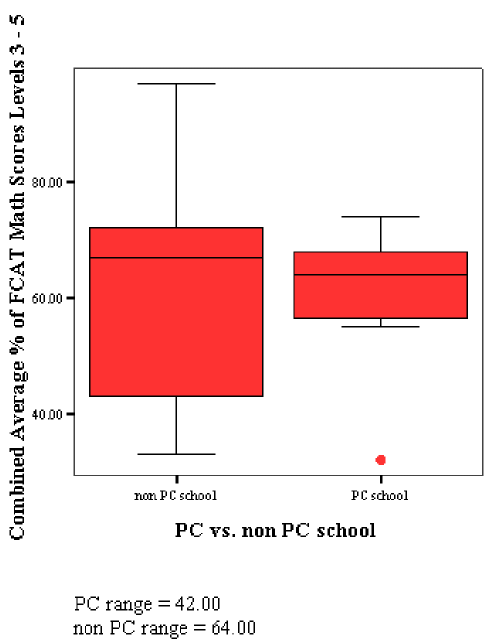

Figure 6. Combined school averages of FCAT® mathematics scores levels 3 – 5.

Mathematics Scores Grade 3

Beginning the individual grade level data for FCAT® math, Figure 7 below demonstrates the percentage of students scoring level 3 and higher in grade three of the FCAT® math assessment in an interesting way that is not as easily seen in table form. The median scores for each group are practically the same in this data set. PC schools (*Range*=45.00; *SD* = 15.16) display a dramatically smaller dispersion than the non PC schools (*Range*=57.00; *SD*= 18.95). Again, we see an outlier from PC School 7 at 37%. The non PC schools maintain a wide range.

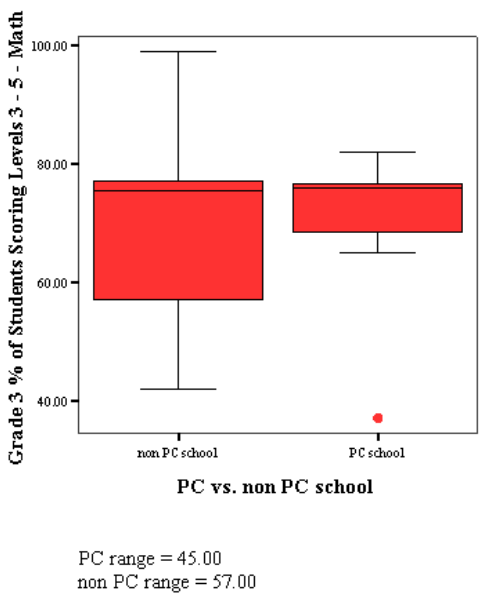

Figure 7. Grade three average percentages of FCAT® mathematics scores levels 3 and higher.

Mathematics Scores Grade 4

In Figure 8, visually displaying FCAT® math score data for grades four, it is seen that 50% of scores from both the PC schools and non PC schools are within the same region of roughly 50 – 80% of students scoring levels 3-5 on the FCAT® mathematics subtest. The PC schools score data reaches down into the 30% range, but is not considered an outlier in this case. Non PC schools have more variation as seen in the range and standard deviation scores (*Range*=69.00; *SD*= 22.66) as compared to the PC schools (*Range*=43.00; *SD*= 16.75).

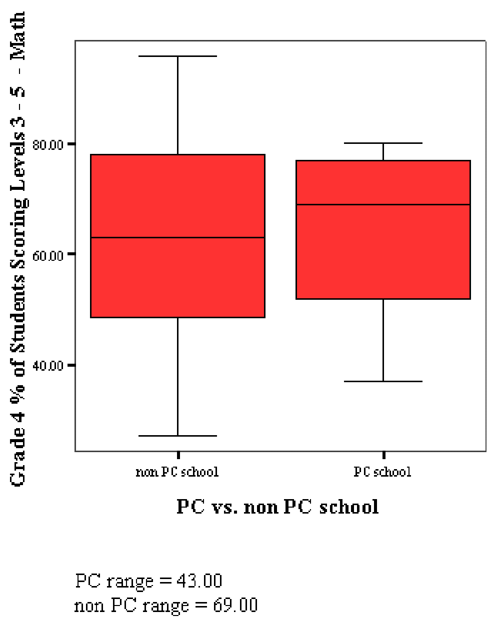

Figure 8. Grade four average percentages of FCAT® mathematics scores levels 3 and higher.

Mathematics Scores Grade 5

Finally, Figure 9 provides information on the FCAT® math score data for grades five. The PC schools stay concentrated within a smaller range than the non PC schools, but in this last case, the median for the PC schools is much lower than other comparisons have been. While the non PC school have a larger range (*Range*=76.00) compared to the PC school range (*R*=47.00), the first, second and even third quartiles for the non PC schools have dropped similarly in this data set. Standard deviations also show the largest difference thus far between the non PC schools (*SD*= 25.60) and the PC schools (*SD*= 15.35)

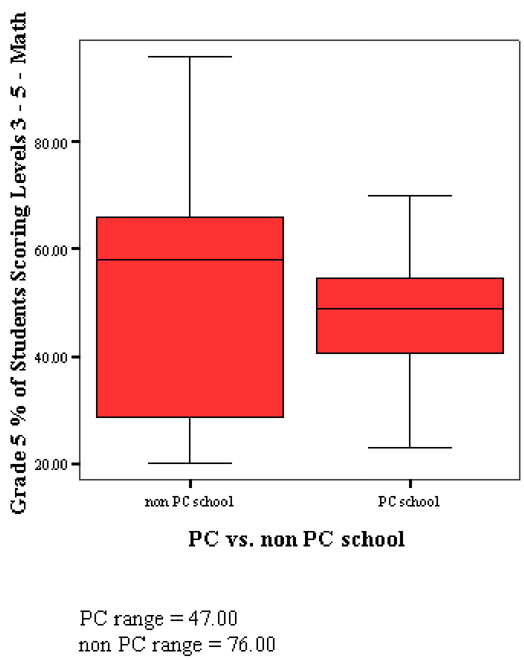

Figure 9. Grade five average percentages of FCAT® mathematics scores levels 3 and higher.

Standard Deviations

Once again a bar graph is made to more suitably discuss and visualize standard deviations for the math comparisons. In each case, the PC schools have a smaller standard deviation than the non PC schools. Recall that the range in grade 5 was larger for the non PC schools, as the standard deviation is here as well. PC school average percentages have shown to be less dispersed and more condensed throughout the math comparisons.

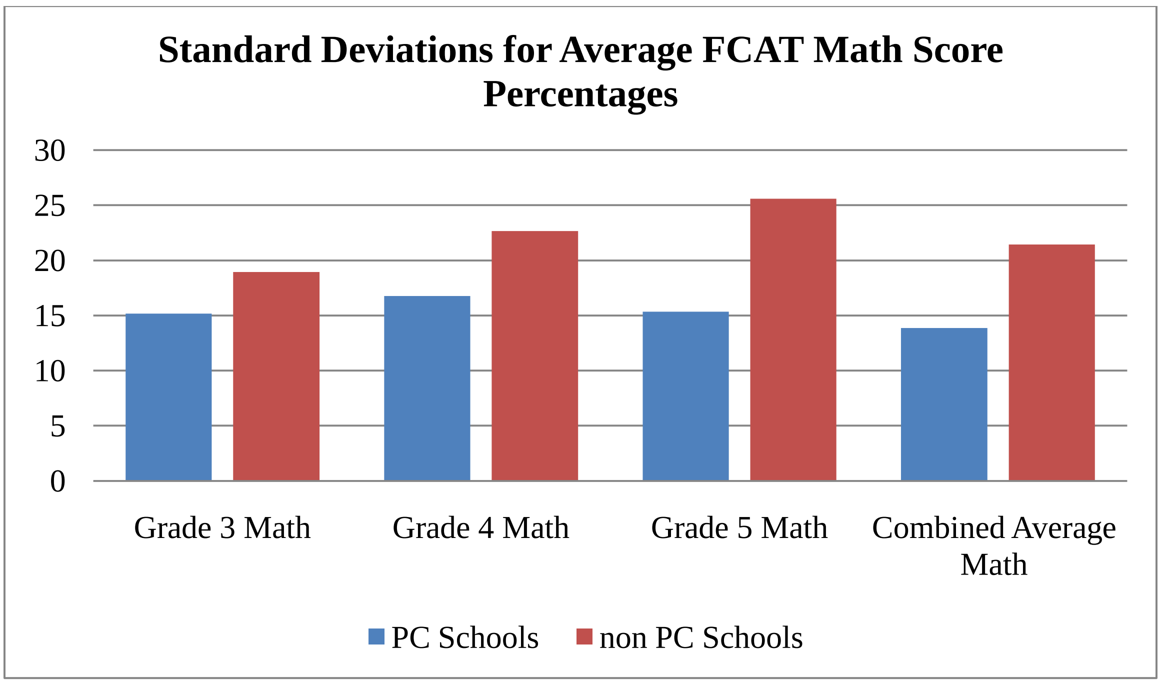

Figure 10. Standard deviations for average FCAT® mathematics score percentages.

FCAT® Writing Assessment Scores

The last analysis conducted is on the FCAT® writing assessment scores for fourth graders. On the FCAT® writing assessment, students are given a narrative or expository prompt. Average percentages for each school include the combined averages of both prompt styles. Table 5 displays the average percentages of score points for 3.5 and higher for each school. With a percentage of 98.5, non PC School 8 shows the highest average percentage of students scoring points 3.5 and higher in the FCAT® writing assessment, and non PC School 2 displays the lowest percentage of students (50.5%).

Table 5

Percentages of Fourth Grade Students Scoring Points 3.5 -6 on FCAT® Writing

Schools PC/non PC	Percentage of Point Scores 3.5 and Above
PC School 1	61
PC School 2	66
PC School 3	70
PC School 4	81.5
PC School 5	77
PC School 6	77
PC School 7	85
non PC School 1	73.5
non PC School 2	50.5
non PC School 3	96.5
non PC School 4	86
non PC School 5	86
non PC School 6	86
non PC School 7	73
non PC School 8	98.5

The box plot in Figure 11 shows the median score for non PC schools to be higher than the median for PC schools in this case. The range for the non PC schools (*Range*= 48.00) however, is twice that of the PC schools (*Range*= 24.00). Standard deviation for the non schools (*SD*= 15.45) is again larger than the standard deviation for the PC schools (*SD*= 8.60).

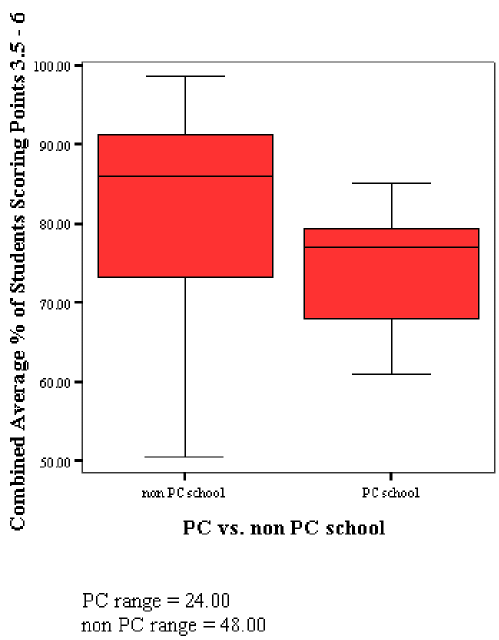

Figure 11. Grade four average percentages of FCAT® writing scores points 3.5 and higher.

Standard Deviation

A bar graph was also constructed for the standard deviations of the two writing sample groups. Again, the PC school group shows less dispersion than the non PC school group.

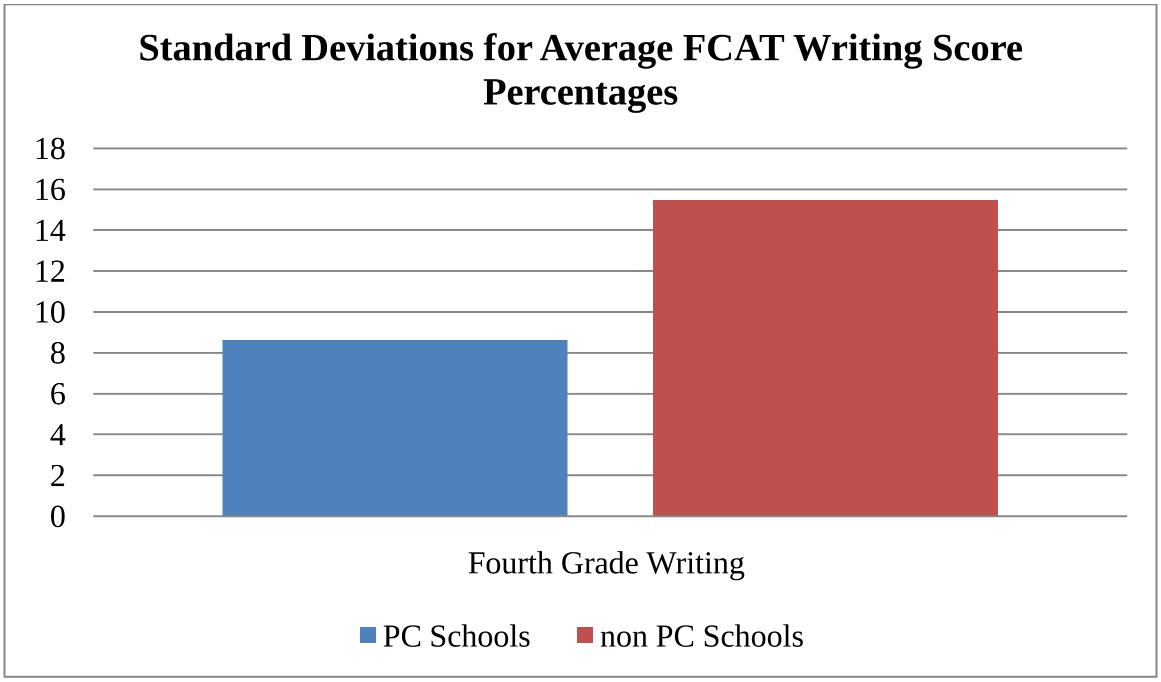

Figure 12. Standard deviations for average FCAT® writing score percentages.

Results of Research Questions

The independent variable in each test used represents a charter school's school-wide implementation or non implementation of the Project CHILD® system, while the dependent variable differs for each specific test and will be noted individually. Each test below was conducted using an alpha level .05. General hypothesis statements for each test are as follows, though each section will contain its own specific hypothesis: The null hypothesis states that the average percentage of FCAT® scores for Project CHILD® and non-participating Project CHILD® schools are equal, and the alternative hypothesis states that the average percentage of FCAT® scores for Project CHILD® and non-participating Project CHILD® schools are not equal. Symbolically, these hypotheses are stated as

$$H_0\colon \mu_1 = \mu_2$$

$$H_1\colon \mu_1 \neq \mu_2$$

Total Percentage of Students Scoring Levels 3 and Above in Reading

Research question 1 asked: Is there a mean difference in the 3rd-5th grade average percentage of students scoring level 3 and above on FCAT® reading in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the total percentage of FCAT® reading scores level 3 and above for PC schools and non PC schools. The null hypothesis in this particular question states that the total average percentage of students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the average percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality ($W = .852$, $p = .128$), skewness (-1.525) and kurtosis (2.212) statistics indicate slight non-normal kurtosis but relatively normal otherwise, despite the outlier in the box and whisker plot. Review of the Q-Q plot indicated slight non normality, but using the rules of thumb for normality testing by Lomax (2007), we can assume reasonable normality given that this is a two-tailed test, even though the sample size is relatively small (p. 125). Therefore, the outlier remained in this data set. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality ($W = .935$, $p = .563$), skewness (-.180) and kurtosis (.056) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met ($F = .425$, $p = .526$). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent *t* test was not statistically significant, $t(13) = .386$, $p = .706$. The results do not suggest a significant difference in the average percentage of FCAT® reading scores at or above level 3 between Project CHILD® schools ($n = 7$, $M = 73.00$, $SD = 12.17$) and non Project CHILD® schools ($n = 8$, $M = 70.13$, $SD = 16.05$). The 95% CI [-13.211, 18.961] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .011 that 1.1% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the average percentage of FCAT® reading scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Reading for Grade 3

Research question 2 asked: Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the total percentage of third grade FCAT® reading scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of third grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality (W = .836, p = .092), skewness (-1.441) and kurtosis (1.975) statistics indicate that normality is a reasonable assumption. Review of Q-Q plots indicates the same, with slight non normality anticipated by the small sample size. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality (W = .910, p = .351), skewness (-.180) and kurtosis (.854) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (F = .046, p = .833). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent *t* test was not statistically significant, $t(13)$ = .370, p= .718. The results do not suggest a significant difference in the third grade reading FCAT® scores at or above level 3 between Project CHILD® schools (n= 7, M=75.14, SD=

14.38) and non Project CHILD® schools (*n*=8, *M*= 72.13, *SD*= 16.87). The 95% CI [-14.617, 20.652] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .010 that 1.0% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the third grade reading FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Reading for Grade 4

Research question 3 asked: Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the percentage of fourth grade FCAT® reading scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of fourth grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk’s test for normality (W = .852, p = .128), skewness (-1.387) and kurtosis (1.370) statistics indicate that normality is a reasonable assumption, despite the outlier in the boxplot. Review of the Q-Q plot indicated slight non normality, but again using the rules of thumb for normality testing by Lomax (2007), we can assume reasonable normality given that this is a two-tailed test, even though the sample size is relatively small (p. 125). Therefore, the outlier remained in this data set. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality (W = .935, p = .559), skewness (-.776) and kurtosis (1.070) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (F = 1.049, p = .324). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent t test was not statistically significant, t(13) = .996, p= .337. The results do not suggest a significant difference in the fourth grade reading FCAT® scores at or above level 3 between Project CHILD® schools (n= 7, M=76.57, SD= 11.34) and non Project CHILD® schools (n=8, M= 68.25, SD= 19.32). The 95% CI [-9.721, 26.364] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .071 that 7.1% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a moderate effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the fourth grade reading FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Reading for Grade 5

Research question 4 asked: Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® reading during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent t test was conducted to determine whether a mean difference existed between the percentage of fifth grade FCAT® reading scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of fifth grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality (W = .914, p = .423), skewness (-.442) and kurtosis (-1.283) statistics indicate that normality is a reasonable assumption. Review of Q-Q plots indicates the same, with slight non normality anticipated by the small sample size. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality (W = .966, p = .862), skewness (.538) and kurtosis (-.214) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot indicated normality in this case. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (F = .070, p = .796). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent t test was not statistically significant, $t(13) = -.378$, p= .711. The results do not suggest a significant difference in the fifth grade reading FCAT® scores at or above level 3 between Project CHILD® schools (n= 7, M=67.29, SD= 16.38) and non Project CHILD® schools (n=8, M= 70.38, SD= 15.26). The 95% CI [-20.739, 14.560] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .011 that 1.1% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the fifth grade reading FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Total Percentage of Students Scoring Levels 3 and Above in Math

Research question 5 asked: Is there a mean difference in the 3^{rd}-5^{th} grade average percentage of students scoring level 3 and above on FCAT® mathematics in during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a difference occurred between the total percentage of FCAT® math scores level 3 and above for PC schools and non PC schools. The null hypothesis in this particular question states that the total average percentage of students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the average percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality ($W = .862$, $p = .157$), skewness (-1.556) and kurtosis (2.840) statistics indicate slight non-normal kurtosis but relatively normal otherwise, despite the outlier in the box and whisker plot. Review of the Q-Q plot indicated slight non normality, but again using the rules of thumb for normality testing by Lomax (2007), we can assume reasonable normality given that this is a two-tailed test, even though the sample size is relatively small (p. 125). Therefore, the outlier remained in this data set. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality ($W = .932$, $p = .536$), skewness (.015) and kurtosis (-.256) statistics indicate close proximity to normality. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (*F* = 1.451, *p* = .250). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent *t* test was not statistically significant, *t*(13) = -.199, *p*= .845. The results do not suggest a significant difference in the average percentage of FCAT® mathematics scores at or above level 3 between Project CHILD® schools (*n*= 7, *M*=59.86, *SD*= 13.86) and non Project CHILD® schools (*n*=8, *M*=61.75, *SD*= 21.45). The 95% CI [-22.398, 18.612] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .003 that .3% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the average percentage of FCAT® mathematics scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Math for Grade 3

Research question 6 asked: Is there a mean difference in the percentage of students scoring level 3 and above on third grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the percentage of third grade FCAT® math scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of third grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality (W = .754, p = .014), skewness (-2.048) and kurtosis (4.494) statistics clearly indicate non-normality. Hence the outlier for this data was removed. After exclusion of the outlier, normality indicators showed improvement. Upon further review of Shapiro-Wilk's test for normality (W = .931, p = .591), skewness (-.820) and kurtosis (1.432) statistics without the outlier indicate that normality is now a reasonable assumption. Review of the Q-Q plot indicated slight non normality, but still using the rules of thumb for normality testing by Lomax (2007), we can assume reasonable normality given that this is a two-tailed test, even though the sample size is relatively small (p. 125). The assumption of normality was tested for the distributional shape of the next variable for non PC schools. Examination of the Shapiro-Wilks test for normality (W = .855, p = .105), skewness (-.454) and kurtosis (.044) statistics indicate close proximity to normality. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality (without outlier) indicated that the assumption of homogeneity of variance was met (F = 3.595, p = .082). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent t test was not statistically significant, $t(12)$ = .578, p= .574. The results do not suggest a significant difference in the third grade mathematics FCAT® scores at or above level 3 between Project CHILD® schools (n= 6, M= 74.67, SD= 5.72) and non Project CHILD® schools (n=8, M= 70.00, SD= 18.95). The 95% CI [-12.909, 22.243] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .027 that 2.7% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the third grade mathematics FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Math for Grade 4

Research question 7 asked: Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the percentage of fourth grade FCAT® math scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of third grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality ($W = .905$, $p = .361$), skewness (-.600) and kurtosis (-1.182) statistics indicate that normality is a reasonable assumption. Review of Q-Q plots indicates the same, with slight non normality anticipated by the small sample size. Next, the assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality ($W = .963$, $p = .839$), skewness (-.256) and kurtosis (-.338) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot indicated normality in this case. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met ($F = .128$, $p = .726$). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent *t* test was not statistically significant, *t*(13) = .065, *p*= .949. The results do not suggest a significant difference in the fourth grade mathematics FCAT® scores at or above level 3 between Project CHILD® schools (*n*= 7, *M*= 63.43, *SD*= 16.75) and non Project CHILD® schools (*n*=8, *M*= 62.75, *SD*= 22.66). The 95% CI [-21.849, 23.206] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be less than .000 indicating that less than 1% the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not. The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the fourth grade mathematics FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Levels 3 and Above in Math for Grade 5

Research question 8 asked: Is there a mean difference in the percentage of students scoring level 3 and above on fifth grade FCAT® mathematics during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the percentage of fifth grade FCAT® math scores level 3 and above for PC schools and non PC schools. The null hypothesis states that the percentage of fifth grade students scoring level 3 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality (*W* = .975, *p* = .931), skewness (-.275) and kurtosis (.155) statistics indicate possibly the closest proximity to normality that the PC Imagine School group has show thus far. Review of Q-Q plots indicates relative normality. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality (*W* = .938, *p* = .591), skewness (.247) and kurtosis (-.444) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot indicated normality in this case. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (*F* = 2.210, *p* = .161). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent *t* test was not statistically significant, *t*(13) = -.467, *p*= .648. The results do not suggest a significant difference in the fifth grade mathematics FCAT® scores at or above level 3 between Project CHILD® schools (*n*= 7, *M*= 47.43, *SD*= 15.35) and non Project CHILD® schools (*n*=8, *M*= 52.63, *SD*= 25.60). The 95% CI [-28.698, 18.305] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .016 indicating that 1.6% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a small effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the fifth grade mathematics FCAT® scores at or above level 3 for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Percentage of Students Scoring Points 3.5 and Above in Writing for Grade 4

Research question 9 asked: Is there a mean difference in the percentage of students scoring level 3 and above on fourth grade FCAT® writing assessment during 2008-2009 between participating Project CHILD® charter schools as compared to non-Project CHILD® charter schools? An independent *t* test was conducted to determine whether a mean difference existed between the total percentage of FCAT® writing assessment point scores of 3.5 and above for PC schools and non PC schools. The null hypothesis in this particular question states that the total percentage of students scoring level 3.5 and above for PC schools and non PC schools is equal and the alternative hypothesis is that the percentage scores are unequal.

For the PC schools, using the Shapiro-Wilk's test for normality (W = .959, p = .810), skewness (-.319) and kurtosis (-1.091) statistics indicate that normality is a reasonable assumption. Review of the Q-Q plot indicated normality. The assumption of normality was tested for the distributional shape of the dependent variable for non PC schools. Examination of the Shapiro-Wilks test for normality (W = .894, p = .257), skewness (-1.089) and kurtosis (1.393) statistics indicate that normality is a reasonable conjecture. Review of the Q-Q plot again indicated slight non normality, though this is anticipated given the small sample size of less than ten. Levene's Test for Equality indicated that the assumption of homogeneity of variance was met (F =1.532, p = .238). The assumption of independence, however, was not met given that the schools were not randomly assigned to groups.

With an alpha set at .05, the independent t test was not statistically significant, $t(13)$ = 1.109, p= .288. The results do not suggest a significant difference in the average percentage of FCAT® reading scores at or above level 3 between Project CHILD® schools (n= 7, M=73.93, SD= 8.60) and non Project CHILD® schools (n=8, M=81.25, SD= 15.45). The 95% CI [-6.942, 21.585] contained the hypothesized value of 0. An effect size calculated by eta squared was found to be .086 that 8.6% of the variance in FCAT® scores was accounted for by whether the school participated in Project CHILD® or not, generally interpreted as a large effect (Cohen, 1988). The decision is thus made to fail to reject the null hypothesis, suggesting that there is not enough evidence to support a difference between the percentage of FCAT® writing assessment points scoring 3.5 and above for Project CHILD® schools and non Project CHILD® schools in the 2008-2009 school year.

Summary of Research Question Results

Table 6 presents a summary of the research question results. Research question 6 reflects the omission of an outlier from the PC schools data. Looking at the mean scores, PC schools obtained higher mean percentages in five out of the nine tests conducted and lower standard deviations in all but one test, however these results were not statistically significant and the effect size (eta squared) suggests generally small effects.

Table 6

Summary of Research Question Results

					PC Schools		Non-PC Schools	
	t	*df*	*p*	η^2	*M*	*SD*	*M*	*SD*
Test 1: Total Average % of Reading Grades 3-5	.386	13	.706	.011	73.00	12.17	70.13	16.05
Test 2: % of Reading Grade 4	.370	13	.718	.010	75.14	14.38	72.14	16.87
Test 3: % of Reading Grade 4	.996	13	.337	.071	76.57	11.34	68.25	19.32
Test 4: % of Reading Grade 5	.378	13	.711	.011	67.29	16.38	70.38	15.26
Test 5: Total Average % of Math Grades 3-5	.199	13	.845	.003	59.86	13.86	61.75	21.45
Test 6: % of Math Grade 3	.578	12	.574	.027	74.67	5.72	70.00	18.95
Test 7: % of Math Grade 4	.065	13	.949	<.000	63.43	16.75	62.75	22.66
Test 8: % 0f Math Grade 5	.467	13	.648	.016	47.43	15.35	52.63	25.60
Test 9: % of Writing Grade 4	1.109	13	.288	.086	73.93	8.60	81.25	15.45

CHAPTER FIVE: DISCUSSION

This chapter will present a comparison of the PC schools and non PC schools, a summary of the research findings and conclusion.

Descriptive Comparisons of PC and Non-PC Schools

Although schools in this study were unmatched, sample comparisons can be made between a few similarly matched Project CHILD® schools and non Project CHILD® schools for illustration purposes. Figures 13 and 14 illustrate percentages of students scoring level 3 and above on math and reading, respectively, for a Project CHILD® school and non Project CHILD® school matched on minority rates for percentages of Hispanic students (Figure 13) and African American students (Figure 14).

Figure 13 illustrates that the PC school and non PC school, matched for percentage of Hispanic students at the school, have about the same combined percentage of students scoring level 3 and higher in grades three, four and five in mathematics. In fourth grade, the PC school's average percentage is ten points lower than the non PC school's average percentage, but then in fifth grade the PC school's average is seven points higher.

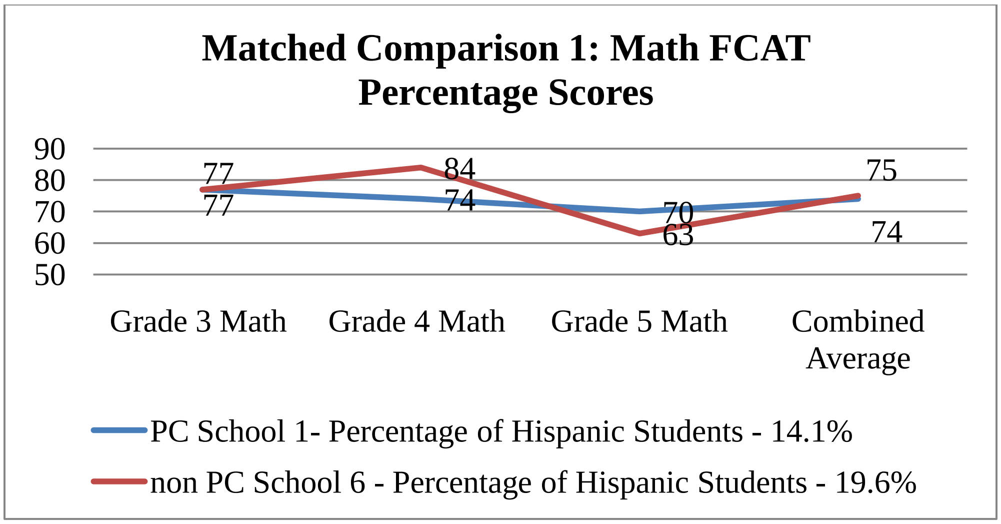

Figure 13. Percentage of students scoring level 3 and above on mathematics FCAT® for PC and non PC schools matched by percentage of Hispanic students.

Figure 14 displays that the PC school and non PC school, matched for percentage of African American students at the school, have about the same combined percentage of students scoring level 3 and higher in grades three and five in reading. The non PC school's average percentage in fourth grade is more than twenty points lower than the PC school's average percentage.

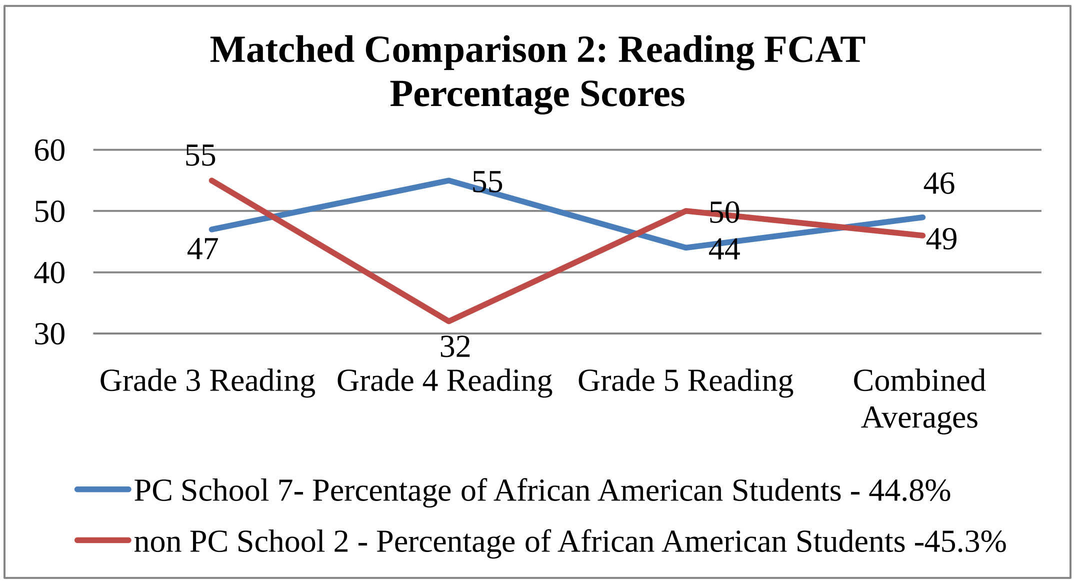

Figure 14. Percentage of students scoring level 3 and above on reading FCAT® for PC and non PC schools matched by percentage of African American students.

In past research, Project CHILD® has been shown to decrease the achievement gap for African American and Hispanic students, for example, the study by Necti et al (2005) that matched students in Osceola and Marion counties in Florida for two years based on a number of factors, including race and ethnicity. Results indicated that African American and Hispanic Project CHILD® students outperformed the non Project CHILD® counterparts six out of ten times on SAT-9 and FCAT® reading areas, and Hispanic Project CHILD® students outperformed their counterparts six out of ten times on mathematics portions (Necti, et al, 2005).

Summary of Research Findings

For the 2008-2009 school year, independent *t* tests did not suggest a statistically significant mean difference among the average percentage of FCAT® reading, mathematics, and writing scores at the school level between Project CHILD® schools and non Project CHILD® schools. A previous study conducted on Project CHILD's relationship to FCAT® scores was able to examine classroom averages rather than school averages in the 2007-2008 school year (ISI, 2008). In the previous study, data was collected for each representative class in eighteen Florida public schools, including Project CHILD® (N=2,050) and non Project CHILD® (N=4,100) students at each school. Results indicated that 85%, 81%, and 75% of Project CHILD® students in the third, fourth and fifth grades, listed respectively passed the reading FCAT® while only 73%, 71%, and 75% of their non Project CHILD® counterparts for grades three, four and five, listed respectively passed.

The relative proximity of the mean percentages and the lower standard deviations of the PC schools in each test exemplify that differences do exist among percentage scores for FCAT® reading, mathematics and writing for Project CHILD® and non Project CHILD® schools in the 2008-2009 school year. For all case comparisons, Project CHILD® schools had smaller ranges than the non Project CHILD® schools, and smaller standard deviations in all but one case. Referring to the summary of data presented in Table 6, the mean percentages of the PC schools and non PC schools in each test are relatively close, the largest difference being eight percentage points from each other, in tests 3 and 9. Moreover, the PC schools had higher mean percentages in five out of nine tests conducted in this research. Using the means in relation to standard deviation, it is suggested that more Project CHILD® students are performing near the mean percentage, which as mentioned before, was higher than or within either percentage points of the non PC schools. Bring to mind that all but one of the Project CHILD® schools achieved these results in the first year of operation (See Table 1).

Accordingly, factors of the Project CHILD® system curriculum and methods follow strategies of differentiated instruction, diversified learning and even brain research. For instance, Project CHILD® implements the use of Passports, a CHILD® developed tool used for planning and reflecting which correlates to Madrazo & Motz's (2005) comments on brain research that students learn not merely by completing a task, but by reviewing and reflecting on their work. Similarly, the triangulated model that is the basis for the Project CHILD® system, describes how each teacher diversifies learning and instruction. Activities in the classroom are always mixed mode, including hands on experiences, center-based activities at stations, motivating activities, student centered technology integration and paper/pencil problems. Tomlinson (2005) defines quality differentiated instruction as engaging and meaningful to students, much like the hands on and technology rich classrooms of Project CHILD®.

Pertinent in this research, two tests resulted in moderate effect sizes, research question 4 (percentage of students scoring level 3 and above on fifth grade FCAT® reading) (η^2=.071) and research question 9 (percentage of students scoring level 3 and above on fourth grade FCAT®

writing assessment) (η^2=.086). PC schools were performing better, on average, in fifth grade reading while non-PC schools were performing at a higher mean on fourth grade writing. Given the small sample size of this research (resulting in low power), moderate effect sizes suggest practical significance and a moderate strength of association between the independent and dependent variables.

Conclusion

The results of this study are preliminary given that the schools examined had not completed the full three-year Project CHILD® cycle and suggest that additional research is needed to more accurately assess the effectiveness of curriculums (such as Project CHILD®) that are designed for technology inclusion, active learning and differentiated instruction for diverse learners. Now more than ever, educational curriculum needs to discover a new direction in keeping with current research, learning styles, and technological advances. In alignment with accountability standards and 21st century skills, the Project CHILD® system offers the curriculum, instructional change, and technological resources to meet the educational deficiencies of the one teacher, one classroom model.

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