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EDUCATIONAL PRACTICES, FUNDING, AND THE IMPLEMENTATION OF A
READING FIRST PROGRAM

A Dissertation

by

MARIA MARICELA RODRIGUEZ-SALAIZ

Submitted to the Graduate School of
The University of Texas-Pan American
In partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

December 2014

Major Subject: Educational Leadership

EDUCATIONAL PRACTICES, FUNDING, AND THE IMPLEMENTATION OF A
READING FIRST PROGRAM

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by
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Dr. Hilda Medrano
Committee Member

Dr. Shirley Mills
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December 2014

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ABSTRACT

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The National Reading Panel (NICHD, 2000) found that too many children struggle with learning to read. Through a Congressional mandate, the panel identified key skills and methods that were central to reading achievement in the grades kindergarten through third grade.

According to the United States Department of Education (USDE) Summary of Discretionary Funds (2008b), over \$6 billion were allocated to the schools to implement the research based strategies from 2002 to 2008. States throughout the country showed gains from the states' first year of implementation to 2008 in grades 1-3 in comprehension assessments. The Reading First: Student Achievement, Teacher Empowerment, National Success (2008) archived governmental document noted that state education agencies reported improvement in third grade. Congress reduced funding in fiscal year 2008 by 61% and eventually discontinued the funding and the reading program. Now that the monies and program are gone, an investigation of Reading First schools in the Rio Grande Valley determined that student reading achievement and implementation of the Reading First practices were functions of funding and campus size in some grades. Additionally, the ANOVAs showed time effect significance in all five measurements: phonemic awareness, graphophonemics, listening comprehension, accuracy, and reading comprehension. Twelve (12) multiple linear regression analyses and fourteen (14) one-way repeated-measures analyses in kindergarten through second grade were conducted.

DEDICATION

The completion of my doctoral study is dedicated to my family for their loving support. This journey would not have been possible without the (1) loving support of my husband Richard, (2) valuable mother-daughter time sacrifices made by my daughter, Lauren, (3) constant encouragement of my father, Francisco (Panchito) and, (4) divine prayers of my mother, Luciana. It is also dedicated to the loving memories of Francisco V. Rodriguez, Noe Robledo, and Albert Garza III.

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I want to thank the dissertation committee for their overall support in the literacy research and for the guidance in editing the chapters. First and foremost, I want to thank Dr. Marie Simonsson, committee chair. By every standard, Dr. Simonsson has been an outstanding professor. She is one that I respect and admire for she has demonstrated a genuine commitment to her students and to the doctoral program. I give thanks to Dr. Simonsson for introducing the elements of dissertation writing in the *Introduction to Applied Research Methods* class at the very beginning of the doctoral program. Through her teaching, I acquired enough knowledge to begin writing Chapters I, II, and III. As the chair of the committee, she continually guided me through the writing and editing process and provided constant support and feedback. Thank you Dr. Simonsson.

I want to thank Dr. Ralph Carlson for his sincere interest in his students and in helping us learn and apply statistics. Through his teachings in *Quantitative Research, Data Analysis*, and *Multivariate Analysis*, I acquired enough knowledge to tackle Chapter IV. I found the process challenging and exciting. Dr. Carlson was very instrumental in guiding me through the process of statistical analyses. He taught me a system of elaborate formulas to conduct simple and complex analyses. He taught me to use the SPSS II version 19 and interpret outputs. Thank you Dr. Carlson

Next, I want to thank Dr. Hilda Medrano for her thoughtful insight on the reading program and reading problems. It was by chance that I enrolled in a reading class with Dr. Medrano. At the time, my only interest was taking an elective class to fill in the degree plan requirement. The reading class was available, so I took it. To my amazement, Dr. Medrano's knowledge of the reading program and the reading problems surrounding our local children, changed my course for the study. The following semester, I signed up for additional six hours of reading curriculum. The learning was very instrumental and relevant to what was happening in the local schools. It was through her eyes that I selected the topic for this dissertation. Thank you Dr. Medrano.

I also want to thank Dr. Shirley Mills for her contribution. Dr. Mills has been one who meets with students outside the university to dialogue on the status of the study. Thank you for your efforts in ensuring that I was on the right track. Thank you for reviewing the APA standards and ensuring that I follow the guidelines. Overall, thank you for your experience, expertise, and constructive feedback.

I would like to thank the superintendents of the five districts who participated in the study: Roel A. Gonzalez, Dr. A. Marcus Nelson, Gonzalo Salazar, Roberto J. Santos and Heriberto Villarreal. I also want to thank the designees who participated in the arduous task of collecting and forwarding the data to me. From Rio Grande City, I want to acknowledge Thelma Ramey, Rey Alvarez, Dina Pratt, Vilma Garza, and Elsa Lopez. From Laredo Independent School District, I want to thank David Garza, and Monica Calles. From Los Fresnos CISD, I want to extend heartfelt appreciation to Becky Trevino, Valarie Londrie, Noe Guillen, and Marlen Anaya. From United Independent School District, I want to express thanks to Alejandra

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CHAPTER I

INTRODUCTION

The United States has responded to the challenges of improving reading education throughout history, from the Colonial era to Modern period. Learning to read in this country evolved from a simple goal of acquiring enough reading skill for the purpose of reading the Bible in the 1600's to a demanding goal of learning to read proficiently in the present day in order to compete successfully in the global market economy. Throughout history, contributors of educational development passed legislation that has changed the course of the American educational system. Significant events and numerous studies conducted over the last six decades intensified the cause for literacy concern. Goodwin (1988) reminded us that the government has been responding with intensity to the realization that the United States had fallen behind in the education aspect. In response to the concern, the government initiated educational reform efforts to improve the quality of the nation's school system through legislation such as, the No Child Left Behind (2001a) and its "academic cornerstone," the Reading First program (Guidance, 2002, p. 2).

Reading First, built on a solid foundation of scientifically based research, was designed to help struggling readers in grades K-3. It provided over \$6 billion in grants to help struggling students improve reading achievement. The program funded practices such as, professional development; scientifically based instructional programs, materials, strategies; valid and reliable screening; diagnostic and ongoing classroom assessments; and statewide accountability and leadership structures (Reading First, 2008).

According to the National Reading Panel (National Institute of Child Health and Human Development (NICHD), 2000), some instructional methods for teaching reading were more effective than others. They found that inadequate instruction in phonemic awareness caused the children's difficulties with learning to read. They established that systematic and explicit instruction in phonemic awareness, phonics, guided oral reading, vocabulary, and comprehension helped children develop their reading and spelling skills. Teacher preparation was another component noted to be effective in the reading program. Ensuring that teachers had the skills needed to teach the program effectively plus teaching teachers to screen and identify students' reading barriers were critical parts of the program as well.

Statement of the Problem

Congress decreased the appropriation for Reading First by 61% in Fiscal Year 2008 (United States Department of Education (USDE) FY Budget 2009 Summary, 2008a). Proponents of the program, like Secretary Margaret Spellings and Donald Deshler, publicly supported the plan in hopes that Congress would restore Reading First funds to its Fiscal Year 2007 level of \$1 billion. Secretary Margaret Spellings (Reading First, 2008) feared that the budget reduction would force schools to abandon the strategies that worked well with struggling readers. Secretary Margaret Spellings stated, "Reading First has done so much to crack the code on how to get kids to read. It would be tragic to cut the nation's only reading program when so many policymakers and teachers know it's working to increase achievement" (2008, p. 1). Donald Deshler (2010) in a written testimony to the Senate Committee on Health, Education, Labor, and Pensions reported alarming statistics from published reports. The Nation's Report Card (Lee, Grigg, & Donahue, 2007) reported that six million of America's middle and high school students were struggling readers; less than one-third of middle and high school students

had the literacy skills they needed to succeed in school or beyond; 70% of middle school and high school students read below proficiency. Gewertz (2009) found that three out of every ten high school students and nearly 50% of students of color do not graduate on time. The National Governors Association (2005) reported that 40% of high school graduates lacked the literacy skills employers sought. Greene (2000) found that young adults' lack of basic skills cost the United States' universities and businesses as much as \$16 billion annually. Deshler (2010) summarized the findings by saying, "Collectively, these findings resoundingly underscore the fact that insufficient literacy attainment negatively impacts students' opportunities for success in the classroom, leading to higher likelihood of dropping out of school, as well as markedly reducing earnings as adults" (p. 2).

Deshler (2010) used the data reported in the Nation's Report Card (Lee et al., 2007) to conclude that the American educational system had been successful in raising the reading and writing scores of younger children. According to the Nation's Report Card (Lee et al., 2007), significant gains for fourth graders since 2002 were reported. The average reading score was 2 points higher since 2005 and 4 points higher compared to the first assessment in 1992. The report concluded that higher percentages of fourth grade students were performing at or above the *Basic* and *Proficient* levels in 2007 than ever before. Deshler (2010) credited the federal investment in Reading First for the success. Deshler (2010) said, "These achievement gains ... demonstrate that targeted federal investments that require schools to use evidence-based methods can produce significant growth in student performance" (p. 3).

Purpose of the Study

The purpose of this study was to conduct an investigation of Reading First schools in the Rio Grande Valley so as to determine if student reading achievement in grades Kindergarten

through second grade are functions of funding, campus size, and/or implementation of the Reading First practices. As previously mentioned, the government provided funds to states to support districts in (1) implementing research based programs for students in the early grades, (2) providing teachers professional development to ensure that all teachers acquire the skills needed to teach the reading program and (3) helping teachers select and utilize valid diagnostic assessments to help screen and monitor students' progress (Reading First, 2008). The National Reading Panel (NICHD, 2000) reported an analysis review to the House Committee on Education and the Workforce, Subcommittee on Education Reform. The panel's analysis determined that systematic instruction in the components of reading was effective in teaching children to read. The five components of reading proven to be scientific based included phonemic awareness, phonics, fluency, vocabulary and comprehension (Chaabra & McCardle, 2004; Gamse, Boulay, Fountain, Unlu, Maree, McCall & McCormick, 2011).

A linear regression model was used in this study to gather, examine, and analyze data of the participants' practices as it related to Reading First program as determined by the National Reading Panel (NICHD, 2000) through survey research, an examination of student reading scores, campus size, and a review of financial documents in five districts, totaling 37 campuses.

Need for the Study

An investigative study of Reading First schools was needed to determine if student achievement in formerly funded Rio Grande Valley schools were a function of funding, campus size and/or the implementation of research based reading strategies. Educators and policy-makers needed information about reading achievement, implementation of Reading First practices, campus size, and funding because they were in positions to make decisions about implementation of educational programs and allocation of funds. As mentioned previously,

billions of dollars were allocated to support school districts in implementing research based programs for students in the early grades.

As a direct result of the Reading First program, more than 100,000 Kindergarten through grade two teachers were trained to use high quality, scientifically based reading strategies (Reading First, 2008). The curriculum consisted of “systematic and explicit instruction in phonemic awareness, phonics, fluency, vocabulary and comprehension” (Chhabra & McCardle, 2004, p. 24). Their efforts reached more than 1.8 million students. These children received an average of 100 minutes more per week of reading instruction than the children in the comparison non-funded schools (Reading First, 2008).

The program funded numerous initiatives. Gamse et al., (2011) stated that the program moneys were used on hiring additional staff such as, reading coaches and reading interventionists. The monies were also used to train teachers, coaches, and school administrators. Furthermore, the program allotted monies for the purchase of computers, web database management system, and supplemental curriculum packages for reading classrooms. The program urged school administrators to adjust the master schedule to allow for 90 minutes of uninterrupted reading and to adopt a three-tier model (Gamse et al., 2011).

Reports from the national, state, and local educational agencies showed a gain from the first year of implementation in 2003 to 2007. The Nation’s Report Card in Reading (National Center for Education Statistics (NCES), 2011) longitudinal study illustrated that the larger increases in reading comprehension for students in grade four occurred between fiscal years 2002 and 2007 but remained unchanged from 2009 to 2011. The report also demonstrated that although grade four students’ reading comprehension remained unchanged from 2009, grade eight students showed improvement. The average reading score for grade eight students were one

point higher in 2011 than in 2009. The NCES (2011) longitudinal study illustrated that the scores for students in grade four were four points higher in 2009 than in 1992 and the scores for students in grade eight were five points higher in 2009 than in 1992.

Furthermore, states throughout the country revealed gains from the states' first year of implementation to 2008 in grades 1-3 in comprehension assessments. The state education agencies reported that Reading First students from nearly every grade and subgroup made impressive gains in reading proficiency (Reading First, 2008). Increases in the percentage of English language learners and students with disabilities proficient in reading comprehension were reported as follows:

- In grade one, 28 out of 37 state education agencies reported increases in the percentage of ELL students; and 34 out of 44 state education agencies reported increases in the percentage of students with disabilities proficient in reading comprehension (Reading First, 2008).
- In grade two, 25 out of 37 state education agencies reported increases in the percentage of ELL students; and 30 out of 48 state education agencies reported increases in the percentage of students with disabilities proficient in reading comprehension (Reading First, 2008).
- In grade three, 17 out of 25 state education agencies reported increases in the percentage of ELL students; and 25 out of 32 state education agencies reported increases in the percentage of students with disabilities proficient in reading comprehension (Reading First, 2008).

The Reading First state profile (2007) reported a gain in the Texas schools from 2003 to 2007. Students in third grade showed a gain of 32.2%; second grade showed a gain of 17.1%; and first grade showed an increase of 12.0%. Texas reported that Reading First appeared to have a significant impact on Kindergarten English performance. The Total Reading scores for Texas Reading First schools were higher than the comparison schools in 2006-2007. The analysis

showed the gains to be in relation to higher phonological awareness and graphophonemic knowledge scores.

Now that the program and the monies are gone, an investigative study of Reading First schools was needed to determine the amount of variance in student achievement that is accounted for by the variance in implementation of research based reading practices and funding. Educators and policy-makers will need this information to make informed decisions about reading programs and funding allocations.

Research Questions

The purpose of this study was to conduct an investigation of Reading First schools in the Rio Grande Valley so as to determine if student reading achievement in grades kindergarten through second grade are functions of funding, campus size and/or implementation of the Reading First practices. Given the purpose of this study, the following questions were used to guide the researcher in the proposed study.

Research Questions

1. What amount of the total variance in student reading achievement in Kindergarten is accounted for by funding and/or campus size in 37 campuses?
2. What amount of the total variance in student reading achievement in Kindergarten is accounted for by funding, campus size and/or implementation practices in 17 campuses?
3. What amount of the total variance in student reading achievement in first grade is accounted for by funding and/or campus size in 37 campuses?
4. What amount of the total variance in student reading achievement in first grade is accounted for by funding, campus size, and/or implementation practices in 12 campuses?

5. What amount of the total variance in student reading achievement in second grade is accounted for by funding and/or campus size in 37 campuses?
6. What amount of the total variance in student reading achievement in second grade is accounted for by funding, campus size, and/or implementation practices in 17 campuses?
7. What amount of the total variance in student reading achievement in Kindergarten through second grade is accounted for by funding and/or campus size in 37 campuses?
8. What amount of the total variance in student reading achievement in Kindergarten through second grade is accounted for by funding, campus size, and/or implementation practices in 24 campuses?

Although it was not part of the initial proposal, the researcher used the collected data to enhance the study. The newly developed questions guided the study to a greater depth.

9. What amount of the total variance in the implementation of research-based reading practices in kindergarten is accounted for by funding, campus size, and/or reading achievement in the 17 campuses?
10. How do population means on the phonemic awareness measurement vary between and among years with the kindergarten group?
11. How do population means on the graphophonemic measurement vary between and among years with the kindergarten group?
12. How do population means on the listening comprehension measurement vary between and among years with the kindergarten group?
13. What amount of the total variance in the implementation of research-based reading practices in first grade is accounted for by funding, campus size, and/or reading achievement in the 12 campuses?

14. How do population means on the phonemic awareness measurement vary between and among years with the first grade group?
15. How do population means on the graphophonemic measurement vary between and among years with the first grade group?
16. How do population means on the accuracy measurement vary between and among years with the first grade group?
17. How do population means on the reading comprehension measurement vary between and among years with the first grade group?
18. What amount of the total variance in the implementation of research-based reading practices in second grade is accounted for by funding, campus size, and/or reading achievement in the 17 campuses?
19. How do population means on the graphophonemic measurement vary between and among years with the second grade group?
20. How do population means on the accuracy measurement vary between and among years with the second group?
21. How do population means on the reading comprehension measurement vary between and among years with the second grade group?
22. What amount of the total variance in the implementation of research-based reading practices in kindergarten through second grade is accounted for by funding, campus size, and/or reading achievement in the 24 campuses?
23. How do population means on the phonemic awareness measurement vary between and among years with the kindergarten through second grade group?

24. How do population means on the graphophonemic measurement vary between and among years with the kindergarten through second grade group?
25. How do population means on the listening comprehension measurement vary between and among years with the kindergarten through second grade group?
26. How do population means on the accuracy measurement vary between and among years with the kindergarten through second grade group?
27. How do population means on the reading comprehension measurement vary between and among years with the kindergarten through second grade group?

Delimitations and Limitations

Numerous changes and factors that have occurred through the last decade could have an effect on the findings. Although, the Reading First (RF) initiative was an educational program authorized by *Elementary and Secondary Education Act (1965), Title I, Part B, Subpart 1* as amended by the *No Child Left Behind Act of 2001b*, there were many other educational programs, and educational policies that could have been implemented collaboratively with RF in the schools. Other limitations to the study that could negatively affect the results of the study include less-than-ideal sample size, low rate of return on the surveys, refusal to participate, and bias responses. Researchers risk denial to conduct the study in the district by superintendents or principals not valuing the research and refusing to participate. Bias responses could also affect the results. Participants could easily mark on a self-report what they know they should do rather than what they actually do. Gay, Mills, and Airasian (2009) suggest that the researcher could compensate for the low return rate by following-up with the non-respondents.

Significance of the Study

This research is important because it contributed to the existing, applied, and basic body of knowledge of what is known about reading instruction. The researcher attempted to address a real world problem. As noted by Chhabra and McCardle (2004), Dr. G. Reid Lyon, Chief of the Child Development and Behavior Branch of the National Institute of Child Health and Human Development, found evidence-based practices that transformed reading education. Findings from twenty years of “rigorous methodologies for the study of the development of reading and the effectiveness of instructional approaches and for the testing of reading” (Chhabra & McCardle, 2004, p. 5) has led Dr. Lyon and the National Reading Panel (NICHD, 2000) to determine that “systematic instruction in the components of reading-phonemic awareness, phonics, fluency, vocabulary, and comprehension was effective in teaching children to read” (Chhabra & McCardle, 2004, p. 7).

Chhabra and McCardle (2004) also noted that scientific research from multiple interagency partnerships led by the NICHD indicated that the ability to read was necessary for children’s success. How well the children read and understand may have implications on their future academic, career, and personal opportunities. Chhabra and McCardle (2004) further stated that children’s inability to read may affect their emotional health, economic security, and public health as well. These findings contributed to the importance of the study.

What’s more, this study might have significance for political leaders and educators. The government invested billions of dollars on implementing research based reading instruction to help children learn to read. It might be of interest to policymakers such as Board of Trustees, Superintendents, Principals, or political leaders to learn which program elements of the Reading First program were believed to be sustainable by educational leaders. The findings could provide

educational leaders a better understanding of the key practices that are essential for reading success; thus, informed decisions on the budget and appropriate allocation of funds to support research based reading programs could be made. It might be key that school administrators and teachers use this information to determine if the research based instructional practices identified by the National Reading Panel (NICHD, 2000) are effective enough for continuing implementation in their schools without the funding.

Definition of Terms

The National Institute for Literacy (2003), the United States Department of Education (Guidance, 2002) and others have defined the following terms. These words have been used frequently in reading instruction and have a special meaning in this proposed study.

Elementary and Secondary Education Act (1965). This law emphasizes equal access to education, sets high standards for academic performance, and demands a rigorous level of accountability from schools and districts. (Elementary and Secondary Education Act, Office of Superintendent of Public Instruction, p. 1).

Grapheme. “The smallest part of written language that represents a phoneme in the spelling of a word. A grapheme may be just one letter, such as *b, d, f, p, s*, or several letters, such as *ch, sh, th, -ck, ea, -igh*” (NIL, 2003, p. 4).

No Child Left Behind. It is the amended section of the ESEA (1965), Title I, Part B, Subpart 1. It authorizes Reading First. It “recognizes the importance of both improving student reading achievement and implementing programs and strategies scientifically proven to be effective” (Guidance, 2002, p. 2).

Onset and Rime. Parts of spoken language that are smaller than syllables but larger than phonemes. An onset is the initial consonant(s) sound of a syllable (the

onset of bag is b-; of swim, sw-). A rime is part of a syllable that contains the vowel and all that follows it. For example, the rime of bag is –ag; the rime of swim is –im. (NIL, 2003, p. 4).

Phoneme. The smallest part of spoken language that makes a difference in the meaning of words. English has 41 phonemes. A few words, such as *a* or *oh*, have only one phoneme. Most words, however, have more than one phoneme. The word *if* has two phonemes; *check* has three phonemes and *stop* has four phonemes. Sometimes one phoneme is represented by more than one letter. (NIL, 2003, p. 4).

Phonemic Awareness. “The ability to hear, identify, and manipulate the individual sounds-phonemes-in spoken words” (NIL, 2003, p. 4).

Phonics. “The understanding that there is a predictable relationship between the sounds of spoken language and the letters and spellings that represent those sounds in written language” (NIL, 2003, p. 4).

Phonological awareness. “A broad term that includes phonemic awareness. In addition to phonemes, phonological awareness activities can involve work with rhymes, words, syllables, and onsets and rimes” (NIL, 2003, p. 4).

Reading Comprehension Strategies. “Strategies for understanding, remembering, and communicating with others about what has been read ... to make sense of text” (Guidance 2002, p. 3).

Reading Fluency. The ability to read text accurately and quickly. It provides a bridge between word recognition and comprehension. Fluent readers recognize words and comprehend at the same time (Guidance, 2002, p. 3).

Scientifically Based Research. The term ‘scientifically based reading research is the application of rigorous, systematic, and objective procedures to obtain valid knowledge relevant to reading development, reading instruction, and reading difficulties; includes research that employs systematic, empirical methods that draw on observation or experiment; involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn; relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations; and has been accepted by peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review (Guidance, 2002, p. 3).

Syllable. “A word part that contains a vowel or, in spoken language, a vowel sound such as, e-vent, news-pa-per; ver-y” (NIL, 2003, p. 4).

Vocabulary Development: Development of stored information about the meanings and pronunciations of words necessary for communication. There are four types of vocabulary.

- Listening vocabulary – the words needed to understand what is heard
- Speaking vocabulary – the words used when speaking
- Reading vocabulary – the words needed to understand what is read
- Writing vocabulary – the words used in writing (Guidance, 2002, p. 3)

Summary

In today’s schools, principals are held accountable for the performance of all the students. They are expected to implement improvement programs within their schools to meet the national

performance criteria established by the *No Child Left Behind Act of 2001 (NCLB)* in spite of the challenge of too many children struggling with learning to read. In an effort to help the American schools, the National Reading Panel (NICHD, 2000) through a Congressional mandate identified skills and methods that are central to reading achievement in the early grades. Billions of dollars were allocated to the schools to implement the research based strategies from 2002 to 2007. Most states reported a gain in the students' performance from the first year of implementation to 2007. In 2010-2011 school year, funding ceased for many of the schools.

The intent of this study was to determine if the awarded schools continued to use Reading First research-based strategies after the funding ceased and if so, to what extent? In a nutshell, the study focused on determining if student achievement in reading was accounted by size of a campus budget, size of the enrollment in the campus, and/or implementation of reading practices in grades kindergarten, first, second, and kindergarten through second grade collectively. The researcher investigated to determine if the implementation of research-based reading practices was accounted by budget size, campus size, or student achievement. Finally, the researcher analyzed the data to determine if the group means on the TPRI variable differed significantly from each other in grades kindergarten through second grade over a seven year period.

CHAPTER II

REVIEW OF LITERATURE

Research from the National Institute for Literacy (NIL), Partnerships for Reading (2003) uncovered that too many of our nation's children have struggled with learning to read. The NIL (2003) stated that the reading failure has resulted in children lacking self-confidence, lacking motivation to learn, and suffering from inadequate academic performance aftereffects in later school years. These findings led to national, congressional, and governmental concern; subsequently, the government responded by charging a National Reading Panel to conduct scientific research on reading (NICHD, 2000). The National Reading Panel collected years of research on reading that supported systematic and empirical methods, rigorous data analyses, valid and reliable measurements, and peer review process (Chhabra & McCardle, 2004). The National Reading Panel (NICHD, 2000) summarized their findings in a report entitled *Report of the National Reading Panel. Teaching Children to Read: An Evidence-Based Assessment on the Scientific Research Literature on Reading and its Implications on Reading Instruction: Report of the Subgroups*. In their report, the NRP (NICHD, 2000) identified key skills and methods that were central to reading achievement in the early grades. Their findings guided the panel in creating the Reading First program (Reading First, 2008). The Reading First program became known as the "academic cornerstone" (Reading First, 2008, p. 1) of the No Child Left Behind Act (2001). Through the NCLB (2001), the government invested billions of dollars to fund the implementation of the Reading First program to help children learn to read.

This review of literature was designed to assist educational leaders understand the impact that the Reading First program has had on the field of reading instruction. The literature was based on research from a multitude of references and was sequenced in the following order. First, a historical synopsis on the formation of education in America followed by information on the development of the Reading First program, legislation that supported it, and the five components of effective reading programs were addressed. Next, criticisms against the Reading First program trailed by the National Reading Panel (NRP) responses to the criticisms were explored. Later, funding information allocated to the states and local agencies from 2002 to 2008 for the purpose of implementing the Reading First program was examined. Lastly a glance at the major findings of the governmental studies that evaluated the Reading First program was evaluated. This literature might help school leaders decide if the Reading First practices as outlined in this review were effective enough for sustaining them in their schools without the Reading First funding.

Historical Overview of Educational Development in America

The complexity of the reading dilemma in the United States was best understood through a historical lens. Pulliam and Van Patten (2007) provided a window to the historical development of education in their book entitled, *History of Education in America*. The authors traced the development of education in America to the 1600's, a time when formal education was reserved for the wealthy, Caucasian, male student. The authors noted that by 1647, educational public interest became evident. Children including females were encouraged to learn to read so that they could read the Bible and grow up to be law abiding citizens. The New England colonies passed *the Old Deluder Satan Act (1647)*. It required towns with 50 families to hire a teacher and towns of 100 families to establish a grammar school.

The Early National Period brought about more change in the development of education (Pulliam & Van Patten, 2007). The 1800's was an era of major influx of immigrants crossing into the United States; thus, the push for assimilation to the English language and the way of thinking became a priority (Sweet, 2004). "The ability to speak, read, write, and spell a common language provided the glue that held our society together" (Sweet, 2004, p. 15).

Pulliam and Van Patten (2007) also identified persons who impacted education and described how they impacted education positively. Among them were strong education supporters, Benjamin Franklin and Noah Webster. Pulliam and Van Patten (2007) described Benjamin Franklin as front-runner who pushed for the English language to become the dominant language to educate people and established an English language grammar school. Noah Webster was described as the "Schoolmaster to America" (Pulliam and Van Patten, 2007, p. 116). According to Pulliam and Van Patten (2007), Noah Webster identified the need for textbooks on the American language as opposed to the British texts Americans were using. Webster wrote the first unique American dictionary, *Compendious Dictionary* in 1803 and later revised it as the *American Dictionary of the English Language*. He wrote a three-volume work, standardized a spelling system, and developed teaching materials for American people to read, write, spell, and speak English.

Alternative approaches to reading instruction surfaced in the 1900's. Sweet (2004) cited John Dewey's sight word approach as an example. According to the author, the best approach to teach Reading became a debatable issue among educators. Some educators debated in favor of Noah Webster's traditional alphabetic approach while others debated in favor of John Dewey's new method approach, commonly referred to as "look and say" methods. Sweet (2004) reported that millions of children were taught using the unproven sight word approach from 1930 to 1955;

therefore, “missed out on learning to read fluently in the early grades, and the remedial education industry began in earnest” (p. 16). Sweet (2004) stated that millions of students unnecessarily remained illiterate because the Dewey’s new method “look and say” advocated 150 years ago remains embedded in our schools in 2004 (p. 16).

The twentieth century brought about more national education reform. The 1957 Soviet Union’s launching of Sputnik into space influenced the governmental officials to initiate policies to fight the war for excellence (Goodwin, 1988). Congress passed the *Elementary and Secondary Education Act (1965)* which emphasized equal access to education and established high levels of accountability. The act was passed authorizing states to administer federal funds for educational purposes for children who were two years behind in reading and mathematics skills. According to Sweet (2004), the amount of Title I funds allocated to public schools exceeded \$130 billion.

The release of a report entitled, *A Nation at Risk* (1983) accelerated concerns about educational excellence and accountability. The report blamed the American schools for not preparing high school graduates adequately for the competitive job market. It stated that the students were learning less than their parents had. Students were performing lower than ever before in standardized testing. The report indicated that America had given way to mediocrity in the schools. Students could not write persuasive essays, could not draw inferences, and could not solve basic mathematical problems with simple steps. America had fallen behind in the competitive global market and was destined to continue to fall behind in an increasingly complex, technological, and competitive world unless America committed to excellence. The report gave birth to a controversial and public educational reform and accountability movement.

Shortly after the release of *A Nation at Risk* (1983), United States presidents used it as a springboard to bring change to the schools. Not as access and equity but rather as a need to increase excellence. Song, Coggshall, & Miskel (2004) credited the Clinton and George W. Bush's administrations for "engineering...policies designed to alleviate perceived crisis in reading achievement" (p. 445). Under the Clinton administration, the America Reads program and the *Reading Excellence Act* were implemented. President George W. Bush in 2001 argued for higher standards. The market value framework used to formulate the policy included freedom of school choice and academic excellence components for the policy. These policies increased teacher professionalism and higher standards to produce a worker that could compete in global job market (NCLB, 2001a).

In 1998, a panel of experts produced a report on reading with children. The work of the National Research Council (NRC) Committee on *Preventing Reading Difficulties in Young Children* authored by Snow, Burns, and Griffin (1998) presented an overview of the most current research literature in reading, language development, and child development. The report emphasized the importance of (1) learning to read, (2) conditions necessary for reading success, (3) early intervention for struggling readers, and (4) ensuring high quality instruction for all children. This report coupled with Dr. G. Reid Lyon's testimony to the 106th Congress on the importance of reading and learning disabilities captured Congress' attention (Education Research: *Is what we don't know hurting our children*, 1999). The National Reading Council's report (Snow et al., 1998) became the basis of the federal definition of scientifically based reading research and was central to the *Reading Excellence Act of 1998* (Chhabra & McCardle, 2004).

Development of the Reading First Program

Chapter One: Introduction and Methodology section of the *Report of the National Reading Panel* (NICHD, 2000) provided an overview of the development of the Reading First Program. The report stated that under a congressional mandate, the National Reading Panel (NRP) was created. According to Song et al. (2004), G. Reid Lyon convinced many state governments, Congress, and the White House that failure to learn to read had implications on educational and health problems. Song et al. (2004) further stated that Congress wanted more answers on the different types of reading instruction for different types of learners. Thus, Congress authorized the National Institute of Child Health and Human Development in consultation with the United States Department of Education to charge the NRP with the responsibility of conducting scientific based research on reading instruction and submitting a final report by 1998. Together, they initiated a national, comprehensive research-based effort on other instructional approaches to reading instruction. Their findings guided the development of public policy on literacy instruction (Sweet, 2004).

According to the introductory section of the NICHD (2000) report, the fourteen member panel set up screening steps to identify studies that were central to reading achievement. Members of the panel included leading scientist in reading research, representatives of colleges of education, reading teachers, educational administrators, and parents. The NRP (NICHD, 2000) applied similar standard to the methodologies used in the teaching of reading and in the prevention or treatment of reading disabilities as those used in psychological and medical research studies. The process applied to the selection, review, and analysis of the research relevant to reading instruction included rigorous methodological standards (NICHD, 2000). The screening process identified the final set of experimental or quasi-experimental research studies

that focused on children's reading development from preschool through grade 12. The studies were published in English and in a refereed journal. All studies, selected or excluded, were documented for the record (NICHD, 2000).

The NRP (NICHD, 2000) first reviewed the findings of the National Research Council, *Preventing Reading Difficulties in Young Children* authored by Snow et al., (1998). The report identified alphabetic, fluency, comprehension, and professional development for all people involved in literacy instruction as important topics. Next, the NRP (NICHD, 2000) searched the databases and found over 100,000 research studies published since 1966 and another 15,000 published before that time. The National Institute for Literacy: Partnerships for Reading (2003), the panel narrowed their research to studies that met specific criteria such as, being generalizable to a larger population, measured reading achievement, and regarded as high quality. Chhabra and McCardle (2004) stated that more than 10,000 youngsters, 1500 teachers, 900 classrooms and 250 schools participated in longitudinal early reading intervention studies in the United States, Canada, and Australia.

The NRP (NICHD, 2000) also held regional public hearings in Illinois, Oregon, Texas, New York, and Mississippi in 1998 to gain an understanding of the issues important to the public. The Panel received oral and written testimony from approximately 125 individuals and organizations. After considerable discussion and debate, the National Reading Panel (NICHD, 2000) centered the study on four components: scientifically based research, five components of reading, effective diagnostic assessment strategy and a professional development plan that ensured teachers had the skills and support needed to implement the program effectively.

Scientific Based Research

The *Reading Excellence Act (1998)* first defined the term, “scientifically based reading research.” According to Sweet (2004), it became the foundation for the No Child Left Behind Act of 2001 and was carefully written to reflect the manner in which the National Science Foundation, the National Institutes of Health, and the National Academy of Sciences conducted research. The Student Reading Skills Improvement Grants [20 U.S.C. § 6368] also defined the term “scientifically based reading research” as follows:

The term ‘scientifically based reading research-

(A) applies rigorous, systematic, and objective procedures to obtain valid knowledge relevant to reading development, reading instruction, and reading difficulties; and

(B) includes research that-

(i) employs systematic, empirical methods that draw on observation or experiment;

(ii) involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;

(iii) relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations; and

(iv) has been accepted by peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective, and scientific review (section 6).

Fletcher and Francis (2004) described the scientific research design of the studies selected by the National Reading Panel as having internal, external, and statistical conclusion validity. The National Reading Panel reviewed more than 100,000 studies to identify key skills and methods that were central to reading achievement (National Institute for Literacy (NIL), 2003). The National Reading Panel (NICHD, 2000) coded and analyzed the studies that met the screening criteria. The categories for analyzing the studies included reference, research questions, samples of student participants, setting of the study, design of study, independent and dependent variables, results for each measure, coding of information, data analysis, and expected outcomes. The National Reading Panel (NICHD, 2000) analytical procedures allowed them to examine the overall effect size indicating the extent to which performance of the treatment group was greater than performance of the control group. The strength of an effect size was gauged as follows: a value of +0.80 was considered a large effect, a +0.50 was considered a moderate effect, and a +0.20 was considered a small effect. In each of these cases, the treatment group performed better than the control group. A -0.20, -0.50 and -0.80 effects indicated that the control group performed better than the treatment group. The overall effect sizes were examined in regard to their difference from zero, strength, and consistency (Ehri, 2004). The National Reading Panel (NICHD, 2000) answered questions such as, “Does the treatment have an effect on reading...if the treatment has an effect, how large is it...did the effect of the treatment vary significantly from study to study” (p. 1-10)?

Five Essential Components of Reading

Research (Hart & Risley, 1995) showed that children born to a professional family hear 2,153 words per hour, 215,000 words per week, 11 million words per year, and 45 million words in four years. Children born to a working-class family hear 1, 251 words per hour, 125,000

words per week, 6 million per year, and 26 million in four years. Children born to a family on welfare hear 616 words per hour, 62,000 per week, 3 million per year, and 13 million in four years. Hart and Risley (1995) research illustrated that an early language experience gap existed before children entered kindergarten. Moats (2004) resonated academic achievement optimism for the children who entered our schools with a gap in vocabulary when she stated, “Fortunately, children who begin schooling at a disadvantage in letter, sound, word, and concept knowledge can be taught to read and write well if their teachers consistently implement a linguistically informed, structured, comprehensive, and content-rich curriculum” (p. 269).

The National Reading Panel (NICHD, 2000) identified five instructional methods proven to be effective. They concluded that systematic and explicit instruction on phonemic awareness, phonics, fluency, vocabulary development and text comprehension caused improvements in children’s reading and spelling skills.

Phonemic Awareness

The National Institute for Literacy Partnership for Reading (2003) defined phonemic awareness as the ability to focus on and manipulate phonemes (sounds) in spoken words. Ehri (2004), a member of the National Reading Panel, analyzed research from numerous studies that identified phonemic awareness and letter knowledge as predictors of how children learn to read during their first two year of instruction. Her team examined 52 published studies that met rigorous criteria. The studies consisted of experimental or quasi-experimental designs with a control group or a multiple baseline method that had been reviewed by other scholars and accepted by publications in a referred journal. The selected studies tested the hypothesis that instruction in phonemic awareness improved reading performance over an alternative form of instruction. Furthermore, the studies included phonemic awareness instructional methods that

were not weaved with other instructional methods. Finally the studies used estimation of effect size calculations to determine findings. The NRP (NICHD, 2000) compared effect sizes associated with type of test, time of test, type of phonemic awareness instruction, use of letters, size of groups, trainer, length of instruction, reading level of students, grade level and, socioeconomic status.

Scientific research findings from the National Reading Panel (NICHD, 2000) on phonemic awareness instruction concluded that phonemic awareness (1) could be taught and learned, (2) helped children learn to read and spell, (3) was most effective when children were taught to manipulate phonemes by using the letters of the alphabet and (4) was most effective when it focused on only one or two types of phoneme manipulation.

In the studies reviewed by the NRP, the researchers used the specific instructional tasks to assess children phonemic awareness. They found that phonemic awareness could be taught and learned. In the subsequent section, an excerpt taken from the NRP (NICHD, 2000) Chapter 2, Part 1: Phonemic Awareness section demonstrated examples of phonemic awareness instruction tasks that researchers used to assess children's phonemic awareness skill. Each task was first explained in broad terms, followed by a quote from the teacher and a response from the students. The children's response was identified in parenthesis and the letter between slash marks represented the sound of the letter.

1. Phoneme isolation "requires recognizing individual sounds in words. For example, 'Tell me the first sound in paste.' (/p/)" (NICHD, 2000, p. 2-2).
2. Phoneme identity" requires recognizing the common sound in different words. For example, 'Tell me the sound that is the same in bike, boy, and bell.' (/b/)" (NICHD, 2000, p. 2-2).

3. Phoneme categorization “requires recognizing the word with the odd sound in a sequence of three or four words. For example, ‘Which word does not belong? bus, bun, rug.’ (rug)” (NICHD, 2000, p. 2-2) .
4. Phoneme blending “requires children listening to a sequence of separately spoken sounds and combining them to form a recognizable word. For example, ‘What word is /s/ /k/ /u/ /l/?’ (school)” (NICHD, 2000, p. 2-2).
5. Phoneme segmentation “requires breaking a word into its sounds by tapping out or counting the sounds or pronouncing and positioning a marker for each sound. For example, “How many phonemes are there in ship? (three: š/ /l/ /p)” (NICHD, p. 2-2).
6. Phoneme deletion “requires children to recognize the word that remains when a specific phoneme is deleted. For example, “What is smile without the /s/?” (mile)” (NICHD, 2000, p. 2-2).

The NRP (NICHD, 2000) found that phonemic awareness instruction helped children learn to read under certain conditions. The findings of a meta-analysis revealed that the effects of moderators on learning phonemic awareness were larger when children were taught in small groups vs. individual instruction or classroom instruction. The NRP (NICHD, 2000) also found that instructional treatments lasting between 5 to 18 hours produced greater effects than shorter or longer durations; single sessions lasted 25 minutes on average. The National Institute for Literacy Partnerships for Reading (2003) supported the findings and stated that children often benefit from listening to their classmates respond and receive feedback from the teacher. The NRP (NICHD, 2000) also found that pre-diagnostic assessment helped teachers identify students who needed more instruction, students who needed to be taught the easier types of phoneme manipulation and students who needed instruction in more advanced types of manipulations.

Furthermore, the National Institute for Literacy Partnerships for Reading (2003) found that PA instruction, along with vocabulary and world experiences, improved children's ability to read because children who read accurately and at a reasonable rate were more likely to comprehend text.

The NRP (NICHD, 2000) also found that phonemic awareness instruction helped children learn to spell. Teaching children to segment words into phonemes and to blend phonemes with letters of the alphabet helped children learn to spell. The NRP (NICHD, 2000) defined segmenting instruction as the breaking of the word into syllables and blending instruction as the combining of syllables to make sounds. The panel found that segmenting and blending instruction produced greater effect sizes on reading development than multiple-skills instruction. The NRP (NICHD, 2000) reported positive effects of moderators on learning to spell; however, they reported some conditions that effect sizes were not significant. The effects of phonemic awareness training on spelling for disabled readers were minimal. The effects of phonemic awareness training on spelling for at-risk and normally developing readers did not differ across levels of conditions of phonemic awareness training.

The NRP's (NICHD, 2000) findings concluded that teaching children to manipulate phonemes using letters produced bigger effect sizes than teaching children without letters. Manipulating phonemes with letters exerted a much larger impact on spelling than manipulating phonemes without letters. Teaching children sounds with letters of the alphabet allowed children to see how phonemic awareness related to their reading and writing.

The last of the key findings of the National Reading Panel (NICHD, 2000) stated that the phonemic awareness instruction helped children learn to read when it focused on only one or two types of phoneme manipulation, rather than several types. Children who received systematic and

explicit instruction on one or two phonemic awareness skills made greater gains in reading and spelling than children who were taught a combination of three or more phonemic awareness manipulations. The National Institute for Literacy Partnerships for Reading (2003) offered three possible explanations. First, children who were taught many different ways to manipulate phonemes might have become confused about which type to apply. Second, teaching many types of manipulations did not leave enough time to teach any one type thoroughly. Finally, instruction that included several types of manipulation may have resulted in teaching children more difficult manipulations before the children acquired skill in the easier ones.

Other findings (NICHD, 2000) revealed that preschool and kindergarten children showed larger effects sizes in acquiring phonemic awareness than children in first grade and higher. Beginning readers at risk for reading failure and normally progressive readers showed larger effect sizes than for older disabled readers. Children learning to read in English showed larger effect sizes than children learning to read in other languages. Socio-economic status had no impact on effect size; low to mid-high socio-economic status children acquired phonemic awareness similarly. Classroom teachers and computers were found to be effective in teaching phonemic awareness to children.

The research-based studies on phonemic awareness instruction revealed positive results and supported the teaching of phonemic awareness because all children benefited from it. The NRP's (NICHD, 2000) findings concluded that phonemic awareness instruction was significantly better than alternative forms of training in helping children learning to read. The overall effect size on phonemic awareness outcomes was a strong 0.86. It also revealed that phonemic awareness instruction enabled children to apply their phonemic awareness skills in reading and spelling; the overall effect size on reading was a moderate 0.53 and the overall effect

size on spelling was a moderate 0.59. Furthermore, the findings revealed that phonemic awareness instruction was highly effective across all the literacy domains and outcomes. Effects were significant on follow-up tests (standardized tests and experimenter-devised tests) given several months after the instruction ended.

The NRP's (NICHD, 2000) analysis indicated that a well-designed phonemic awareness program was likely to yield significant benefits in the acquisition of reading and writing skills; however, phonemic awareness instruction alone could not guarantee later literacy success. Lasting benefits depended on the comprehensiveness and effectiveness of the entire literacy program.

Phonics Instruction

Scientific research from the National Reading Panel (NICHD, 2000) concluded that the phonics instruction led to the understanding of the alphabetic principle; therefore, it helped children learn the relationship between the letters of written language and sounds of spoken language. Ehri (2004) compared the effectiveness of systematic phonics instruction to unsystematic phonics or no phonics instruction. Phonics instruction studies included synthetic phonics, analytic phonics, onset-rime instruction, analogy phonics, phonics through spelling, and embedded phonics. Non-systematic programs included whole language instruction, basal program, and regular curriculum.

Ehri (2004) summarized the six approaches to systematic phonics instruction in Chapter 8 of *The Voice of Evidence in Reading Research* as follows. (1) Synthetic phonics instruction used a whole to part approach. It taught children to convert letters (graphemes) into sounds (phonemes) and blend the sounds together to form recognizable words. For example, the teacher might have asked the children to pronounce each letter in the word *stop*, /s/ /t/ /o/ /p/ and then

blend the sounds to form the recognizable word *stop*. (2) Analytic phonics instruction consisted of a whole to part approach as well. It taught children to analyze letter-sound relationships in previously learned words and discouraged the pronunciation of sounds in isolation. For example, the teacher might have written the letter *p* followed by *put*, *pig*, *play*, and *pet*. The teacher helped the children recognize that all the words began with the same letter as they read the words. (3) Onset-rime phonics instruction taught children to identify the sound of the letter(s) before the onset (first vowel in a one-syllable word) and rime (sound of the remaining part of the word). (4) Analogy-based phonics taught children to use parts of word families to identify other words that have similar parts. For example, children previously learned the words *tent*, *make* and *pig*. Children learned to use these words to decode unfamiliar words. They pronounced the shared rime and blended it with the new onset to decode words such as *rent*, *bake*, and *jig*. (5) Phonics through spelling approach instructed children to separate words into phonemes and to make words by writing the letter for the phonemes. (6) Embedded phonics instruction taught children letter-sound relationships along with context cues to identify unfamiliar words as they read (Ehri, 2004).

The NIL (2003) summarized three non-systematic programs and declared that the following programs do not teach phonics explicitly and systematically: basal reading, sight-word, and literature based. The NIL (2003) defined basal reading as a program that focused on whole word or meaning based activities and described the program as it giving limited attention to letter-sound relationships to pronounce words. The NIL (2003) further declared that the program required little or no instruction on how to blend letters to pronounce words. The NIL (2003) also pointed out that sight-word programs taught children a sight-word reading vocabulary of 50 to 100 words. Children received instruction in the alphabetic principles only

after they learned to read the common words. Lastly, the NIL (2003) described literature-based program as a program that embedded phonics instruction in reading and writing activities. This method allowed phonics instruction to be taught as the words appeared in the students' reading materials.

Part II: Phonics Instruction Executive Summary of the NRP (NICHD, 2000) affirmed that a meta-analysis on 38 studies (66 treatment control groups) compared the mean effect sizes produced by participants, reading outcomes, and phonics instruction approaches. The participants in the study were sorted into three categories of problem readers: children in kindergarten or first grade who were at risk of developing reading problems, older children referred as disabled readers, and low achieving readers. Ehri (2004) and her team analyzed the children's performance on six outcomes: decoding regular words, decoding pseudo words, reading miscellaneous words, spelling words, reading text orally and comprehending text. The NRP's (NICHD, 2000) findings indicated that systematic and explicit phonics instruction was more effective than non-systematic instruction. The effect sizes revealed that in most of the studies, the group receiving phonics instruction read better than the control group. Phonics instruction significantly improved children's word recognition, spelling, and reading comprehension, and was beneficial to children from all social and economic backgrounds. It was further determined that phonics was most effective when it was initially taught in kindergarten or first grade. Findings also revealed that systematic phonics instruction was effective when delivered through individual tutoring, small groups and class group. The NIL (2003) agreed that systematic phonics instruction by itself did not help students acquire all that they needed to be become successful readers.

Fluency

The student expectation outlined by the Texas Essential Knowledge and Skills (TEKS), mandated that students read grade-level text with fluency and comprehension (Texas Education Agency, Chapter 110, 2012). Readers who read accurately, at a reasonable rate, and with prosody, as if they were speaking were measured as fluent (Kuhn & Stahl, 2003). The NRP (2003) noted that children who read approximately 60 words per minute (wpm) correctly by the end of the first grade, 90-100 wpm by the end of the second grade and approximately 114 wpm by the end of the third grade made suitable progress in their fluency. On the other hand, a child, who made more than ten percent word recognition errors, could not read orally with expression, and had poor comprehension skills indicated that the child needed fluency instruction. The NRP (NICHD, 2000) found that fluency influenced understanding of written text. Fluency depended upon well-developed recognition skills.

The National Reading Panel (NICHD, 2000) investigated two major approaches associated with fluency: guided repeated oral reading and independent reading. The panel coded 77 articles on guided repeated oral reading and 14 on independent reading. Some of the guided repeated oral reading programs analyzed included repeated reading, neurological impress, choral, tape-assisted, three tutor-based reading, and reading theatre. The NRP (NICHD, 2000) found that guided oral reading approach encouraged students to read the passages aloud multiple times; the teacher offered corrective feedback and guidance. The independent reading approach studies included formal programs to increase the amounts of independent or recreational reading that children engaged in such as, Sustained Silent Reading, Accelerated Reader, Drop Everything and Read and others.

Repeated reading. Samuel's (1997) found that a "simple yet powerful technique called repeated reading" (p. 376) was an effective method to instruct students who had been experiencing difficulty with learning to read. Stahl (2004) in the chapter, "What Do We Know About Fluency? Findings of the National Reading Panel," described in detail a clinical version of repeated reading methodology used at the University of Georgia Reading Clinic. The fundamental steps were similar to those described by Samuels (1979); however, the technique was enhanced. The updated version of the repeated reading technique required teachers to take a 100-word excerpt from a selected passage, use audiotape recording devices, provide immediate corrective feedback, and set a goal of 100 words per minute with zero or one miscue per 100 words (Stahl, 2004). Similar to Samuels (1979) experiment, Stahl (2004) stated that the teacher timed the child using a stopwatch or a wristwatch with a sweeping second hand as the child read. The teacher had the option to make an audiotape recording of the child's reading. As the child read, the teacher marked all of the miscues that the child made and marked the child's speed and error on a chart. The teacher reviewed the miscues with the child using the audiotape recording or discussion. The child reread the passage and the teacher continued to mark the errors and time on the chart. The process was continued until the child achieved a speed of 100 words per minute with zero or one miscue per 100 words. If more than seven unsuccessful attempts were made, the teacher discontinued and used an easier passage. The teacher selected another 100-word passage at that same level. Once the child read the passage fluently on the first reading, the teacher provided a more difficult passage (Stahl, 2004).

Neurological impress. Stahl (2004) described neurological impress as a technique that required "a child and a tutor [to] read the same text simultaneously, with the tutor sitting behind the child reading into the child's dominant ear, with both the tutor and child pointing to the

words at the same time” (p. 194). The technique entailed that the tutor read with prosody and point to each word and show students when to pause and when to raise or lower the voice. With each repetition, the tutor softened his or her voice allowing the child’s voice to dominate. Next, the student read the same passage to the tutor with prosody. The adult tutor provided assistance and encouragement. The student continued to reread the passage until the reading was quite fluent.

Choral reading. The NIL Partnership for Reading (2003) identified choral reading as reading method that allowed the children to read as a group with teacher. Children in early grades followed along as the teacher read from a big book or the children read along from their own copy of the book. The books repetitious style invited children to join in the reading. Again, the teacher modeled reading and then invited children to join in as they recognize familiar words.

Tape-assisted reading. The NIL Partnership (2003) described the tape-assisted reading method as an opportunity for students to read along in their books as they listened to an audio-taped model read. The first reading required the children to point to every word as they followed along with the tape. The second reading required the children to read aloud along with the tape. The process continued until the children read the book independently.

Tutor-based reading. Stahl (2004) described the three tutor-based reading methods as it involving both assisted and repeated reading approaches. The approach required someone other than a teacher to deliver the instruction. The tutor-based reading methods included paired reading, peer tutoring and cross-age tutoring.

Paired reading. Paired reading involved a struggling reader and a an adult tutor. The tutor worked one to one with the struggling reader. Together, they read in unison. Once the child was ready to read independently, the child signaled the tutor. The child continued to read

solo until he or she made an error. The tutor provided corrective feedback on the word and returned to paired reading until the child signaled that he or she was ready to read solo again (Stahl, 2004).

Peer tutoring. Peer tutoring reading provided students the opportunity to read in pairs. Peer tutoring involved children in the same class. Students were paired with a more fluent partner or a partner of equal ability. The stronger partner read first, providing a model of fluent reading. The less fluent reader read next. The stronger reader provided feedback and encouragement to the less fluent reader. The less fluent reader continued to read the passages until he or she read independently (Stahl, 2004).

Cross-age tutoring. Cross-age tutoring involved children reading to children in younger grades. Cross-age tutoring allowed a second grade struggling reader to read a book such as *Green Eggs and Ham* to a kindergartner. This approach allowed both children to gain in reading skills. The kindergartner learned from the reading, and the tutor read a below grade level book without feeling ridiculed for reading easy books (Stahl, 2004).

Readers' theatre. In this activity, the children rehearsed and performed a play. The children read scripts that were rich in dialogue. They played characters that spoke lines or narrated information. This activity promoted cooperative interaction with peers and made reading fun (NIL, 2003).

The NRP (NICHD, 2000) concluded that the guided repeated oral reading programs had a “consistent and positive impact on word recognition, fluency, and comprehension as measured by a variety of test instruments and a range of grade levels” (p. 3-3). The analysis indicated that repeated reading procedures had an effect on the reading ability of non-impaired readers. All guided reading approaches were associated with positive effect sizes. Furthermore, the NRP

(NICHD, 2000) stated that “an extensive review of the literature indicated that classroom practices that encourage repeated oral reading with feedback and guidance lead to meaningful improvements in reading expertise for students...for good readers as well as those who are experiencing difficulties (p. 3-3).

The NRP’s (NICHD, 2000) research concluded that evidence supporting the effectiveness of encouraging independent silent reading as a means of improving reading achievement could not be found (p. 3-4). Independent reading program studies reviewed by the panel included Silent Sustained Reading (SSR), Drop Everything and Read (DEAR), Accelerated Reader (AR), and others. These studies indicated the independent reading programs mandated that school leaders set a time during the school day for all students and teachers to read. After students selected a book to read, they read extensively on their own while the teacher modeled silent reading as well (Stahl, 2004). This approach offered students no direct instruction in reading. Minimal guidance and corrective feedback might have been provided (NIL, 2003).

Stahl (2004) cautioned that NRP’s failure to find positive effects from SSR might have been because the NRP only looked at experimental studies. The best independent reading studies were correlational and not experimental. Qualitative studies (Anderson, Wilson, & Fielding, 1988; and Taylor, Frye, & Maruyama, 1990) found that the amount of reading that children did correlated strongly with children’s gains in reading. Although many studies found a strong relationship between reading ability and how much a student reads, its effectiveness without guidance or feedback was unproven (NICHD, 2000). The National Reading Panel encouraged independent reading outside of school; however, not in lieu of direct instruction, in particular, for struggling readers.

Vocabulary

The National Reading Panel (NICHD, 2000) identified vocabulary development as an important goal for students in the primary grades; unfortunately very little instructional time was devoted to vocabulary development in the primary grades (Biemiller, 2001). A study by Cunningham and Stanovich (1997) showed that vocabulary size in kindergarten predicted reading comprehension in later elementary years, and vocabulary size at the end of first grade predicted comprehension 10 years later. These studies reported that children with restricted vocabulary in third grade had declining comprehension scores in later elementary years.

The NRP (NICHD, 2000) reviewed scientific research from 1979 to 2002. They found 47 studies on vocabulary instruction. The NRP (NICHD, 2000) found support for five main methods of instruction: explicit, implicit, multi-media, capacity, and association methods.

The NRP (NICHD, 2000) found that although children learned the meaning of most words indirectly, some vocabulary needed to be taught directly. The panel found that explicit instruction of vocabulary was highly effective because it provided students precise direction for learning definitions of words. Strategies included teaching children specific words before reading a text and analysis of word roots or affixes. An in-depth understanding of word meanings helped students use words accurately in speaking and writing.

The NRP's research (NICHD, 2000) revealed that the best gains involved multiple exposures in authentic contexts beyond the classroom. Implicit instruction, the repeated exposure to vocabulary words, promoted active engagement with vocabulary. It allowed children to learn words best because it kept them working with words over an extended period of time. The more students used the new words in different contexts, the more likely the words became a permanent part of the child's vocabulary.

The NIL (2003) illustrated an example of extended and active engagement classroom instruction in the publication entitled, *Putting Reading First*. In their example, a teacher taught children the concept of *jobs*. The teacher engaged students in exercises in which the children worked repeatedly with the meaning of the concept of *jobs*. Over a period of time, the teacher asked the students to talk about what they already knew about jobs, to read a simple book about jobs, and to write sentences describing their parents' job. The teacher further extended the learning about jobs through classroom guests and field trips engagements. The teacher promoted active engagement and gave students repeated exposure to new words.

The NIL (2003) expounded on vocabulary with multimedia strategies. Through multimedia strategy, students had the opportunity to learn vocabulary through graphic organizers and computer usage. Vocabulary taught through graphic organizers such as, maps, webs, graphs, charts, frames, and clusters was proven effective. Spider web graphic organizers helped children connect a central concept to a variety of related ideas or events. Computer vocabulary instruction showed positive learning gains over traditional methods.

According to the NRP (NICHD, 2000), children learned the meaning of most words by reading extensively on their own. The panel found that children who read extensively on their own encounter more words and word meanings; thus added to their library of words. Anderson and Nagy (1992) found that "children who read even 10 minutes a day outside of school experience[d] substantially higher rates of vocabulary growth between second and fifth grade than children who do little or no reading" (p. 46).

The NRP (NICHD, 2000) found that association methods encouraged students to draw connections between the words they knew and words they encountered that they did not know. In the studies reviewed, the NRP (NICHD, 2000) found that through word learning strategies,

teachers found a way to provide specific instruction for all the words students did not know. Learners drew connections between what they knew and words they encountered that they did not know. Some of the word learning strategies studied included learning to use dictionaries, thesauruses, glossaries, word parts, and context clues to figure out the meaning of words in the text.

In general, the National Reading Panel (NICHD, 2000) found that beginning readers used their vocabulary to understand what they are reading. The results of vocabulary instruction pointed to learning gains appropriate to age and ability effects. The manner in which vocabulary was assessed may have had differential effects on instruction. The dependence on a single vocabulary instruction method did not result in optimal learning.

Comprehension

The NRP (NICHD, 2000) found 203 studies on text comprehension instruction. The NRP (2003) summarized comprehension with the following quote, “Comprehension is the reason for reading...research over 30 years has shown that instruction in comprehension can help students understand what they read, remember what they read, and communicate with others about what they read” (p. 48). The analysis of comprehension strategy instruction studies revealed important information about what should be taught about text comprehension and how it should be taught.

Reutzel, Smith, and Fawson (2005) found that reading comprehension instruction taught in the early grades and multiple reading comprehension strategies taught in clusters were effective. Duke and Pearson (2002) found that students who comprehended what they read had strategies that helped them become better at monitoring their own comprehension. Among the comprehension strategies found to be effective by the National Reading Panel (NICHD, 2000)

were comprehension monitoring, questioning, cooperative learning, story structure, summarization, graphic organizers, and multiple strategies.

The NIL (2003) summarized three unique types of question-answer instruction that had scientific base for improving text comprehension: text explicit, text implicit and scriptal. The studies analyzed by the NRP (NICHD, 2000) defined text explicit as answers found in a single sentence in the reading passage; text implicit as answers implied by information presented in two or more sentences; and scriptal as answers not found in the text but were part of the reader's prior knowledge or experience. The NRP (NICHD, 2000) concluded that students who answered questions solicited by teacher or text improved their learning in reading; however, students who asked questions about the reading selection improved their processing of text and comprehension.

According to the NIL (2003), recognizing story structure and summarization strategies had scientific evidence for improving text comprehension, as well. The studies reviewed by the NRP (NICHD, 2000) showed that students who recognized how the content and events of a story were organized into a plot had better understanding of the stories read. Furthermore, the studies showed that teachers who used story maps organizers to show sequence of events helped readers focus on text structure as they read. The students in the studies were successful in visually representing relationships in texts and writing well-organized summaries of a text. Examples of visual representation organization to comprehend the story better included content such as, setting, initiating events, internal reactions, goals, attempts, and outcomes (NIL, 2003).

Students have been expected to comprehend a variety of literary and informational texts such as, themes and genre, poetry, drama, fiction, literary nonfiction, sensory language, culture and history, expository text, persuasive text and procedural texts (Texas Education Agency,

Chapter 110, 2012). According to the NIL (2003), good readers used meta-cognitive strategies before, during, and after reading. Before reading, they clarified the purpose for reading and previewing the text. During reading, they monitored their reading by adjusting their reading speed and rereading passages to fit the difficulty of the text. After reading, they monitored their understanding of what they read. Summarizing the main ideas of the story helped children remember what they read (NICHD, 2000).

Teacher Preparation

The teacher preparation theme emerged from National Reading Panel's research as a key element of an effective reading program. The Panel found four studies on teacher preparation that covered 53 classroom teachers from grades 2 to 11. The researchers found that the implementation of comprehension strategies instruction by teachers was a major problem facing the teaching of reading in the classroom. Durkin (1981) found that teachers tested comprehension a lot but did very little teaching of it. In his study, Durkin observed that many classroom teachers appeared to mention the skill to students but did not use the effective instruction modeling and transactional practices that were supported by research. Pressley (1998) suggested that little had changed since then by saying, "students were provided with opportunities to practice comprehension strategies, but were not actually taught the strategies themselves nor the utility value of applying the" (p. 198). Numerous researchers (Anderson & Nagy, 1992; Bramlett, 1994; Duffy, 1993; Pressley, 1998) found that many teachers might not have used effective comprehension instruction strategies because they themselves had not had the preparation in instruction.

The NRP's research showed that students of teachers who participated in well-designed professional development activities produced better results (NICHD, 2000). These findings led

to the mandate that all Reading First teachers attend professional development to learn to teach the essential components of reading instruction in a systematic and explicit manner. The No Child Left Behind Act 2001b, ESEA, 2002 Title 1, Part B, Subpart 1 – Reading First Provisions required that the professional developments center on helping teachers understand why some children had difficulty learning to read well. The professional development had to center around teachers learning to administer and interpret assessments of student progress and learning how to effectively manage their classrooms and maximize time on task. The professional development had to be aligned with research base instructional programs and state academic and performance standards as well. According to the United States Department of Education document entitled, *Guidance for the Reading First Program* (2002), the program called for coaches, mentors, peers and outside experts to provide training and feedback on the teaching of all essential components of reading instruction.

Legislation

In April 2000, the National Review Panel (NICHD, 2000) reported their findings to the House Committee on Education and the Workforce, Subcommittee on Education Reform. The Panel recommended a reading program be centered on the five components of reading, effective diagnostic assessment strategy and a professional development plan that ensured that teachers have the skills and support needed to implement the program effectively (Guidance, 2002).

The report prompted President George W. Bush to initiate the Reading First program as a key component authorized by the *No Child Left Behind Act of 2001b (PL 107-110)* as a reform effort implemented to improve the quality of the nation's school system. The law recognized the importance of improving student reading achievement and implementing programs and strategies scientifically proven to be effective (Guidance, 2002). As the law filtered down to the local

levels, district administrators, principals and classroom teachers enforced the new educational policy. “Teaching young children to read [became] the most critical educational priority facing this country” (Guidance, 2002, p. 1).

The National Reading Panel

The NRP (NICHD, 2000) report became one of the most influential and controversial documents in reading instruction (Chaabra & McCardle, 2004). Scientists agreed that criticism had been an important element of the scientific process because the extent to which new findings were accepted or rejected by other scientists depended on the accuracy, comprehensiveness and accessibility of the reporting of results (Fletcher & Francis, 2004). The NRP’s scientific process supported the Reading First program and offered the critics an opportunity to examine the quality and rigor of the educational research that the panel conducted.

The work of the National Reading Panel did not go without criticism. Shanahan (2004), a member of the National Reading Panel, asserted that dozens of errors and misinterpretation crept into the critiques. Although he acknowledged that a number of the objections were valid concerns, he asserted a significant number of the critiques were based on each researcher making decisions about the implications of research and not on the findings of the National Reading Panel. Some of the claims against the program and responses to support the Reading First Program methods were summarized in the subsequent sections.

First, Yatvin (2000), Allington (2002), and Pressley, Dolezal, Roehrig, and Hilden (2002) voiced complaints against the National Reading Panel for omitting important reading topics. Yatvin (2000), a member of the National Reading Panel, criticized the panel for excluding topics such as, interdependence between reading and writing, the effects of types, quality or amounts of material children read, oral language literature and its conventions, etc. Allington (2002)

criticized the panel for not including motivation and out of school reading. Pressley et al. (2002) expressed discontentment because the inclusion of family literacy and whole language were excluded.

Second, other critics (Coles, 2001; Edmondson & Shannon, 2002; Newkirk, 2002; Pressley et al., 2002) complained that the NRP was too narrow in their research design. They soundly refuted the panel's decision to limit the research design to experimental or quasi-experimental research. In their publications, they concurred that the panel's findings were correct; however, believed that the panel should have considered qualitative approaches as well.

Third, other researchers accused the panel of challenging the benefits of reading by discouragement of children reading independently. Critics claims ranged from chastising the panel for regarding independent silent reading as a treatment (Cunningham, 2001) to arguing that letting kids read is better than instruction because a finding of no difference is evidence for free reading in the classroom (Krashen, 2001) to arguing for the acceptance of correlation as evidence that all programs and approaches claiming to encourage reading work (Cunningham, 2001; Newkirk, 2002).

As a response to the criticism, Shanahan (2004), a member of the National Reading Panel, National Literacy Panel for Language Minority Children and Youth, and the National Early Literacy Panel stated that researchers were afforded the opportunity to reanalyze the NRP findings using qualitative evidence. Almasi, Garas-York, and Shanahan (2002) found 12 qualitative studies of reading comprehension as opposed to the 200 experimental or quasi-experimental studies analyzed by the National Reading Panel. Almasi et al. concluded that the 12 studies were flawed and could not add validity or trustworthiness data to the NRP report. The report concluded that the information that was available from qualitative studies was

informative, provided a rich description of what happened at a given situation and allowed for a hypothesis about causation; however, this information could not be used to guide policy and practice.

The National Reading Panel (NICHHD, 2000) did not include correlational studies in the analysis for two reasons: (1) Correlational evidence could not be used as a sole determiner of whether something works and (2) it was unethical to conduct an experiment. Shanahan (2004) stated that the panel examined the few high-quality studies in the area of sustained silent reading; however, the small number of studies did not provide proof that sustained silent reading worked.

Fourth, some critics rejected the assumptions and methods of NCLB and the Reading First program. The *Education Trust's Primary Progress* report (Hall & Kennedy, 2006) and the *Civil Rights Project* (Lee, 2006) reviewed the same data; however, each interpreted different results. Hall & Kennedy (2006) claimed that academic progress was made in the states and that the gap between white and ethnic groups had closed in 2005. The authors reported the following gains in reading: 27 out of 31 states in the elementary grades, 20 out of 31 states in the middle schools, and 26 out of 30 states in the high school grades.

Lee (2006) disagreed and claimed that the success of the Hall and Kennedy's (2006) report rested "on misleading interpretations of flawed data" (p. 7). Lee (2006) compared the Nation's Report Card scores of percentage of students' performing at or above *Proficient* level to the states scores of percentage of students performing at or above the *proficient* level and found discrepancies. He found that Alabama reported 83% state proficiency in reading and 22% at the national level; New Jersey reported 82% at the state level and 37% at the national level; Oregon reported 81% proficiency at the state level and NAEP scores at 29%. According to Lee (2006), the Civil Rights Project trend analysis concluded that NCLB had not (1) had a significant impact

on reading achievement across the nation or states, (2) closed the racial gaps, nor (3) succeeded in the first generation states (e.g., Florida, North Carolina and Texas). Furthermore, Lee (2006) found that neither a significant rise in achievement nor closure of the racial gap had been achieved.

A closer look at the National Center for Educational Statistics (2005) revealed that several factors may have led to the discrepancies. (1) The states tested all students while the National Center for Educational Statistics (2005) tested a random sample of students. (2) The knowledge and skills assessed and their alignment with what students were actually taught were not paralleled. (3) The test format, testing environment and the seriousness of the stakes attached to the results were not comparable. (4) The state and national definition of “success” was different.

Berliner (2006), in his work, *Our Impoverished View of Education Reform*, wrote that NCLB (2001)’s goals had negative consequences for students, teachers, administrators, and schools because it focused only on the work of the teachers and the experiences of the students and ignored the relationship between poverty and student achievement. By examining *The Progress for International Student Assessment Study* (USDE, NCES, 2001) he supported his claim. He reported that (1) American white students scored among the highest in the nation, while the American minority students scored the lowest and, (2) the nine and ten year olds students ranked third among 35 nations. He pointed out that American teachers were teaching reading well before the implementation of the Reading First program and the schools serving the fewest minority students performed 24 points above the top country, Sweden. Schools serving 75% poverty rate scored 100 points below their American counterparts and last among the nations.

Similar to the philosophy of Civil Rights Project, Berliner (2006) suggested that employment with a living wage, health benefits, and a pension system for the parents could create healthier environments in which to raise children; a more viable solution to improving reading scores. Berliner (2006) stated that the international statistics affirm that mothers with adequate health care would deliver healthier babies. The children whose parents could afford health care would have fewer ear infections and unmet visual and dental ailments. Children whose parents could afford better housing could avoid lead and mercury poisoning homes that contribute to mental, physical, or behavioral traits associated to poor academic student performance. Overall, Berliner (2006) concluded

In my estimation, we will get better public schools by requiring of each other participation in building a more equitable society. This is of equal or greater value to our nation's future well-being than a fight over whether phonics is scientifically based, whether standards are rigorous enough, or whether teachers have enough content knowledge" (p. 988).

Critics claimed that educational policies and laws at the federal and state levels were political acts rather than scientific; in other words, corrupted. Shannon (2007) wrote that some panel members stood to gain financial profits for adopting selective commercial programs. Shannon (2007) stated that the practice of forced selection of textbooks and other commercial programs became the curriculum for the schools because the schools could not afford to supplement the required curriculum with other materials. The reading education became "a market in which children's literacy futures are bought and sold in order to maximize profits for publishers and their non-publishing corporate owners" (Shannon, 2007, p. 9).

Garan (2002) supported Shannon's claim when she wrote,

The scientific researchers on the National Reading Panel had vested interests in the outcome of the report both professionally and, unfortunately, financially...

While there are many connections between the researchers for the NRP report, McGraw-Hill Publishing, and the administration of George W. Bush, isn't it possible that the researchers are not [sic] guilty of deliberate misinterpretation to promote their own financial and professional interest (pp. 77, 81)?

According to Chhabra and McCardle (2004), Lyon G. Reid, Chief of the Child Development and Behavior Branch of the NICHD responded to the criticisms. Reid agreed that the failure to learn to read reflects an education and public health problem; however, he advocated for reading instruction that is scientifically based. In a testimony to Congress, Dr. Lyon G. Reid said:

NICHD considers that teaching and learning in today's schools reflect not only significant educational concerns but public health concerns as well...

Specifically, in our NICHD –supported longitudinal studies, we have learned that school failure has devastating consequences with respect to self-esteem, social development, and opportunities for advanced education and meaningful employment...The educational and public health consequences of this level of reading failure are dire. Of the ten to 15 percent of children who will eventually drop out of school, over 75 percent will report difficulties learning to read.

Likewise, only two percent of students receiving special or compensatory education for difficulties learning to read will complete a four-year college program. Surveys of adolescents and young adults with criminal records indicate

that at least half have reading difficulties...Approximately half of the children and adolescents with a history of substance abuse have reading problems (Hearing on Measuring Success: Using Assessments and Accountability, 2001, p. 1).

Shanahan (2004) acknowledged that these concerns were valid and should be considered by the federal government; however, he pointed out that these criticisms say nothing about the quality of the work or the accuracy of the findings of the NRP. The NRP (NICHD, 2000) noted that “silence on other topics should not be interpreted as indicating that other topics have no importance or that improvement in those areas would not lead to greater reading achievement” (p. 1-3). Shanahan (2004) further stated that by law none of the panelists were allowed to have interests in reading programs. All panelists were required to submit financial records prior to the appointment on the panel; the panel never evaluated any commercial programs. Shanahan (2004) also noted that the NRP was commissioned and implemented under President Clinton’s administration.

The testimony of G. Reid Lyon to the 106th Congress, summed up the sentiment as follows, “Educational research is at a crossroads. The educational academic community can choose to be part of the modern scientific community or it can isolate itself and its methods from scientific thought and progress (Education Research: Is what we don’t know hurting our children, 1999, p. 6).

Funding

Since the authorization of the Elementary and Secondary Education Act (1965), United States presidential administrations continued to bring change into the educational system. For example, President Lyndon B. Johnson’s administration fought for access and equity (ESEA, 1965) while William B. Clinton (USDE, 2000) and George W. Bush fought to increase

excellence (USDE, 2001). According to the FY 2002 Budget Summary (USDE, 2001) over the decades, presidents have invested more than \$130 billion in the Elementary and Secondary Education Act (1965) through an array of Federal programs for educational reform. The summary report further noted that in spite of the large amounts of funds invested achievement gaps continued to exist between American students. For instance, President Bush believed that the high rate of failure threatened the future of the United States; therefore, he stopped what he believed to be “funding failure” (USDE, 2001, p. 1). He believed that money needed to be allocated to implement programs and strategies that worked.

President George W. Bush announced a framework for strengthening elementary and secondary education. Through the No Child Left Behind (2001a) law, he attempted to eliminate the achievement gap existing between cultural, cognitive, and economically disadvantaged groups in American schools. The No Child Left Behind (2001a) framework included increased accountability for states, school districts, and schools; choices for parents and students; flexibility in the use of Federal education dollars, and a strong emphasis on scientifically based research teaching methods.

According to the FY 2002 Budget Summary (USDE, 2001) for the next five fiscal years, former President George W. Bush allocated large amounts of money to implement research based programs and strategies. In 2002, the United States Department of Education received the largest percentage increase of any Cabinet-level domestic agency. The FY 2002 Budget Summary (USDE, 2001) revealed that the president requested \$44.5 billion in discretionary appropriations, an 11.5 percent increase in budget authority and an increase of \$2.5 billion over the 2001 program level. The funding more than tripled for reading instruction; an increase from \$286 million in 2001 to \$900 million in 2002. Attached to the money was increased

accountability and strong emphasis on “comprehensive reading instruction grounded in scientifically-based reading research for children in kindergarten through third grade” (USDE, 2001, p. 3). This proposal replaced the Reading and Literacy Grants program.

State education agencies applied for Reading First grants through an expert review process. All states and jurisdictions except Puerto Rico received awards. The states distributed competitive grants to school districts with priority given to schools with greater need in student reading proficiency and poverty status (Guidance for Reading, 2002).

The FY 2003 Budget Summary Report (USDE, 2002) revealed that \$1 billion were allocated for Reading First State Grants, an increase of \$100 million. The money was earmarked to (1) help school districts and schools provide professional development in reading instruction for teachers and administrators, (2) adopt and use reading diagnostics for students in the early grades to determine where they need help, (3) implement reading curricula that was based on recent findings of the National Institute of Child Health and Human Development, and (4) provide reading interventions for young grade-school children reading below grade level. Additionally, \$75 million were allocated to fund the new Early Reading First program to develop and support the school readiness of preschool-aged children in high-poverty communities.

According to the FY 2009 Budget Summary (USDE, 2008a), President Bush had fulfilled his commitment to provide \$5 billion over five years to help ensure that all students could read on grade level by the end of the third grade. President Bush’s budget reflected that the Reading First Program had been funded at \$1 billion per year. The grants ranged from \$518,781 to \$152,898 per year. It supported between 14 and 905 schools per state; 6000 schools in over 1800 school districts. In 2008, Congress reduced the Reading First appropriations to \$393 million; a 61% reduction (USDE, 2008b).

Evaluation of Reading First

Legislation required that United States Department of Education conduct an independent evaluation of the Reading First Program. Gamse, Jacob, Horst, Boulay, and Unlu, (2008), in a report entitled, *Reading First Impact Study 2008-09: Final Report* assessed the impact of the program on classroom instruction and student reading achievement. The study was based on a rigorous quasi-experimental design regression discontinuity. It included 125 Reading First (RF) schools and 123 comparison schools. The researchers conducted observations and fielded surveys about instructional practices and supports.

The direct observation of reading instruction in first and second grades revealed significant classroom instruction differences between RF and comparison classrooms. It found that RF teachers spent significantly more instructional time on the five components of reading, and determined that the RF and comparison schools spent significantly more time on teaching comprehension and decoding than the other components. The study found evidence of positive and statistically significant impacts on the practices promoted by the Reading First Program. Such practices included professional development in scientifically based reading instruction, support from reading coaches, extended amount of reading instruction, and support for the struggling readers.

As for student reading performance, the results showed a statistically significant and positive impact on first grade students' decoding skills in the third year of the study; however, that finding applied only to one grade and one of three years of data collection. Furthermore, it found no evidence that Reading First had a statistically significant impact on student reading comprehension test scores in grades 1, 2, or 3 across the three year study.

In 2011, the Reading First program was evaluated again. Gamse, Boulay, Fountain, Unlu, Maree, McCall, and McCormick (2011) provided evidence about the implementation and impact of the Reading First Program in a study entitled, *The Reading First Implementation Evaluation: Final Report*. Findings indicated that “reading instruction had changed in ways consistent with key program goals and strategies” (p. x). The researchers focused primarily on the implementation at the school and classroom levels. They also examined student achievement in Reading First (RF) and non-RF Title I schools, using existing state achievement test scores in third and fourth grades. The study compared 1,092 RF schools to 541 similar non-funded schools.

The researchers found that Reading First strategies spilled over to teachers from other non-funded schools within a district. Other non-funded teachers reported using the research based instructional strategies emphasized by the Reading First program. Over a two year period, other non-funded teachers aligned their activities with the principles of Reading First. They began to provide assistance to struggling readers, participate in professional development, and implement the five components of reading instruction in their teaching. The study also showed that Reading First schools in some states “gained between 2 and 3 percentage points more on average on the proportion of students who met proficiency on state tests from pre-RF to post-RF implementation than non-RF Title I schools” (p. xi).

Both studies Gamse et al., 2011; Gamse, et al., 2008), found that Reading First schools differed from non-Reading First Title I schools in several ways. The Reading First schools were more likely to

- devote more time to reading instruction in grades Kindergarten to third,
- have reading coaches,

- use reading materials aligned with scientifically based reading research,
- use assessments to guide instruction,
- place struggling readers into intervention services, and
- have their teachers participate in reading-related professional development.

Anticipated Sustainability of Reading First Practices

After the money was gone, the questions remained: What were the states' planned responses to Reading First budget reduction and which RF program elements did state-level staffs believe could be sustained beyond Reading First? The Executive Summary of the *Reading First Implementation Study (2008-2009)* sought to answer the questions. Results from interviews with RF directors, Title I directors, and reading representatives across the 54 states revealed that 50 percent of the directors reported that their state would be affected by the budget cuts and 50 percent reported that they would not be affected until the 2009-2010 school year or later. It is important to note that the states were at different points in the grant cycles when interviews were conducted because the Department of Education awarded funds to states on a "rolling basis" during the six-year grant cycle (Gamse et al., 2011, p. xiii).

The following changes were anticipated after the budget cuts.

- 76 percent of RF directors anticipated a reduction in state technical assistance and professional development.
- 33 percent of the RF directors reported that some RF elements could be sustained through inclusion in state standards or new early learning programs.
- Six of the 54 states reported plans to support additional RF cohorts.
- 67 percent of the states reported that they would need alternative sources of funding such to sustain elements of the program.

- 39% of RF directors stated it was unrealistic to sustain RF using other state funds due to financial shortfall in all aspects of the state budgets.

The elements of Reading First reported worth sustaining are listed as follows:

- Use of reading coaches (56%)
- Reading First materials and curricula (39%)
- Data driven instruction (35%)
- Use of assessments (35%)
- Scientifically based reading instruction (33%)

The states' perceptions towards the anticipated federal budget cuts and the sustainability of specific Reading First practices varied. As reported above, some states reported efforts to integrate Reading First into ongoing existing reading programs while others predicted that RF would disappear with the money.

Campus Size

In Raywid (1997) synthesis research article, the author alluded to another factor that has inspired reform, campus size. Raywid (1997) wrote, "Numerous studies confirm that small schools lead to improved student achievement and enable educators to realize many of the other goals of school reform" (p. 34). She cited the work of numerous researchers who have found evidence that (1) students at all grade levels learn more in small schools and (2) small schools lead to improved student achievement. Furthermore, Wehlage, Rutter, and Tumbaugh (1987) added validity to the claim after they reported that at risk students were much more likely to succeed in small school than in large school because students were more likely to become involved and make an effort.

Summary

Research from the National Reading Panel's (NICHD, 2000) analyses determined that systematic instruction in the components of reading was effective in teaching children to read. The five components of reading proven to be scientific based included phonemic awareness, phonics, fluency, vocabulary and comprehension. The panel also found that teachers needed to teach reading systematically (NICHD, 2000). Teachers needed to know when and how to teach specific strategies; therefore, appropriate and intensive training to ensure that all teachers acquired the skills was provided throughout the Reading First period. Other practices found to be effective included coaching, uninterrupted reading block time, utilization of valid diagnostic assessments to help screen and monitor students' progress, and the implementation of intervention approaches for struggling readers (NICHD, 2000).

The next chapter defines the research plan for the study. A researcher understands that problems are more difficult to resolve after the data is collected; therefore, it is critical to plan a detailed description of an analyses before collecting the data. Chapter III includes a description of the first four components of the research process: hypotheses, level of significance, method to measure statistical significance, and degrees of freedom. The research participants, measuring instruments, design, and procedures that will be used to conduct the study are described in detail. The steps in collecting the data and a description of the analysis plan, from beginning to end, are explained in the subsequent chapter.

CHAPTER III

METHODOLOGY

Methods and Procedures

This study builds on the findings of the National Reading Panel (NICHD, 2000) and addresses issues dealing with sustainability of Reading First program elements after the budget elimination. The research methodology used to conduct the study included a description of the research, data sources, instrumentation, hypotheses, data collection procedures, and data analysis procedures. Multiple linear regression and one-way repeated-measures outputs were used for evaluating the evidence.

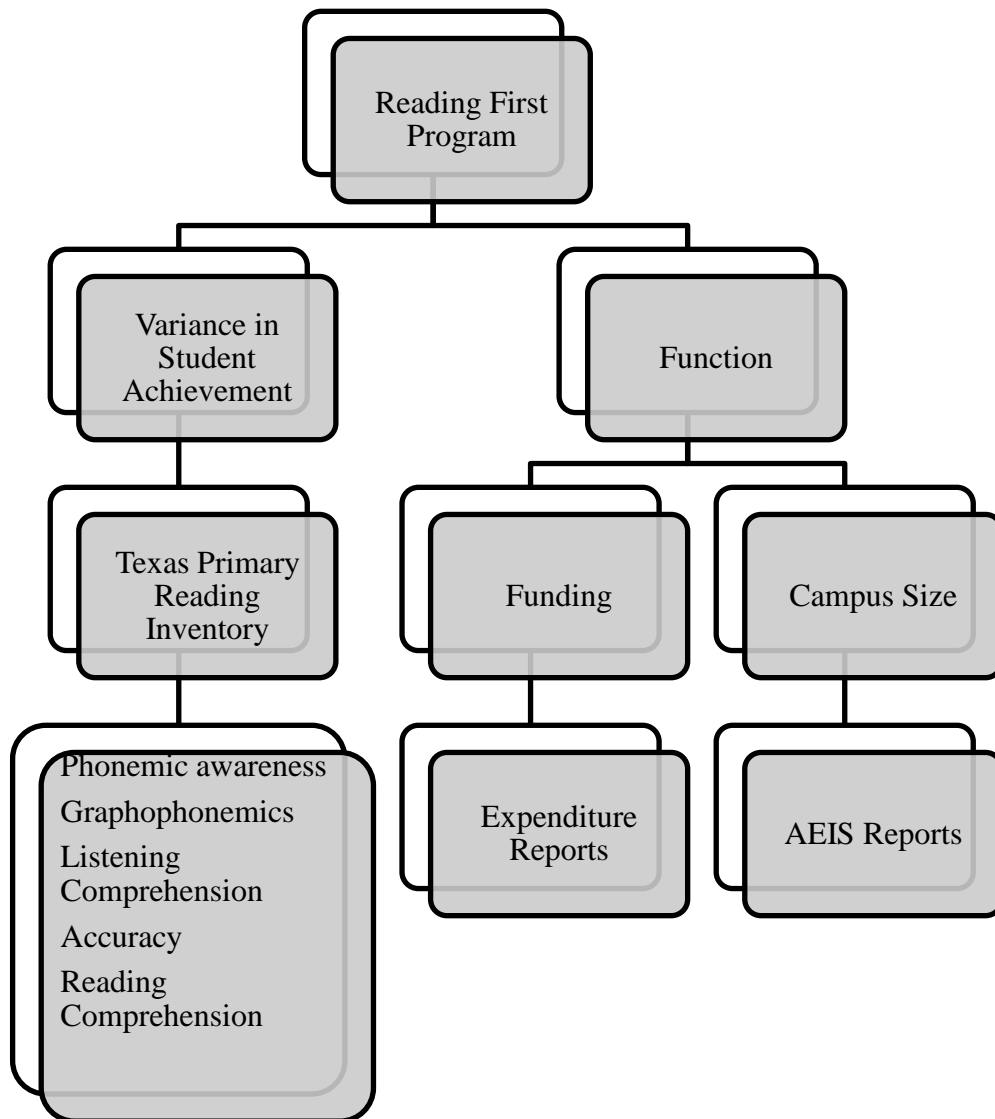
Focus of the Research

The focus of the research was to determine the amount of the variance in student achievement, grades Kindergarten through second grade, which might or might not be explained by funding, campus size, and implementation of the scientifically-based Reading researched practices in 37 campuses. The researcher used multiple linear regression and one-way repeated-measures ANOVA models to examine and analyze data of the participants' practices that were associated with the Reading First program. The study consisted of four parts.

The first part of the study required the researcher to examine if student achievement in Reading was accounted for by the size of funding and size of campus. The three variables pertinent to the data set included composite reading achievement scores, funding, and campus size. The data on the implementation of Reading First practices for this part of the study was not collected; therefore, the implementation measure was excluded from the analysis. The N = 259.

Thirty-seven (37) campuses participated. Figure 1 illustrates and visually summarizes the research process for this study.

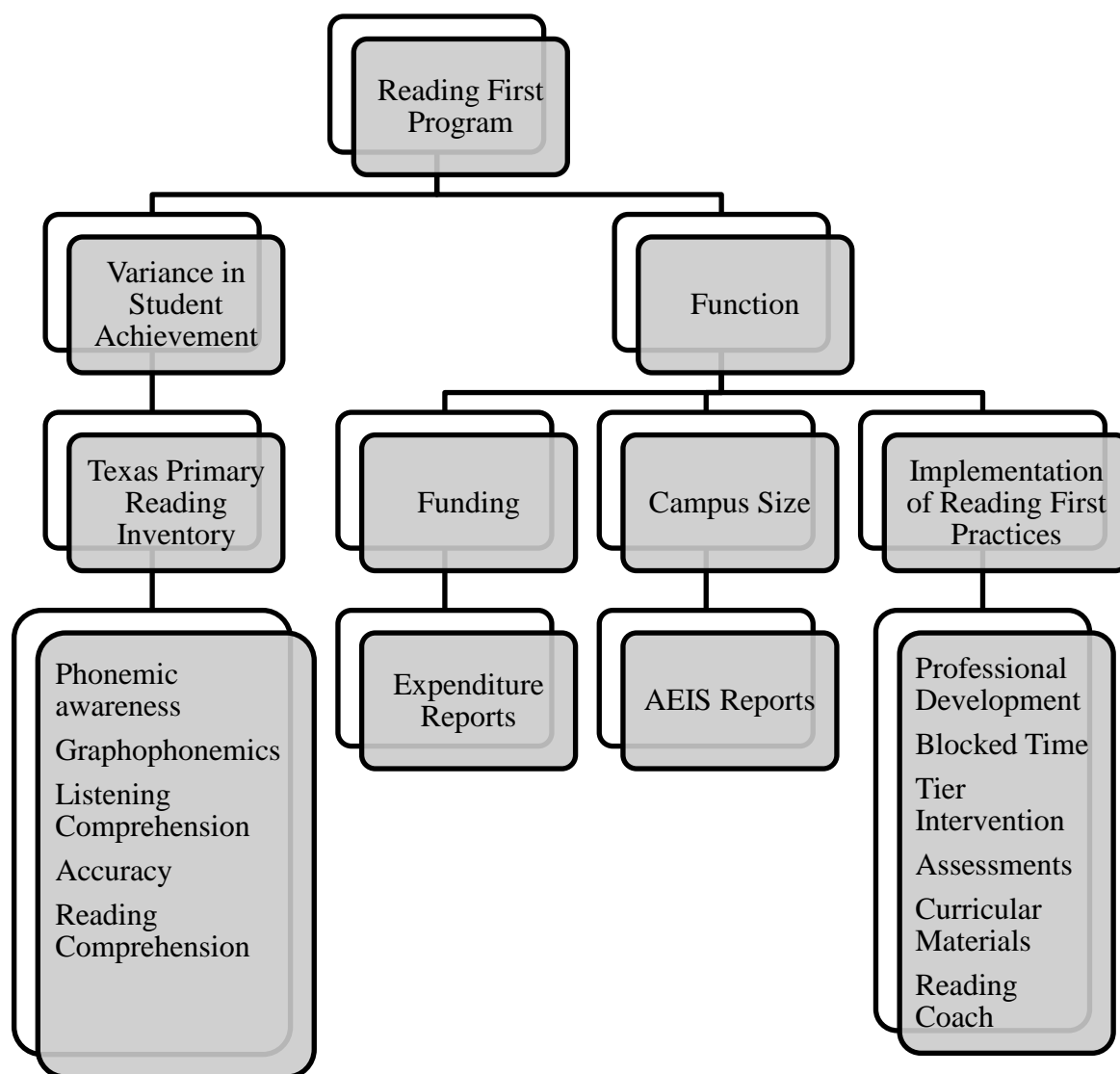
Figure 1. Variables in the Research Process for Linear Regression of Reading Achievement and Two Factors



A second analysis measured the variance in student achievement that may or may not be accounted for by the implementation levels of Reading First strategies. The variables for these data sets included TPRI Reading scores, funding, campus size and implementation practices.

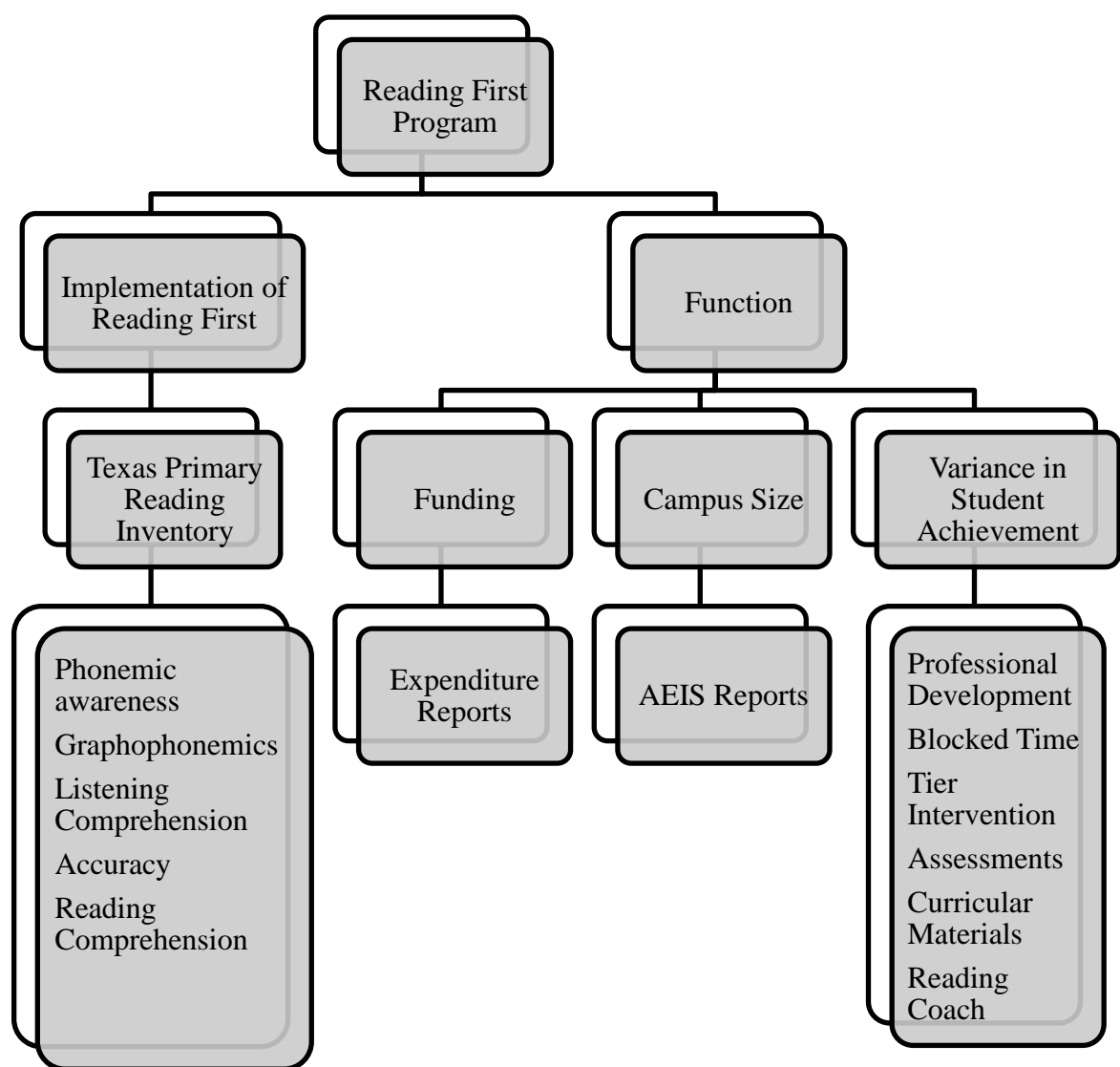
The implementation practices information collected through the teacher survey was quantified.

Figure 2. Variables in the Research Process for Linear Regression of Reading Achievement and Three Factors



A third analysis was added to the study even though it was not part of the initial proposal. For this analysis, the researcher used the same data set as the second analysis except that this analysis measured the variance in the implementation of research-based reading practices rather than the variance in student achievement. The factors remained the same.

Figure 3. Variables in the Research Process for Linear Regression of Implementation of Reading First Practices and Three Factors



The last set of analyses were also not part of the initial proposal. The researcher examined a seven year reading progress trend to observe changes in TPRI composite means of the 37 participating campuses by grade level and by measure from 2006 to 2012. Fourteen (14) one-way repeated-measures analyses were conducted. This part of the study first compared the 2006 TPRI assessment scores to 2009 and then compared 2009 TPRI scores to 2012. The year 2006 was benchmarked because it was first year of record that schools reported the TPRI assessment as a measurement of students' reading progress for the Reading First program. The year 2008- 2009 was the year that Congress reduced the funding by 60%, 2009-2010 was the last year of the Reading First program for these campuses, and 2012 was the year data was collected for the study. This examination allowed the researcher to visually determine the student reading performance trend over a seven year period.

Data Sources and Participants

This research involved collecting data to test hypotheses and assess the common instructional practices of the identified campuses. The subjects in this study were purposively selected. The sampling strategy used to conduct the study was based on an archived list of participating Reading First districts and campuses outlined in the Texas Education Agency Cycle 2, Year 1 Grant (2007) program.

The state awarded approximately \$39,000,000 of the Reading First Grant Program to 75 Texas districts. Out of the 75 school districts that received grants, seven districts were from the Region One Education Service Center: Laredo ISD, Los Fresnos CISD, Rio Grande City CISD, Rio Hondo ISD, San Benito CISD, Santa Rosa ISD and United ISD. Out of the seven districts, five superintendents agreed to participate in the study. Collectively, these districts comprised 37 campuses.

Instrumentation

The instruments used to conduct the study included Texas Primary Reading Inventory (TPRI) assessment reports, grant and budget financial documents, Academic Excellence Indicator System (AEIS) reports, a Qualtrics teacher survey report, SPSS II version 19 and Microsoft Excel. A description of each instrument follows.

Texas Primary Reading Inventory (TPRI) TM

According to the TPRI website (TEA, 2013), the instrument was designed to identify the reading development of students in kindergarten through second grade. Although the assessment was given three times a year: beginning of the year, middle of the year, and end of the year, the researcher only collected end of the year data. The instrument provided specific information about the students' strengths and weaknesses in phonemic awareness, graphophonemic knowledge, reading accuracy, listening comprehension, and reading comprehension (TEA, 2013). The researcher collected TPRI campus composite scores from 2006 through 2012. This information was used in the multiple linear regression and in the one-way repeated-measures analyses.

Funding Documentation

The Business Offices rendered information on the Reading First grants awarded from 2004 to 2009. Two districts provided detailed summary expenditure reports and 3 districts reported the total awards per year on a word document. Although money was allocated to campuses in 2004 and 2005 school years, these amounts were excluded from the analysis because records of the TPRI scores were non-existent during this time period, according to the districts' curriculum staff. Without TPRI scores, the data set would be incomplete. For the non-

funded years, the researcher strategically calculated an estimated amount of local monies allocated to campuses using a standardized formula.

Campus Size

The Academic Excellence Indicator System was an accountability system that pulled together a wide range of information on each school and district in Texas annually (Texas Education Agency, 2014), one of which was the campus enrollment. The researcher retrieved the enrollment class size data for kindergarten, first grade, and second grade from each of the 37 campuses (TEA, 2007 - 2012).

Qualtrics™ Teacher Survey

The researcher developed a questionnaire that solicited responses on reading practices on professional development, Reading coaches, uninterrupted reading block time, utilization of valid diagnostic assessments to help screen and monitor students' progress, and implementation of intervention approaches for struggling readers. In an attempt to develop a valid questionnaire and eliminate bias, the researcher obtained feedback from two focus groups and the Dissertation Committee. The questionnaire was uploaded electronically to the Qualtrics™ software and later sent out to teachers.

SPSS II Version 19™

The researcher used the statistical software to produce multiple linear regression and one-way repeated-measure analyses. The system allowed the researcher to input data sets into the Data Editor, make transformations and conduct analyses. Eight different linear regression analyses and 15 one-way repeated-measure analyses were generated to test the null hypotheses.

Microsoft Excel™

The researcher used a spreadsheet application that featured calculations, graphing sheets and pivot tables. The pivot tables automatically sorted, counted, and calculated averages of the TPRI data stored for those districts who submitted raw student achievement data.

Research Questions and Null Hypotheses

This three-part study investigated Reading First schools in the Rio Grande Valley so as to determine if (1) student reading achievement in grades kindergarten through second grade was a function of funding, campus size and/or implementation of the Reading First practices, (2) implementation practices was a function of funding, campus size and/or student achievement and, (3) the group means on the TPRI varied significantly from each other over a seven year period. Given the purpose of this study, the following questions were used to guide the researcher in the proposed study.

Research Questions

1. What amount of the total variance in student reading achievement in Kindergarten through second grade is accounted for by funding and/or campus size in 37 campuses?
2. What amount of the total variance in student reading achievement in Kindergarten through second grade is accounted for by funding, campus size, and implementation practices in 24 campuses?
3. What amount of the total variance in student reading achievement in Kindergarten is accounted for by funding and/or campus size in 37 campuses?
4. What amount of the total variance in student reading achievement in Kindergarten is accounted for by funding, campus size and implementation practices in 17 campuses?

5. What amount of the total variance in student reading achievement in first grade is accounted for by funding and campus size in 37 campuses?
6. What amount of the total variance in student reading achievement in first grade is accounted for by funding, campus size, and implementation practices in 12 campuses?
7. What amount of the total variance in student reading achievement in second grade is accounted for by funding and campus size in 37 campuses?
8. What amount of the total variance in student reading achievement in second grade is accounted for by funding, campus size, and implementation practices in 17 campuses?

Although it was not part of the initial proposal, the researcher used the collected data to enhance the study. The newly developed questions guided the study.

9. What amount of the total variance in the implementation of research-based reading practices in kindergarten through second grade is accounted for by funding, campus size, and reading achievement in the 24 campuses?
10. How do population means on the phonemic awareness measurement vary among the years with the kindergarten through second grade group?
11. How do population means on the graphophonemic measurement vary among the years with the kindergarten through second grade group?
12. How do population means on the listening comprehension measurement vary among the years with the kindergarten through second grade group?
13. How do population means on the accuracy measurement vary among the years with the kindergarten through second grade group?
14. How do population means on the reading comprehension measurement vary among the years with the kindergarten through second grade group?

15. What amount of the total variance in the implementation of research-based reading practices in kindergarten is accounted for by funding, campus size, and reading achievement in the 17 campuses?
16. How do population means on the phonemic awareness measurement vary among the years with the kindergarten group?
17. How do population means on the graphophonemic measurement vary among the years with the kindergarten group?
18. How do population means on the listening comprehension measurement vary among the years with the kindergarten group?
19. What amount of the total variance in the implementation of research-based reading practices in first grade is accounted for by funding, campus size, and reading achievement in the 12 campuses?
20. How do population means on the phonemic awareness measurement vary among the years with the first grade group?
21. How do population means on the graphophonemic measurement vary among the years with the first grade group?
22. How do population means on the accuracy measurement vary among the years with the first grade group?
23. How do population means on the reading comprehension measurement vary among the years with the first grade group?
24. What amount of the total variance in the implementation of research-based reading practices in second grade is accounted for by funding, campus size, and reading achievement in the 17 campuses?

25. How do population means on the graphophonemic measurement vary among the years with the second grade group?
26. How do population means on the accuracy measurement vary among the years with the second group?
27. How do population means on the reading comprehension measurement vary among the years with the second grade group?

The following hypotheses guided the researcher.

Null Hypotheses

- H₀₁ Reading achievement in kindergarten is not a function of funding and campus size in 37 campuses.
- H₀₂ Reading achievement in kindergarten is not a function of funding, campus size, and implementation practices in 17 campuses.
- H₀₃ Reading achievement in first grade is not a function of funding and campus size in 37 campuses.
- H₀₄ Reading achievement in first grade is not a function of funding, campus size, and implementation practices in 12 campuses.
- H₀₅ Reading achievement in second grade is not a function of funding and campus size in 37 campuses.
- H₀₆ Reading achievement in second grade is not a function of funding, campus size, and implementation practices in 17 campuses.
- H₀₇ Reading achievement in kindergarten through second grade is not a function of funding and campus size in 37 campuses.

H₀₈ Reading achievement in kindergarten through second grade is not a function of funding, campus size, and implementation practices in 24 campuses.

Although it was not part of the initial proposal, the researcher used the collected data to enhance the study. The additional hypotheses were as follows:

H₀₉ Implementation of research based reading practices in kindergarten through second grade is not a function of funding, campus size, and reading achievement in 24 campuses.

H₁₀ There is no difference among the means for the phonemic awareness measurement in kindergarten through second grade across the years.

H₁₁ There is no difference among the means for the graphophonemic measurement in kindergarten through second grade across the years.

H₁₂ There is no difference among the means for the listening comprehension measurement in kindergarten through second grade across the years.

H₁₃ There is no difference among the means for the accuracy measurement in kindergarten through second grade across the years.

H₁₄ There is no difference among the means for the reading comprehension measurement in kindergarten through second grade across the years.

H₁₅ Implementation of research based reading practices in kindergarten is not a function of funding, campus size, and reading achievement in 17 campuses.

H₁₆ There is no difference among the means for the phonemic awareness measurement in kindergarten across the years.

H₁₇ There is no difference among the means for the graphophonemic measurement in kindergarten across the years.

- H₁₈ There is no difference among the means for the listening comprehension measurement in kindergarten across the years.
- H₁₉ Implementation of research based reading practices in first grade is not a function of funding, campus size, and reading achievement in 12 campuses.
- H₂₀ There is no difference among the means for the phonemic awareness measurement in first grade across the years.
- H₂₁ There is no difference among the means for the graphophonemic measurement in first grade across the years.
- H₂₂ There is no difference among the means for the accuracy measurement in first grade across the years.
- H₂₃ There is no difference among the means for the reading comprehension measurement in first grade across the years.
- H₂₄ Implementation of research based reading practices in second grade is not a function of funding, campus size, and reading achievement in 17 campuses.
- H₂₅ There is no difference among the means for the graphophonemic measurement in second grade across the years.
- H₂₆ There is no difference among the means for the accuracy measurement in second grade across the years.
- H₂₇ There is no difference among the means for the reading comprehension measurement in second grade across the years.

Data Collection Procedures

Upon approval from the Institutional Review Board (IRB) at the University of Texas Pan American, the researcher collected data for the study. A master list that identified districts and

campuses that participated in the Texas Reading First Cycle 2 Year 1 generated by the Texas Education Agency (2007) was utilized in identifying participating districts and campuses in the study. Once the participating districts and campuses were identified, the researcher first approached the superintendents via electronic mail. The initial contact was followed by a packet of information sent to the superintendents via certified mail. The packet included a letter to the superintendents explaining the research and soliciting their participation and two superintendent's permission forms requesting permission to (1) access TPRI scores, (2) access Reading First grant funding information, and (3) contact teachers from the sample to solicit their participation in a survey (see Appendixes A, B, and C).

Five out of the seven superintendents of the targeted school districts granted the researcher permission to contact the Curriculum and Instruction office from each district and request copies of the TPRI student achievement data. The TPRI instrument identified the reading development of students in Kindergarten through second grade. The diagnostic instrument provided composite information as well as specific information about the students' strengths and weaknesses in phonemic awareness, graphophonemic knowledge, reading accuracy, listening comprehension, and reading comprehension.

The researcher collected seven years of TPRI data from the 37 campuses. The earliest reported administration of the TPRI assessments among these campuses was school year 2006-2007. Twenty-five campuses submitted composite scores for each individual measure by grade level using the mClass software system. Eight of the campuses submitted composite scores on some measures and partial computations on other measures by means of TANGO software generated reports. Four campuses submitted a PEIMS file that contained over 4000 entries per year. The researcher extrapolated data from the TANGO and PEIMS produced reports to

calculate composite scores in phonemic awareness, graphophonemics, listening comprehension, accuracy, and reading comprehension.

Next, the researcher collected Reading First funding information from the Business Office of each district. As mentioned previously, two districts provided detailed summary expenditure reports and three districts recorded the total awards per year on a word document. For the non-funded years, the researcher strategically calculated an estimated amount of local monies allocated to campuses. The researcher estimated the funds allocated to the campuses during 2010-2012 period by standardizing a \$50 amount per child and multiplying it by K-2 campus size.

After that, the researcher collected campus size data. The researcher pulled Kindergarten, first grade, and second grade annual enrollment information from the Texas Education Agency AEIS website (2007-2012) for each of the 37 campuses.

The final piece of data collected was responses from the teacher survey. First, the researcher obtained permission from the superintendents to survey the Kindergarten through second grade teachers teaching at schools identified in the Texas Reading First, Cycle 2, year one list. Upon approval, the researcher attained a distribution list of respondents from the PEIMS or Technology staff in an Excel.csv format and imported it onto the Qualtrics application. The software system created a personal URL accounts for each teacher and linked the survey to their electronic-mail accounts.

A total of 828 questionnaires were electronically sent out. All of the teachers from the selected campuses who were teaching grades Kindergarten through 2nd grade in school year 2013-2014 were invited to participate in the survey. The invitation explained the purpose of the study and solicited the teacher's participation. The first question in the survey distinguished

qualified participants from non-qualified participants. Teachers who answered “no” to an initial question(s) inquiring about their participation in the Reading First program were classified as non-participant and were guided to the end of the survey. Teachers who answered “yes” were prompted to continue to the subsequent questions.

For the succeeding two months, the researcher tracked respondents who took the survey and sent reminders to those who had not responded. The e-mail links allowed the researcher to collect responses. After two months, the data was automatically saved on Qualtrics and exported to an Excel file for the quantification process.

Data Analysis Procedures

The data collected using the procedures describe in the previous section of this proposal was analyzed using exploratory data analysis, multiple linear regression, and a one-way repeated-measures ANOVA. Null hypotheses for the present study were tested with an *F*-distribution at the .05 level of significance. Additionally, the researcher used the multivariate test of Wilk’s Lambda, Mauchly’s Test of Sphericity, and the Greenhouse-Geisser conservative degrees of freedom with the *F*-distribution to test the new null hypotheses at the .05 alpha level.

Summary

Chapter III provided a detail descriptive plan of the proposed study. It described the research participants, measuring instruments, design and procedures needed to test twenty-seven (27) hypotheses. It described all the steps needed in collecting the data and the instrumentation that used to analyze the data. This chapter provided a guide for conducting the study.

In Chapter IV, the researcher presents the next phase of the research process, findings of the analyses. This chapter includes information about the level of significance, methods of statistical analysis, test of significance and degrees of freedom. The multiple linear regression

findings are exhibited using three regression indices and the one-way repeated-measures findings are illustrated through numerous outputs such as, descriptive statistics, statistics for evaluating sphericity assumptions, ANOVA results using the multivariate tests, tests of within subject effects, tests of between subject effects and pairwise comparisons.

CHAPTER IV

FINDINGS

As proposed in Chapter III, the researcher analyzed the collected data using exploratory and multiple linear regression, F-distribution, and an alpha level of .05 to carry out the test of significance. Three regression indices were presented in the output for this procedure: the multiple regression coefficient (R), its squared value (R^2), and the adjusted R^2 .

Although it was not part of the initial proposal, the researcher also analyzed the collected data using the one-way repeated-measures analysis ANOVA. The SPSS II version 19 for a one-way within subjects ANOVA produced numerous outputs: descriptive statistics, statistics for evaluating sphericity assumptions, ANOVA results using the multivariate tests, tests of within subject effects, tests of between subject effects and pairwise comparisons.

The Data Sets

In this study, the researcher examined four data sets on 37 campuses and four data sets on a population sample to run linear regression analyses. A total of 44 linear regression analyses outputs were generated, analyzed and interpreted. The researcher also conducted 15 one-way repeated-measure analyses on four additional data sets to examine changes in TPRI composite mean scores of the 37 participating campuses by grade level and by test measure from 2006 to 2012.

For the first set of linear regression analyses, the SPSS II version 19 reported strength of regression. The primary statistics used in these analyses was effect size, the extent to which reading achievement can be accounted for by budget, campus size and in some data sets

implementation of reading practices. By statistical principle, the strength of an effect size was judged small if it had a value of 0.10, moderate if it had a value of 0.30, and large if the value was at least 0.50 (Green & Salkind, 2011) . In the one-way within subjects ANOVA with the factor being the year of test and the dependent variable being the Texas Primary Reading Inventory (TPRI) measurement, the results of the Wilks' Lambda, Mauchly's test for the assumption of sphericity, and the Greenhouse-Geisser with conservative degrees of freedom tests were used with the *F*-distribution to test the null hypotheses.

Linear Regression Data Sets

In the first set of linear regression analyses, a data set was created for each group: kindergarten, first grade, second grade, and kindergarten through second grade. These four data sets examined if student achievement in Reading was accounted for by the size of funding or size of campus. The data set included the TPRI scores (student achievement) as the dependent variable and campus size and budget size as the independent variables. Twelve (12) outputs were generated, analyzed, and interpreted. Thirty- seven (N=37) campuses participated in this part of the study.

Similar to the first regression analyses, the second set of analyses compared the same variables with an added independent variable: implementation practices. Implementation practices information could only be collected through the teacher survey. The researcher quantified the implementation practices information from the teacher survey and created these four additional unique data sets. These four additional data sets examined if student achievement was accounted for by implementation practices of the Reading First program as well as by budget and campus size. The dependent variable was the TPRI scores (student achievement) and the independent variables were budget size, campus size, and implementation practices. Sixteen

(16) outputs were generated, analyzed, and interpreted. The N in these data sets varied respectively with the number of survey respondents per grade level.

Although it was not part of the initial proposal, a third set of analyses was conducted. The third set of analyses compared the same variables as the second set of analyses; however, the dependent variable was the implementation practices and the independent variables were budget size, campus size, and student achievement. Sixteen (16) additional outputs were generated, analyzed, and interpreted. Surprisingly, the outputs from these analyses generated different results.

One-Way Within Subjects ANOVA Data Set

The last set of analyses also were not part of the initial proposal. These set analyses consisted of 15 one-way repeated-measures ANOVA: three for kindergarten, four for first grade, three for second grade, and five for kindergarten through second grade. The researcher examined changes in TPRI composite mean scores of the 37 participating campuses by grade level and by measure from 2006 to 2012. The intent was to determine if the population means on each of the TPRI measurements varied between and among years within each group over a seven year time period in grades Kindergarten, first, second, and Kindergarten through second grade collectively. The factor was the years of testing and the dependent variable was the corresponding grade level TPRI measurement.

In addition to the outputs, the researcher charted mean test scores over a seven year period to compare student achievement during Reading First years against student achievement during the non-Reading First years. The timeline was selected because 2006 was the first year of record that the TPRI was administered in the 37 participating campuses. Although the Reading First program may have been active prior to 2006, there was no documented evidence of

students' reading performance to compare it with. School year 2008-2009 was the year Congress reduced the funding by 61%; 2009-2010 was the last year schools received funding from the Reading First program; and 2012-2013 was the year of the study.

In the subsequent sections, the findings have been reported. Question that guided the researcher in the study precede the findings.

Kindergarten-Second Grade Results

Three multiple linear regression and five one-way repeated-measure analyses were conducted to evaluate the kindergarten through second grade results. The first multiple linear regression analyses evaluated how well the size of budget and size of campus predicted reading student achievement in 37 campuses. The second linear regression analyses evaluated how well the size of budget, size of campus, and the implementation practices predict student achievement in reading in 24 campuses. The third linear regression analyses evaluated how well the budget size, campus size, and student achievement predicted implementation of the research-based reading practices in 24 campuses. Exploratory and linear regression analyses were used with the *F*-distribution and the alpha level of .05 to carry out the test of significance. The primary statistic used in these analyses was the effect size.

The one-way repeated-measures analyses evaluated whether the group means on the TPRI variable differed significantly from each other over a seven year time period. The primary statistic used was the Wilk's Lambda and if sphericity could not be assumed, the Greenhouse-Geisser conservative degrees of freedom with the *F*-distribution tested the null hypothesis.

Linear Regression of Reading Achievement and Two Factors in Kindergarten-Second Grade

Two linear regression analyses were conducted to evaluate how well the size of campus, size of budget, and implementation practices predicted reading achievement in grades Kindergarten through second grade collectively. The following question guided the analyses: What amount of the total variance in student reading achievement in K-2 was accounted for by funding and campus size in 37 campuses?

The predictors for the first set of analyses were funding and campus size and the criterion was the TPRI index. The TPRI index measured the composite score on phonemic awareness, graphophonemics, listening comprehension, accuracy and comprehension. The $N = 259$, 37 campuses. Relevant descriptive statistics included the mean for student achievement = 747.31, budget mean = \$67,139.80 and the campus size mean = 290. The results of the analyses are shown in Table 1.

Table 1

Linear Regression of Reading Achievement and Two Factors in Kindergarten-Second Grade

Grade K-2	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y ₁ reading	X ₁ X ₂	None	.18	.03	.02	*.02
	X ₁ budget	X ₂	.17	.03	.03	*.01
	X ₂ campus	X ₁	.06	.004	.000	.31

* $p < .05$; ** $p < .01$

- The regression equation with the two predictors, budget, and campus size contributed significantly to reading achievement in the Kindergarten through second grade data set, $R = .178$, $R^2 = .032$ adjusted $R^2 = .024$, with an $F(2, 256) = 4.203$, $p < .05$.

- The budget index contributed significantly, $R = .171$, $R^2 = .03$, adjusted $R^2 = .03$ with an $F(1, 257) = 7.721$, $p < .05$ to kindergarten through second grade student reading achievement.
- Campus size in kindergarten through second grade did not contribute significance, $R = .06$, $R^2 = .004$, adjusted $R = .000$, with an $F(1, 257) = 1.043$, $p > .05$ to student reading achievement.

The findings supported two conclusions. (1) It can be concluded that student reading achievement in Kindergarten through second grade data set was a function of funding. This can be interpreted that reading achievement in grades kindergarten through second grade can be explained by the difference in budget. (2) It can also be concluded that student achievement in kindergarten through second grade was not a function of campus size.

Linear Regression of Reading Achievement and Three Factors in Kindergarten-Second Grade

The second analyses included the additional predictor, implementation of reading practices. The following question guided these analyses: What amount of the total variance in student reading achievement was accounted for by funding, campus size, and implementation research-based reading practices in 24 campuses? For this data set, the Explore and Descriptive analysis revealed $N = 168$, the mean for Kindergarten through second grade student achievement in Reading = 749.39; practices mean = 55.52, budget mean = \$68,034 and the campus size mean = 287. The results of the analyses are shown in Table 2.

Table 2

Linear Regression of Reading Achievement and Three Factors in Kindergarten–Second Grade

Grade K-2	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂ X ₃	None	.24	.06	.04	*.02
	X ₁ budget	X ₂ , X ₃	.14	.02	.01	.07
	X ₂ campus	X ₁ , X ₃	.22	.05	.04	** .004
	X ₃ practices	X ₁ , X ₂	.09	.01	.001	.27

* $p < .05$; * $p < .01$

- The regression equation with the three predictors (budget, campus size and implementation practices) contributed significantly to reading achievement in kindergarten through second grade when none of the variables were removed, $R = .241$, $R^2 = .06$, an adjusted $R^2 = .041$, with an $F(3, 164) = 3.381$, $p < .05$
- The budget index did not contribute significantly to kindergarten through second grade student reading achievement, $R = .14$, $R^2 = .02$, an adjusted $R^2 = .01$ with an $F(1, 166) = 3.303$, $p > .05$
- The size of campus contributed significance, $R = .22$, $R^2 = .05$, an adjusted $R^2 = .04$ with an $F(1, 166) = 8.532$ $p < .01$ to student achievement in grades kindergarten through second grade.
- The implementation practices did not predict significance, $R = .09$, $R^2 = .01$, an adjusted $R^2 = .001$ with an $F(1, 166) = 1.247$, $p > .05$ to student achievement in grades kindergarten through second grade.

Conclusion supported by these findings showed that 5% of the variance in student achievement can be explained by campus size at the Kindergarten through second grades. It can be concluded that reading achievement is a function of campus size but not of funding or implementation practices.

Linear Regression of Implementation of Research-Based Reading Practices in Kindergarten-Second Grade

The third set of analyses evaluated how well the size of campus, size of budget, and student achievement in reading predicted implementation of research based practices in grade kindergarten through second grade collectively. For these analyses, the researcher used the following question to guide the study: What amount of the total variance in implementation or research based practices in kindergarten through second grade was accounted for by funding, campus size and student achievement?

The dependent variable was the implementation practices while the independent variables were campus size, budget size, and reading achievement. The findings are summarized below.

Table 3

Linear Regression on Implementation of Research-Based Reading Practices in Kindergarten-Second Grade

Grade K-2	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.36	.13	.12	**.000
	X ₁ budget	X ₂ , X ₃	.36	.13	.12	**.000
	X ₂ campus	X ₁ , X ₃	.10	.01	.004	.20
	X ₃ TPRI	X ₁ , X ₂	.09	.007	.001	.27

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors, budget, campus size, and reading achievement contributed significantly to the implementation of research-based practices in kindergarten through second grade, $R = .36$, $R^2 = .13$, adjusted $R^2 = .12$, with an $F(3,164) = 8.224$, $p < .01$. Thirteen percent of the variance can be explained by the differences in means of budget, campus size, and reading achievement when none of the variables are removed.

- The budget index in kindergarten through second grade contributed significantly, $R = .36$, $R^2 = .13$, adjusted $R^2 = .12$ with an $F(1, 166) = 24.670$, $p < .01$ to the implementation of reading research-based practices.
- The campus size in kindergarten through second grade did not contribute significantly, $R = .10$, $R^2 = .01$, adjusted $R^2 = .004$, with an $F(1, 166) = 1.638$, $p > .05$ to the implementation of research-based practices.
- The reading achievement as measured by the TPRI in kindergarten through second grade did not contribute significantly, $R = .09$, $R^2 = .007$, adjusted $R^2 = .001$, with an $F(1, 166) = 1.247$, $p > .05$ to the implementation of research-based reading practices.

The findings supported two conclusions. (1) The findings indicated that the size of budget can be judged statistically significant at the .01 alpha level. It rejected the null hypothesis. The implementation of research based reading practices was a function of the size of the budget. The findings can be interpreted that 13% of the variance in the kindergarten through second grade data set can be accounted for or explained by the difference in budget. (2) The size of the campus enrollment and reading achievement at the kindergarten through second grade level failed to reject the null hypothesis. The implementation of research based reading practices in kindergarten through second grade was not a function of differences in campus size or reading achievement.

One-Way Repeated-Measures Analysis of Variance of Kindergarten-Second Grade

Reading Performance

The researcher conducted five (5) individual one-way within subjects ANOVA for each of the TPRI measurements to evaluate whether means on the TPRI were significantly different

over time. The results of the Wilk's Lambda, Mauchly's Test of Sphericity, and Greenhouse-Geisser with conservative degrees of freedom tests were used with the F -distribution to test the null hypotheses.

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in Kindergarten-Second Grade. The first analysis evaluated the means on the Phonemic Awareness measurement of the Kindergarten through second grade group. The following question guided the research: How do population means on the phonemic awareness measurement vary among years with the kindergarten through second grade group?

The factor was year of test. The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .620$, $F(6, 31) = 3.169$, $p < .05$. Sphericity could not be assumed with the Mauchly's values; $\underline{W} = .244$; $p < .001$; therefore, the Greenhouse-Geisser conservative degrees of freedom were used with the F -distribution to test the null hypothesis. The one-way repeated-measure ANOVA of the phonemic awareness showed significant time effect with the Phonemic Awareness composite scores at the .01 alpha level. The multivariate $\eta^2 = .38$. This means that 38% of the variance in the total data set could be explained by the differences between and among years.

Table 4

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in Kindergarten -Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	10,807.96	36			
Within Subjects	21,890.57	155.14			
Between Years	2,295.56	4.19	1	547.41	**4.217
"Error" term	19,595.01	150.95	36	129.81	
Total	32,698.53	191.14			

* $p < .05$; ** $p < .01$

A follow-up test was conducted because the overall F test of the ANOVA was significant. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. Three out of the 21 pairwise comparisons were significant. Error rate across the 25 tests at the .05 level was controlled using the Holm's sequential Bonferroni procedure. The smallest p value found was for the comparison of year 2009 and 2010. Its p value of .013 was less than $\alpha = .05/3 = .016$; therefore, the means between these two times was significant. The next smallest p value was for the comparison of years 2008 and 2011. Its p value of .016 was less than $\alpha = .05/2 = .025$; therefore, the means between 2008 and 2011 was significant. The next smallest p value was for the comparison of years 2009 and 2011. The p value of .024 was significant because it was less than $\alpha = .05$. The three pairwise comparisons were significant.

Figure 4. Means of Kindergarten-Second Grade Performance in Phonemic Awareness

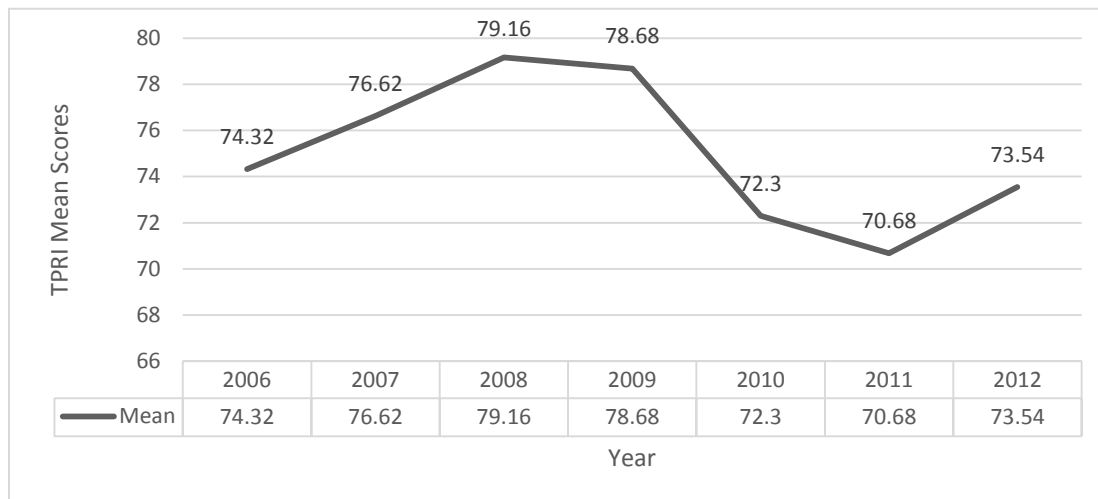


Figure 4 illustrates the seven year trend of student performance in phonemic awareness in grades kindergarten through second grade. The standard deviations ranged from 8.32 to 13.38 and the variances ranged from 69.22 to 179.02. It indicated that the

variances were different from each other. The graph illustrates that students performed best in 2008 and 2009, and performed poorest in 2011.

One-Way Repeated-Measures Analysis of Variance of Graphophonemics in Kindergarten-Second Grade. The next analysis evaluated the means on the Graphophonemic measurement of the Kindergarten through second grade group. The following question guided the research: How do population means on graphophonemics measurement vary across years?

The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .416$, $F(6, 31) = 7.247$, $p < .01$. Sphericity could not be assumed; Mauchly's derived value, $W = .280$; $p < .00$. The results of the Greenhouse-Geisser analysis showed significant time effect with the Graphophonemic means at the .01 alpha level. Table 5 summarizes the findings.

A follow-up test was conducted. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006 through 2012. Seven out of the 21 pairwise comparisons were significant. Error rate across the 25 tests at the .05 level was controlled using the Holm's sequential Bonferroni procedure. The smallest p value found was for the comparison of year 2008 and 2010, year 2009 and 2010, year 2009 and 2011. Their p value of .000 was less than $\alpha = .05/7 = .007$; therefore, the means between these times was significant. The next smallest p value was for the comparison of years 2008 and 2011. Its p value of .001 was less than $\alpha = .05/4 = .0125$; therefore, the means between 2008 and 2011 was significant. The next smallest p value was for the comparison of years 2007 and 2010. The p value of .002 was significant; it was less than $\alpha = .017$. The next smallest p value was for comparison of year 2008 and year 2012. Its

p value of .003 was less than $\alpha = .025$. The last p value was for comparison of year 2007 and 2011. Its p value of .004 was less than the .05 alpha level.

Table 5

One-Way Repeated-Measures Analysis of Variance of Graphophonemics in Kindergarten-Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	8,572.62	36			
Within Subjects	15,874.29	152.52			
Between Years	3,588.85	4.12	1	870.63	**10.516
"Error" term	12,285.44	148.40	36	82.79	
Total	24,446.91	188.52			

* $p < .05$; ** $p < .01$

Figure 5. Means of Kindergarten-Second Grade Performance in Graphophonemics

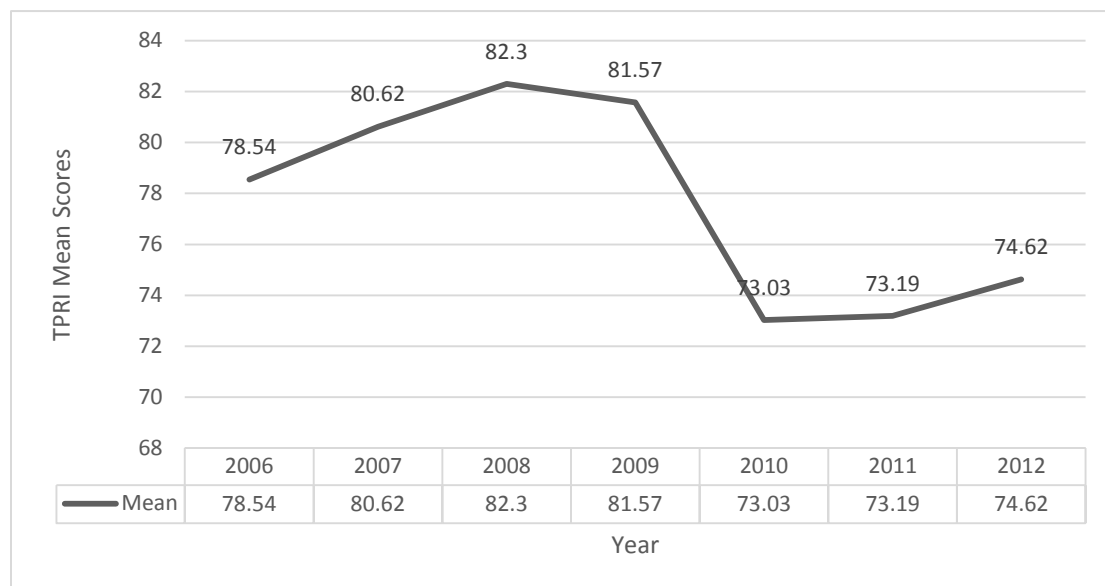


Figure 5 illustrates the seven year trend of the Graphophonemic measurement in the collective grades Kindergarten through second. The standard deviations ranged

from 6.95 to 11.29 and the variances ranged from 48.30 to 127.46. The best scores were noted in 2008 and the poorest scores were noted in 2010.

One-Way Repeated-Measures Analysis of Variance of Listening

Comprehension in Kindergarten-Second Grade. The third analysis evaluated the means on the Listening Comprehension measurement of the kindergarten through second grade group. The question that guided the research follows: How do population means on the listening comprehension measurement vary across years with the kindergarten through second grade group?

The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .37$, $F(6, 31) = 8.907$, $p < .01$. These results showed significant time effect with the Listening Comprehension scores at the .01 alpha level. Sphericity could not be assumed; the Mauchly's derived value, $\underline{W} = .260$; $p < .01$. The Greenhouse-Geisser conservative degrees of freedom showed significant time effect with the listening comprehension measurement.

A follow-up test was conducted to control error rate. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. Five out of the 21 pairwise comparisons were significant. Error rate across the 25 tests at the .05 level was controlled using the Holm's sequential Bonferroni procedure. The smallest p value found was for the comparison of year 2007 and 2010. Its p value of .000 was less than $\alpha = .01$; therefore, the means between these two times was significant. The next smallest p value was for the comparison of years 2006 and 2010. Its p value of .001 was less than $\alpha = .0125$; therefore, the means between 2006 and 2010 was significant. The next smallest p

value was for the comparison of years 2009 and 2010. The p value of .007 was significant because it was less than $\alpha = .017$. The next p value was for the comparison of year 2010 and year 2011. Its p value of .016 was less than the alpha .025. The last p value was for comparison of year 2007 and year 2011. Its p value of .028 was less than $\alpha = .05$; therefore, the comparison of the five pairwise comparison were significant.

Table 6

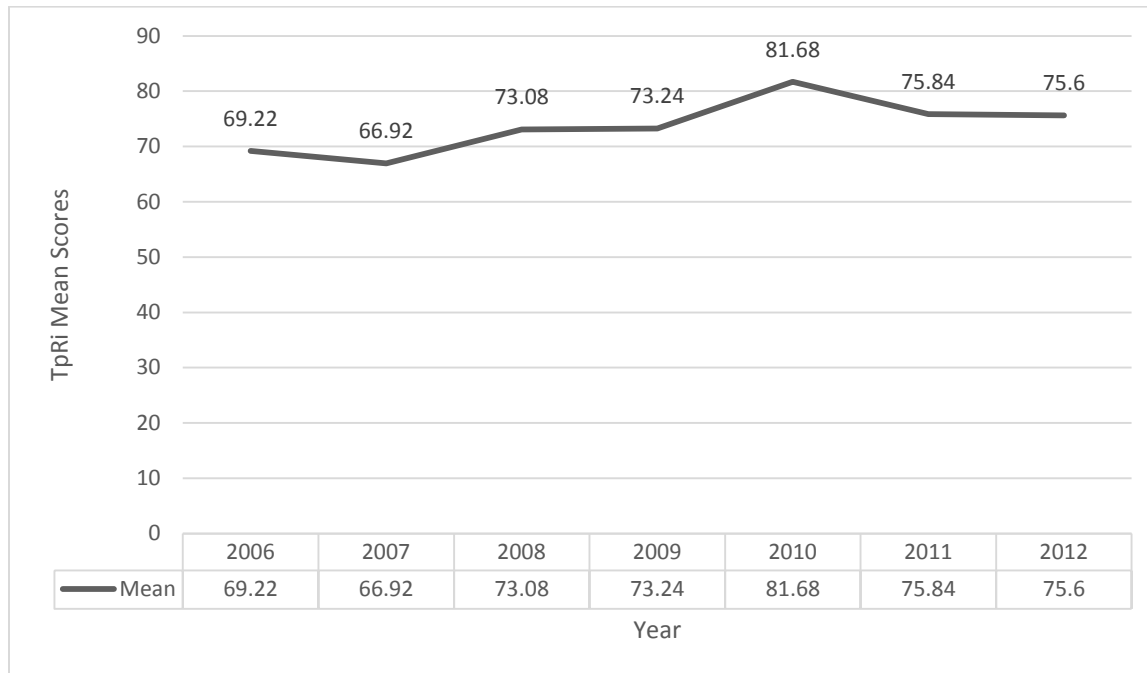
One-Way Repeated-Measures Analysis of Variance of Listening Comprehension in Kindergarten-Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	35,849.01	36			
Within Subjects	30,579.72	154.91			
Between Years	5,122.08	4.19	1	1223.42	**7.243
"Error" term	25,457.64	150.72	36	168.91	
Total	66,428.73	190.91			

* $p < .05$; ** $p < .01$

The standard deviations ranged from 9.61 to 19.37 and the variances ranged from 93.35 to 375.20, indicating that the variances were different from each other. The results of the graph showed a 14.76 gain from 2006 to 2010. After 2010, student performance began to gradually decline.

Figure 6. Means of Kindergarten-Second Grade Performance in Listening Comprehension



One-Way Repeated-Measures Analysis of Variance of Accuracy in Kindergarten-Second Grade. The third analysis evaluated the means on the Accuracy measurement of the Kindergarten through second grade group. The question that guided the research is as follows: How do population means on the accuracy measurement vary across years?

The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .705$, $F(6, 31) = 2.158$, $p > .05$. These results did not show significant time effect with the Accuracy scores at the .05 alpha level. The Mauchly's derived value, $\underline{W} = .259$; $p < .01$; sphericity could not be assumed. The Greenhouse-Geisser test indicated significance at the .05 level; however, the Lowerbound conservative degrees of freedom did not. Table 7 reflects the Greenhouse-Geisser output results.

Table 7

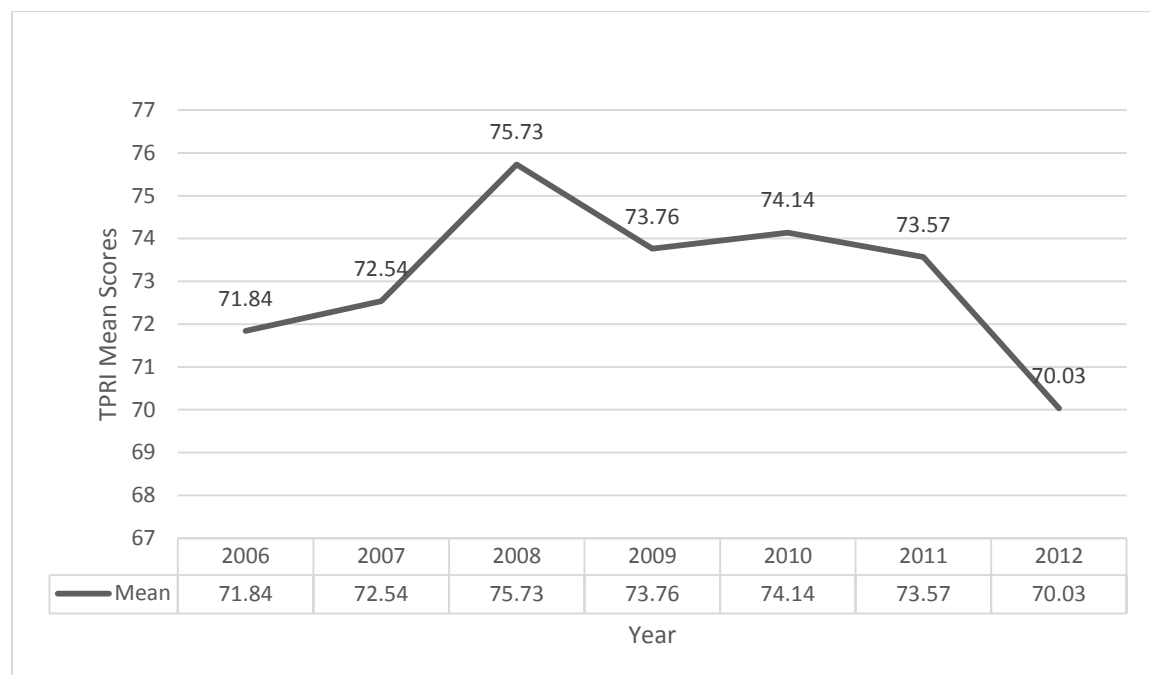
*One-Way Repeated-Measures Analysis of Variance of Accuracy in Kindergarten-
Second Grade*

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	5,026.13	36			
Within Subjects	11,232.00	157.32			
Between Years	739.43	4.25	1	173.91	*2.537
"Error" term	10,492.57	153.07	36	68.55	
Total	16,258.13	193.32			

* $p < .05$

A follow-up test was conducted. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. None of the 21 pairwise comparisons were significant.

Figure 7. Means of Kindergarten-Second Grade Performance in Accuracy



The standard deviations ranged from 6.97 to 8.88 and the variances ranged from 48.58 to 78.85. The graph indicated that the largest variance occurred between 2008 and 2012. It can be determined that because the multivariate Wilks' Lambda, the lower bound conservative degrees of freedom and the pairwise comparison analyses rendered not significant outputs, the analyses failed to reject the null hypothesis. It can be concluded that the population means on the accuracy measurement does not vary across years.

One-Way Repeated-Measures Analysis of Variance of Reading Comprehension in Kindergarten-Second Grade. The final analysis evaluated the means on the reading comprehension measurement of the kindergarten through second grade group. The question that guided the research was as follows: How do population means on the reading comprehension vary across years with the kindergarten through second grade group?

The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .517$, $F(6, 31) = 4.820$, $p < .01$. These results showed significant time effect with the Reading Comprehension means at the .05 alpha level. Sphericity could not be assumed; the Mauchly's derived value, $\underline{W} = .196$; $p < .01$. The Greenhouse-Geisser conservative degrees of freedom indicated time effect significance at the .01 level. The multivariate $\eta^2 = .48$. This means that 48% of the variance in the means of the Reading Comprehension achievement with the Kindergarten through second grade students can be accounted for or explained by the differences among and between years.

A follow-up test was conducted because the overall F test was significant. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. Two out of the 21 pairwise comparisons were significant. Error rate across the 25 tests at the .05 level was controlled using the Holm's sequential Bonferroni

procedure. The smallest p value found was for the comparison of year 2006 and 2008. Its p value of .004 was less than $\alpha = .05/2 = .025$; therefore, the means between these two times was significant. The next smallest p value was for the comparison of years 2006 and 2009. Its p value of .007 was less than $\alpha = .05$; therefore, the means between 2006 and 2009 was significant.

Table 8

One-Way Repeated-Measures Analysis of Variance of Reading Comprehension in Kindergarten-Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	12,497.53	36			
Within Subjects	19,953.42	139.64			
Between Years	2011.71	3.77	1	533.01	**4.036
"Error" term	17,941.71	135.87	36	132.05	
Total	32,450.95	175.64			

* $p < .05$; ** $p < .01$

Figure 8. Means of Kindergarten-Second Grade Performance in Reading Comprehension

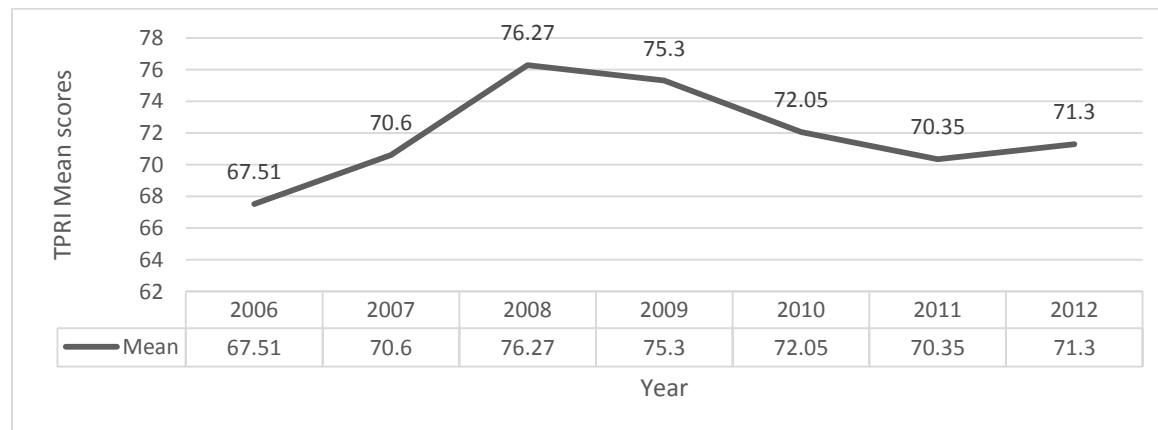


Figure 8 illustrates the seven year student performance trend in reading comprehension. The standard deviations ranged from 7.09 to 15.24 and the variances ranged from 50.27 to 232.26. The graph indicates that the variances are slightly different from each other. The trend

shows that students' performance in reading comprehension began to gradually decline in 2009 and continued to decline in the years that followed.

Kindergarten Results

Three multiple linear regression analyses and three one-way repeated-measures analyses were conducted to evaluate the Kindergarten results. The first multiple linear regression analyses evaluated how well the size of campus and size of budget predicted student achievement in reading. The second linear regression analyses evaluated how well the size of campus, size of budget, and the implementation practices predict student achievement in reading. The third linear regression analyses evaluated how well the campus size, budget size, and student achievement predicted implementation of the research-based reading practices. Exploratory and linear regression analysis was used with the *F*-distribution and the alpha level of .05 to carry out the test of significance. The primary statistic used in these analyses was the effect size.

The one-way repeated-measures analysis evaluated whether the group means on the TPRI variable differed significantly from each other over a seven year time period. The primary statistic used was the Wilk's Lambda and if sphericity could not be assumed, the Greenhouse-Geisser conservative degrees of freedom with the *F*-distribution tested the null hypothesis.

Linear Regression of Reading Achievement and Two Factors in Kindergarten

The following question guided the researcher: What amount of the total variance in student reading achievement in kindergarten was accounted for by funding and campus size in 37 campuses?

The first set of analyses involved two predictors (funding and campus size) and the TPRI composite score criterion. The composite TPRI score measured kindergarten achievement in phonemic awareness, graphophonemics and listening comprehension collectively. Thirty (37)

campuses participated. The regression evaluated the TPRI mean scores over a seven-year period. The $N = 259$; the mean for kindergarten student achievement in reading as measured by the TPRI = 236.49; budget mean = \$21,569.54 and the class size mean = 93. The results of the analyses are illustrated below.

Table 9

Linear Regression of Reading Achievement and Two Factors in Kindergarten

Grade Level Kindergarten	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.12	.01	.01	.16
	X ₁ budget	X ₂	.09	.01	.01	.14
	X ₂ campus	X ₁	.07	.01	.001	.28

* $p < .05$; ** $p < .01$

- The regression equation with the two predictors, budget and campus size, did not contribute significantly to reading achievement in kindergarten, $R = .12$, $R^2 = .01$, adjusted $R^2 = .01$, with an $F(2, 256) = 1.842$, $p > .05$
- The budget index did not contribute significantly, $R = .09$, $R^2 = .01$, adjusted $R^2 = .01$, with an $F(1, 257) = 2.168$ $p > .05$ to kindergarten student reading achievement.
- The campus size did not contribute significantly, $R = .07$, $R^2 = .01$, adjusted $R^2 = .001$, with an $F(1, 257) = 1.189$, $p > .05$ to kindergarten student reading achievement.

The findings indicated that the regression equation with the two predictors, budget and campus size, did not contribute significantly to reading achievement in kindergarten. These results can be judged as not statistically significant at the conventional .05 level. Conclusion supported by these findings indicated that budget and the size of the campus failed to reject the

null hypothesis. Reading achievement in kindergarten was not a function of funding or campus size.

Linear Regression of Reading Achievement and Three Factors in Kindergarten

The following question guided the next set of analyses: What amount of the total variance in student reading achievement in kindergarten was accounted for by funding, campus size, and implementation of research-based reading practices in 17 campuses?

These set of analyses included an additional predictor (budget, campus size, and implementation practices). The composite TPRI index measured student achievement in phonemic awareness, graphophonemics, and listening comprehension collectively. The Reading First practices index was based on the teachers' survey responses. Examples of Reading First practices included activities such as, professional development, 90 minute blocked reading time, intervention strategies, curricular materials, and reading coaches. The $N = 119$ the mean for Kindergarten TPRI = 233.10; practices mean = 36.63, budget mean = \$21,695 and the campus size mean = 90. The results of these analyses are shown on Table 10.

Table 10

Linear Regression of Reading Achievement and Three Factors in Kindergarten

Grade Level Kindergarten	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂ X ₃	None	.16	.02	-.001	.41
	X ₁ budget	X ₂ , X ₃	.10	.01	.001	.30
	X ₂ campus	X ₁ , X ₃	.01	.000	-.009	.96
	X ₃ practices	X ₁ , X ₂	.04	.002	-.007	.63

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors, budget, campus size, and implementation of research-based reading practices did not contribute

significantly to reading achievement in kindergarten, $R = .16$, $R^2 = .02$, adjusted $R^2 = -.001$, with an $F(3, 115) = .963$, $p > .05$

- The budget index did not contribute significantly, $R = .10$, $R^2 = .01$, adjusted $R^2 = -.001$ with an $F(1, 117) = 1.083$, $p > .05$ to kindergarten student reading achievement measure.
- The campus size did not contribute significantly, $R = .01$, $R^2 = .000$, adjusted $R^2 = -.009$, with an $F(1, 117) = .002$, $p > .05$ to kindergarten student reading achievement.
- The implementation of research-based reading practices did not contribute significantly to kindergarten student reading achievement, $R = .04$, $R^2 = .002$, adjusted $R^2 = -.007$, with an $F(1, 117) = .230$, $p > .05$

These results can be judged as not statistically significant at the conventional .05 level.

Conclusion supported by these findings indicated that the size of budget, size of the campus enrollment, and implementation practices at the Kindergarten level failed to reject the null hypothesis. Reading achievement in Kindergarten was not a function of differences in budget, campus size, or implementation practices.

Linear Regression of Implementation of Research-Based Reading Practices in Kindergarten

Although it was not part of the initial proposal, the researcher conducted another linear regression. The intent was to evaluate how well the size of campus, size of budget, and student achievement in reading predicted implementation of research-based reading practices. For these analyses, the following question guided the research: What amount of the total variance in implementation of research-based reading practices in Kindergarten was accounted for by funding, campus size and student achievement?

The dependent variable for these analyses was the implementation of research-based reading practices; whereas, the independent variables were campus size, budget size, and reading achievement. The findings are as follows:

Table 11

Linear Regression of Implementation of Research-Based Reading Practices in Kindergarten

Grade Level	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Kindergarten						
Y ₁ practices	X ₁ X ₂ X ₃	None	.57	.33	.31	** .000
	X ₁ budget	X ₂ , X ₃	.54	.29	.29	** .000
	X ₂ campus	X ₁ , X ₃	.01	.000	-.009	.94
	X ₃ TPRI	X ₁ , X ₂	.04	.002	-.007	.63

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors, budget, campus size, and reading achievement contributed significantly to the implementation of research-based reading practices in kindergarten, $R = .57$, $R^2 = .33$, adjusted $R^2 = .31$, with an $F(3, 115) = 18.657$, $p < .01$
- The budget index in kindergarten contributed significantly, $R = .54$, $R^2 = .29$, adjusted $R^2 = .285$ with an $F(1, 117) = 47.93$, $p < .01$ to the implementation of reading research-based practices.
- The campus size did not contribute significantly, $R = .01$, $R^2 = .000$, adjusted $R^2 = -.009$, with an $F(1, 117) = .005$, $p > .05$ to the implementation of research-based practices in kindergarten.
- The student reading achievement did not contribute significantly to the implementation of research-based reading practices in kindergarten, $R = .04$, $R^2 = .002$, adjusted $R^2 = -.007$, with an $F(1, 117) = .230$, $p > .05$

The findings supported two conclusions. (1) The size of budget can be judged statistically significant at the .01 alpha level; it rejected the null hypothesis. The implementation of research based reading practices was a function of the size of the budget. (2) The size of the campus enrollment and reading achievement at the Kindergarten level failed to reject the null hypothesis. The implementation of research based reading practices in Kindergarten was not a function of differences in campus size, or reading achievement.

One-Way Repeated-Measures ANOVA of Kindergarten Reading Performance

The SPSS II version 19 produced numerous outputs. In this section, the researcher first used the multivariate test, Wilks' Lambda, with the *F*-distribution to test the null hypothesis. The Mauchly's test for evaluating sphericity assumptions followed. If sphericity was violated, the Greenhouse-Geisser and follow up pairwise comparison results were used to control for Type I error across the pairwise tests.

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in Kindergarten. The following question guided the researcher: How do population means on the phonemic awareness vary between and among years with kindergarten group?

Prior to using the univariate repeated-measures analysis of variance, the multivariate analysis was used to test the null hypothesis, with the factor being year of test and the dependent variable being the kindergarten phonemic awareness measurement. The Wilks' Lambda showed a derived value, $\Lambda = .70$, $F(6, 31) = 2.251$, $p > .05$. Sphericity could not be assumed with the Mauchly's Test, it yielded $\underline{W} = .274$; $p = .002$; therefore, alternative univariate tests were used. The standard univariate labeled sphericity assumed, the Greenhouse-Geisser, and the Huynh-Feldt alternative univariate tests indicated a significant time effect. The tests yielded the same *F*

value, but with conservative degrees of freedom to correct the sphericity violation assumption (see Table 12).

Although the three tests indicated a significant time effect with the phonemic awareness measurement, the lower bound conservative degrees of freedom indicated a not significant result. Follow-up pairwise comparison test indicated that zero out of the 21 pairwise comparison were significant. The overall results of the Wilks' Lambda, lower bound degrees of freedom and the pairwise comparisons did not show time effect significance with the phonemic awareness measurement at the .05 level. It can be concluded that the results failed to reject the null hypothesis. There was no difference among the means for the Kindergarten group with the phonemic awareness measurement.

Table 12

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in Kindergarten

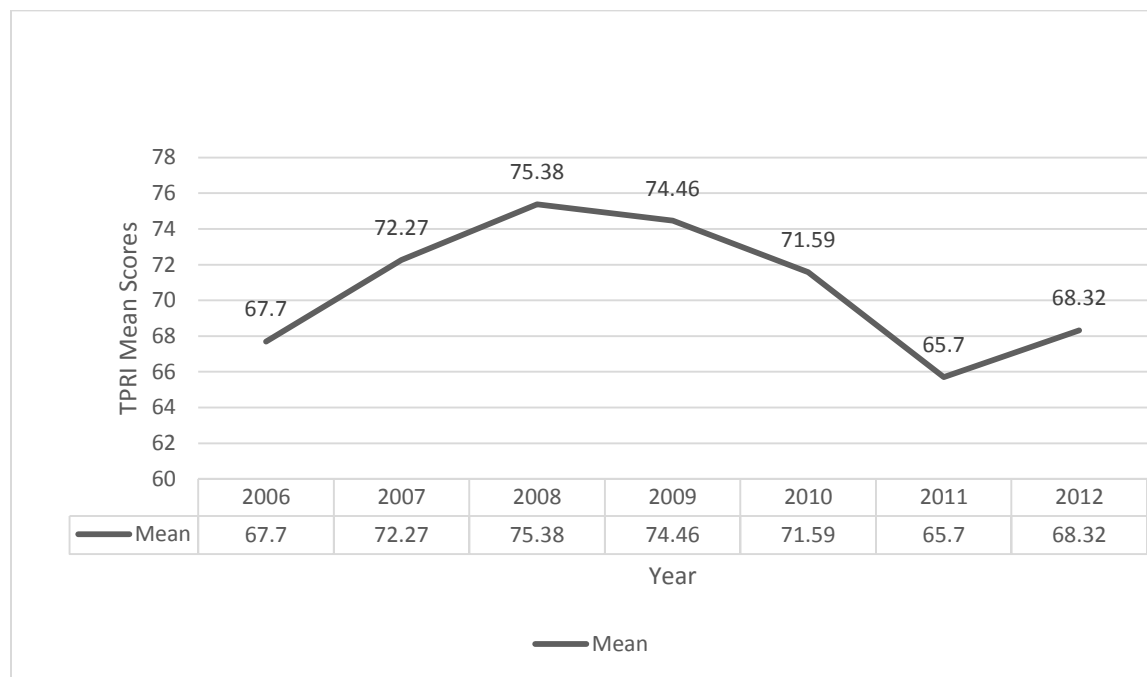
Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	19,601.87	36			
Within Subjects	43,443.15	157.24			
Between Years	2917.34	4.25	1	686.46	*2.592
Error Term	40,525.81	152.99	36	264.88	
Total	63,045.02	193.24			

* $p < .05$; ** $p < .01$

Figure 9 illustrates the seven year trend for Phonemic Awareness measurement in Kindergarten. The standard deviations ranged from 12.96 to 17.57 and the variances ranged from 167.96 to 308.70. These results indicated that the variances were somewhat but not drastically different from each other. These results may suggest that kindergarten students made progress during the Reading First time period. Kindergarten performance gradually declined thereafter. The practices implemented during the Reading First years may have been more effective than the

practices used thereafter. Since the 2006 and the 2012 means are close to each other, the results could suggest that the practices implemented prior to 2006 and the practices implemented in 2012 may have been similar.

Figure 9. Means of Kindergarten Performance in Phonemic Awareness



One-Way Repeated-Measures Analysis of Variance of Graphophonemics in Kindergarten. How do the population means on graphophonemic measurement vary accross years with the kindergarten group?

The one-way within subjects ANOVA with the dependent variable being the kindergarten graphophonemic measurement indicated a Wilks' Lambda derived value, $\Lambda = .88$, $F(6, 31) = .738$, $p > .05$. Sphericity could not be assumed with the Mauchly's $W = .269$; $p = .001$. The Greenhouse-Geisser test was used with the F -distribution to test the null hypothesis. Neither test showed time effect significance with the graphophonemic scores at the .05. Both analyses failed to reject the null hypotheses. There was no difference in the means of the Kindergarten group with the Graphophonemics measurement.

Table 13

One-Way Repeated-Measures Analysis of Variance of Graphophonemic in Kindergarten

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	2,992.51	36			
Within Subjects	12,793.43	155.60			
Between Years	320.48	4.21	1	76.21	.925
Error Term	12,472.95	151.39	36	82.39	
Total	15,785.94	191.60			

* $p < .05$; ** $p < .01$

Figure 10. Means of Kindergarten Performance in Graphophonemics

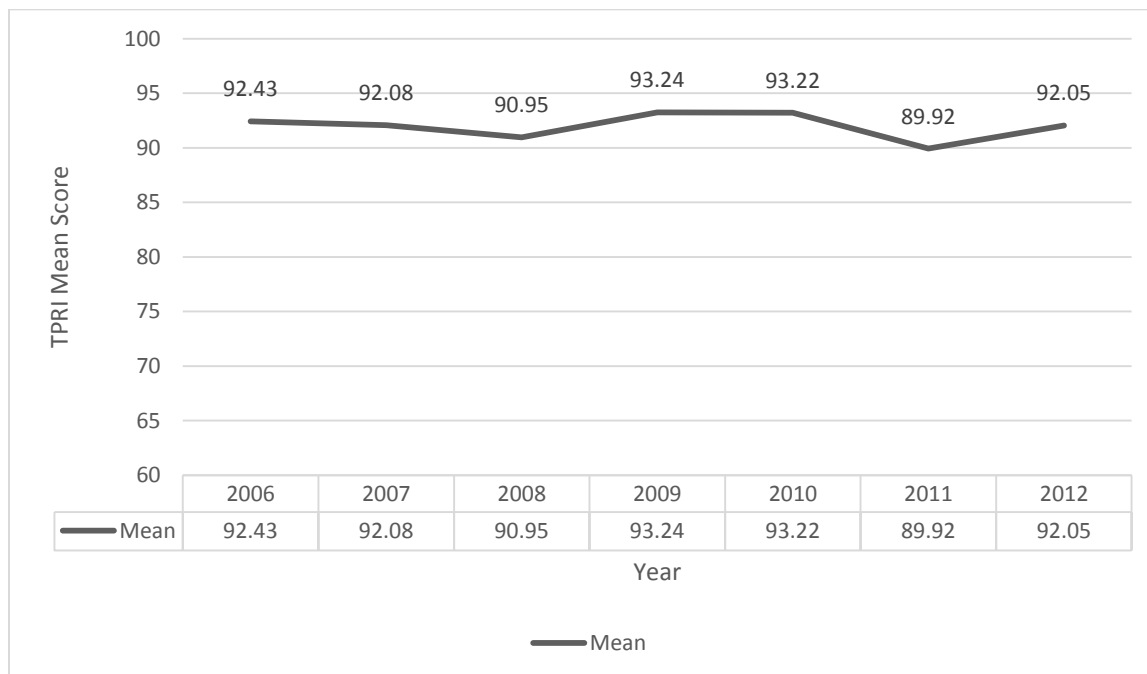


Figure 10 illustrates the seven year trend for Kindergarten Graphophonemic measurement. These results suggested that although the biggest gap was between 2010 and 2011, students performed above average in the graphophonemic measurement. The standard deviations ranged from 4.45 to 11.40, and the variances ranged from 19.80 to 129.96. There were no drastic differences among the means.

One-Way Repeated-Measures Analysis of Variance of Listening Comprehension in Kindergarten. How do the population means on the listening comprehension measurement vary between and among years?

The results of the multivariate test of the Wilks' Lambda showed a derived value $\Lambda = .37$, $F(6, 31) = 8.907$, $p < .05$, multivariate $\eta^2 = .63$. Sphericity could not be assumed with the Mauchly's $W = .269$; $p = .001$. Thus, the Greenhouse-Geisser test was used with the F -distribution to test the null hypothesis. These results showed time effect significance with the listening comprehension scores at the $p < .01$. Sixty-three percent (63%) of the total variance in the total data set was accounted or explained by the difference across years.

Table 14

One-Way Repeated-Measures Analysis of Variance of Listening Comprehension in Kindergarten

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	35,849.01	36			
Within Subjects	30,579.72	154.91			
Between Years	5,122.08	4.19	1	1223.42	**7.243
"Error" term	25,457.64	150.72	36	168.91	
Total	66,428.73	190.91			

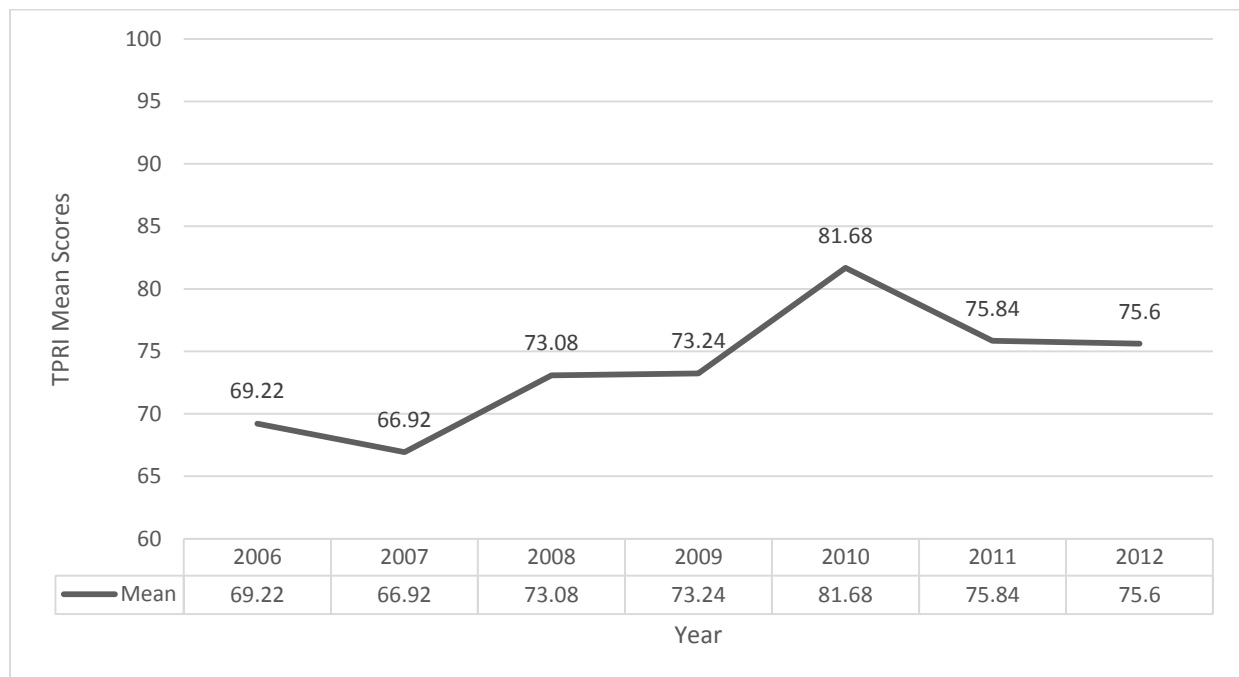
* $p < .05$; ** $p < .01$

A follow-up test was conducted because the overall F test was significant. Twenty-one (21) pairwise comparisons were conducted among the means for years, 2006, 2007, 2008, 2009, 2010, 2011 and 2012. Five out of the 21 pairwise comparisons were significant. Error rate across the 25 tests at the .05 level was controlled using the Holm's sequential Bonferroni procedure. The smallest p value found was for the comparison of year 2007 and 2010. Its p value of .000 was less than $\alpha = .05/5 = .01$; therefore, the means between these two times was significant. The next smallest p value was for the comparison of years 2006 and 2010. Its p

value of .001 was less than $\alpha = .05/4 = .0125$; therefore, the means between 2006 and 2010 was significant. The next smallest p value was for the comparison of years 2009 and 2010. The p value of .007 was significant because it was less than $\alpha = .0166$. The subsequent p value was for comparison of year 2010 and year 2011. Its p value of .016 was less than $\alpha = .025$. The last p value was for comparison of year 2007 and year 2011. Its p value of .028 was less than $\alpha = .05$; therefore, the comparison of the five pairwise comparison were significant.

The standard deviations ranged from 9.61 to 19.37 and the variances ranged from 93.35 to 375.20, indicating that the variances were different from each other. The results of Figure 11 showed that there was a 14.76 gain from 2006 to 2010. After 2010, students' performance began to gradually decline.

Figure 11. Means of Kindergarten Performance in Listening Comprehension



First Grade Results

Three multiple linear regression analyses and four one-way repeated-measures analyses were conducted to evaluate the first grade results. The first multiple linear regression analyses

evaluated how well the size of budget and size of campus predicted reading student achievement in 37 campuses. The second linear regression analyses evaluated how well the size of budget, size of campus and the implementation practices predict reading student achievement in 12 campuses. The third linear regression analyses evaluated how well the budget size, campus size, and student achievement predicted implementation of the research-based reading practices in 12 campuses. Exploratory and linear regression analyses were used with the *F*-distribution and the alpha level of .05 to carry out the test of significance. The primary statistic used in these analyses was the effect size.

The one-way repeated-measures analysis evaluated whether the group means on the TPRI variable differed significantly from each other across a seven year time period. The primary statistic used was the Wilk's Lambda and the Greenhouse-Geisser conservative degrees of freedom with the *F*-distribution to test the null hypothesis.

Linear Regression of Reading Achievement and Two Factors in First Grade

In the first analyses, the following question guided the research: What amount of the total variance in student reading achievement in first grade was accounted for by funding and campus size in 37 campuses?

The predictors were funding and campus size, and the criterion was the composite TPRI score that measured achievement in phonemic awareness, graphophonemics, accuracy, and comprehension. The $N = 259$; 37 campuses from 2006 to 2012. Other relevant descriptive statistics included the mean for first grade students' reading achievement = 309, budget mean = \$23,491, and campus size mean = 102. The results of these analyses are shown in the table below.

Table 15

Linear Regression of Reading Achievement and Two Factors in First Grade

First Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.30	.09	.08	** .000
	X ₁ budget	X ₂	.30	.09	.09	** .000
	X ₂ campus	X ₁	.06	.004	.000	.33

* $p < .05$; ** $p < .01$

- The regression equation with the two predictors, budget and campus size, contributed significantly to reading achievement in first grade, $R = .30$, $R^2 = .09$, adjusted $R^2 = .08$, with an $F(2, 256) = 12.804$, $p < .01$
- The budget index contributed significantly, $R = .30$, $R^2 = .09$, adjusted $R^2 = .09$ with an $F(1, 257) = 25.511$ $p < .01$ to the first grade student reading achievement.
- The campus size did not contribute significantly, $R = .06$, $R^2 = .004$, adjusted $R^2 = .000$, with an $F(1, 257) = .943$, $p > .05$ to the first grade student reading achievement.

The findings supported two conclusions. (1) The findings rejected the null hypothesis. It can be concluded that student reading achievement in first grade was a function of funding. The findings could be interpreted that 9% of the variance in the total first grade data set was accounted or explained by the difference in budget. The amount of difference between student achievement and budget could have been obtained five times out of 100 by bi-variate random sampling. (2) The finding failed to reject the null hypothesis. Reading achievement in first grade was not a function of campus size.

Linear Regression of Reading Achievement and Three Factors in First Grade

The second set of analyses included the additional predictor, implementation of research-based reading practices. The following question guided the study: What amount of the total

variance in the implementation of the research-based reading practices was accounted for by funding, campus size, and/or reading achievement in 12 campuses?

The implementation practices index was based on teachers' responses on the survey.

Other relevant descriptive statistics included $N = 84$ the mean for first grade student achievement in Reading = 309.80; practices mean = 39.45, budget mean = \$22,955, and the campus size mean = 100. The results of the analyses are shown in Table 16.

Table 16

Linear Regression of Reading Achievement and Three Factors in First Grade

First Grade	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y ₁ reading	X ₁ X ₂ , X ₃	None	.37	.14	.11	**.008
	X ₁ budget	X ₂ , X ₃	.24	.06	.05	*.03
	X ₂ campus	X ₁ , X ₃	.34	.11	.10	**.002
	X ₃ practices	X ₁ , X ₂	.20	.04	.03	.08

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors (budget, campus size and implementation practices) contributed significantly to reading achievement in first grade, $R = .37$, $R^2 = .14$, an adjusted $R^2 = .11$, with an $F(3, 80) = 4.253$, $p < .05$.
- The budget index contributed significantly to first grade reading achievement, $R = .240$, $R^2 = .058$, an adjusted $R^2 = .046$ with an $F(1, 82) = 5.026$, $p < .05$.
- The size of campus was a predictor of reading achievement in first grade, $R = .34$, $R^2 = .11$, an adjusted $R^2 = .10$ with an $F(1, 82) = 10.343$ $p < .05$.
- The implementation practices was not a predictor of student achievement in first grade, $R = .20$, $R^2 = .04$, an adjusted $R^2 = .03$ with an $F(1, 82) = 3.264$, $p > .05$

The findings supported two conclusions. (1) The findings indicated that the size of budget and size of the campus enrollment at the first grade level rejected the null hypothesis. Six

percent of the variance in the total first grade data set was accounted for by the differences in budget and 11% was accounted by campus size. Statistical significance means that the amount of difference among the means could only have been obtained five times out of 100 by random sampling or experimental error and 95 times out of 100 is in fact different from randomness at that moment in time. It does not imply reliability. (2) Implementation practices can be judged as statistically not significant at the conventional .05 level. This analysis failed to reject the null hypothesis.

Linear Regression of Implementation of Research-Based Reading Practices in First Grade

Additionally, the researcher conducted a third linear regression. The intent was to evaluate how well the size of campus, size of budget, and student achievement in reading predicted implementation of research based practices. For these next analyses, the researcher used the following question to guide the researcher: What amount of the total variance in implementation of research-based reading practices in first grade was accounted for by funding, campus size, and student achievement?

The dependent variable was the implementation practices while the independent variables were campus size, budget size, and reading achievement. The findings of this linear regression analyses provided support for two conclusions. The findings indicated that the (1) size of budget and the size of campus can be judged statistically significant at the .01 alpha level and (2) reading achievement at the first grade level can be judged as not significant at the .05 level. In other words, the implementation of research based reading practices in first grade can be accounted for by the size of the budget and the size of campus. However, the implementation of research based reading practices in first grade cannot be accounted for by reading achievement. The table below provides a summary of the results.

Table 17

Linear Regression of Implementation of Research-Based Reading Practices in First Grade

First Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.52	.27	.25	** .000
	X ₁ budget	X ₂ , X ₃	.46	.21	.20	** .000
	X ₂ campus	X ₁ , X ₃	.36	.13	.12	** .001
	X ₃ TPRI	X ₁ , X ₂	.20	.04	.03	.08

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors, budget, campus size, and reading achievement contributed significantly to implementation of research-based implementation practices in first grade, $R = .52$, $R^2 = .27$, adjusted $R^2 = .25$, with an $F(3,80) = 9.997$, $p < .01$
- The budget index in first grade contributed significantly, $R = .46$, $R^2 = .21$, adjusted $R^2 = .20$ with an $F(1, 82) = 22.142$, $p < .01$ to the implementation of reading research-based practices.
- The campus size in first grade contributed significantly, $R = .36$, $R^2 = .13$, adjusted $R^2 = .12$, with an $F(1, 82) = 11.895$, $p < .01$ to the implementation of research based reading practices.
- Reading achievement in first grade did not contribute significantly to the implementation of research based reading practices, $R = .20$, $R^2 = .04$, adjusted $R^2 = .03$, with an $F(1, 82) = 3.264$, $p > .05$

One-Way Repeated-Measures ANOVA of First Grade Reading Performance

Repeated-measures ANOVA were conducted to see if population means on the phonemic awareness, graphophonemic, accuracy, and reading comprehension measurements varied significantly among years for the first grade student group. The results of the Wilk's Lambda,

Mauchly's Test of Sphericity, and the Greenhouse-Geisser with conservative degrees of freedom tests were used with the F -distribution to test the null hypotheses.

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in First Grade. The following question guided the study on Phonemic Awareness with the first grade group. How do population means on the phonemic awareness measurement vary among years with first grade students?

The dependent variable for a one-way within subjects ANOVA was the first grade phonemic awareness measurement. The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .57$, $F(6, 31) = 3.845$, $p < .05$. Sphericity could not be assumed with the Mauchly's Test, $W = .229$; $p < .001$. Thus, the Greenhouse-Geisser conservative degrees of freedom were used with the F -distribution to test the null hypothesis. Both results showed time effect significance with the phonemic awareness scores at the .01 alpha level.

Table 18

One-Way Repeated-Measures Analysis of Variance of Phonemic Awareness in First Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	19,820.99	36			
Within Subjects	35,495.71	148.92			
Between Years	3,544.05	4.03	1	880.55	**3.993
"Error" term	31,951.66	144.89	36	220.52	
Total	55,316.70	184.92			

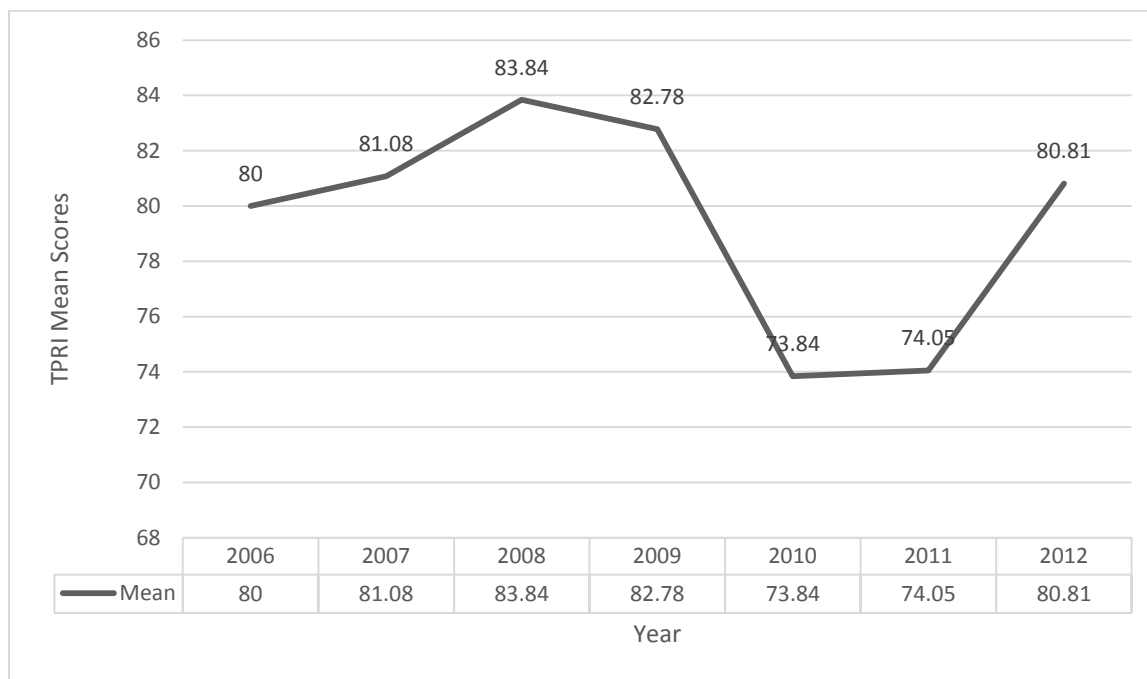
* $p < .05$; ** $p < .01$

The multivariate $\eta^2 = .427$. This means that 43% of the total variance in the total phonemic awareness data set for the first grade group was accounted for or explained by the difference among years.

The results of the pairwise comparison showed that 21 pairwise comparisons were conducted among the means for each year: 2006 through 2012. Two out of the 21 pairwise

comparisons were significant, controlling for error rate across the 21 tests at the .05 level, using the Holm's sequential Bonferroni procedure. The comparison of years 2008 and 2011 produced the smallest p values. Their p value of .030 is less than $\alpha = .025$; therefore, the means between these times was significant. The next smallest p value was for the comparison of years 2011 and 2012. Their p value of .033 was less than $\alpha = .05$ therefore, the means between 2011 and 2012. See Figure 12 for an illustration of the seven year trend on the Phonemic Awareness measurement with first grade student group.

Figure 12. Means of First Grade Performance in Phonemic Awareness



The standard deviations ranged from 11.25 to 16.99 and the variances ranged from 126.56 to 288.60. This indicated that variance means were different from each other. The results of Figure 12 shows that students made gains in reading between 2006 and 2009 and dropped in 2010 and 2011.

One-Way Repeated-Measures Analysis of Variance of Graphophonemics in First Grade. The following question was used to guide the researcher: How do population means on the graphophonemics measurement vary among years with first grade students?

The one-way within subjects ANOVA, with the factor being year of test and the dependent variable being the first grade graphophonemic measurement, produced the following results. The results of the multivariate test of the Wilks' Lambda showed $\Lambda = .43$, $F(6, 31) = 6.945$, $p < .05$. Sphericity could not be assumed with the Mauchly's Test, $\underline{W} = .176$; $p < .001$. Thus, the Greenhouse-Geisser degrees of freedom were used with the F distribution to test the null hypothesis. These results showed time effect significance with the phonemic awareness scores at the .01 alpha level. The $\eta^2 = .573$. This means that 57% of the total variance in the total graphophonemic data set for the first grade group was accounted for or explained by the difference among years.

Table 19

One-Way Repeated-Measures Analysis of Variance of Graphophonemic in First Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	10,871.24	36			
Within Subjects	23,051.72	143.81			
Between Years	4,409.88	3.89	1	1,134.66	**8.516
"Error" term	18,641.84	139.92	36	133.24	
Total	33,922.96	179.81			

* $p < .05$; ** $p < .01$

The results of 21 pairwise comparisons conducted among the means for each year revealed that six out of the 21 pairwise comparisons were significant. In order to control for error rate across the 21 tests at the .05 level, the Holm's sequential Bonferroni procedure was used. All six pairwise comparisons produced smaller p values than α . The comparison p value

between 2008 and 2010 and the comparison p value between 2008 and 2011 of .000 was less than $\alpha = .05/6 = .008$. The comparison p value between 2007 and 2010 and the comparison p value between 2009 and 2010 of .009 was less than $\alpha = .05/4 = .013$. The comparison p value between 2007 and 2011 comparison and the comparison p value between 2008 and 2012 of .018 was less than $\alpha = .05$. Therefore, the means between the six comparison times was significant. See figure 13 for an illustration of the seven year trend for Graphophonemics measurement with first grade student group.

Figure 13. Means of First Grade Performance in Graphophonemics

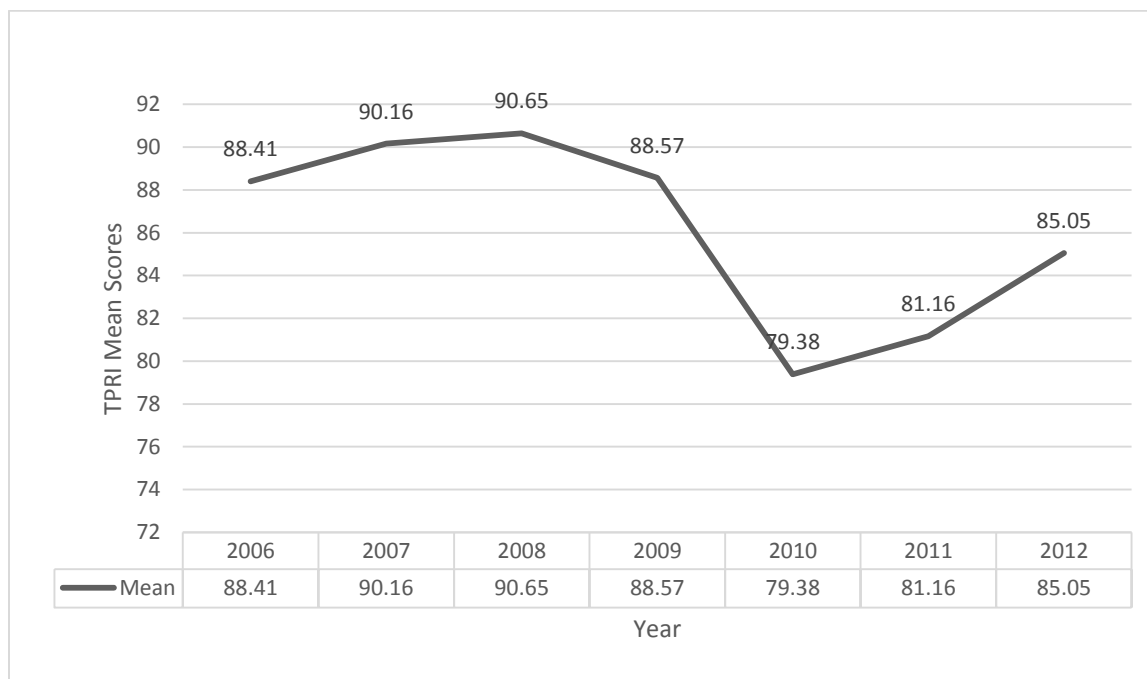


Figure 13 illustrates a seven year trend of the performance of first grade students. The standard deviations ranged from 7.65 to 13.97, and the variances ranged from 58.52 to 195.16. The results indicated that the variances were different from each other. Because the $p < .01$, the null hypothesis was rejected. There was a difference among means of the Graphophonemic measurement with the first grade student group. The results of Figure 13 showed that students

made significant gains in reading between 2006 and 2009. The scores dropped in 2010. The scores are lower than those of 2006.

One-Way Repeated-Measures Analysis of Variance of Accuracy in First Grade. The next question guided the study in evaluating the accuracy measurement: How do population means on the accuracy measurement vary among years with the first grade student group?

The one-way within subjects ANOVA used with the factor being year of test and the dependent variable being the first grade Accuracy measurement produced the following results. The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .515$, $F(6, 31) = 4.872$, $p < .01$. Sphericity could not be assumed with the Mauchly's Test, $\underline{W} = .186$; $p < .001$. Thus, the Greenhouse-Geisser conservative degrees of freedom were used with the F distribution to test the null hypothesis. These results showed time effect significance with the Accuracy scores at the .01 alpha level. The null hypothesis was rejected. The multivariate $\eta^2 = .485$. This means that 49% of the total variance in the total Accuracy data set for the first grade group was accounted for or explained by the difference among years.

The results of 21 pairwise comparisons conducted among the means for each year revealed the following results. Six out of the 21 pairwise comparisons were significant, controlling for error rate across the 21 tests at the .05 level, using the Holm's sequential Bonferroni procedure. All six pairwise comparisons produced the smaller p values than α ; therefore, are all significant. The first smallest p value was for the comparison of year 2008 and 2012; its p value of .000 was less than $\alpha = .05/6 = .008$. The comparison of year 2008 and 2010 and the comparison of year 2008 and 2011 yielded the same p value of .001; the p value was less than $\alpha = .05/5 = .01$. The comparison p value between 2009 and 2011 comparison and the comparison p value between 2009 and 2012 yielded the same p value of .002. The p value .002

was less than $\alpha = .05/4 = .013$. The last comparison, year 2006 to 2012, yielded the value of .005; the p value was less than $\alpha = .05$. The means between the six comparison times was significant.

Table 20

One-Way Repeated-Measures Analysis of Variance of Accuracy in First Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	6,869.76	36			
Within Subjects	31,634.28	145.05			
Between Years	7,051.72	3.92	1	1,798.76	**10.327
"Error" term	24,582.56	141.13	36	174.18	
Total	38,504.04	181.05			

* $p < .05$; ** $p < .01$

Figure 14. Means of First Grade Performance in Accuracy

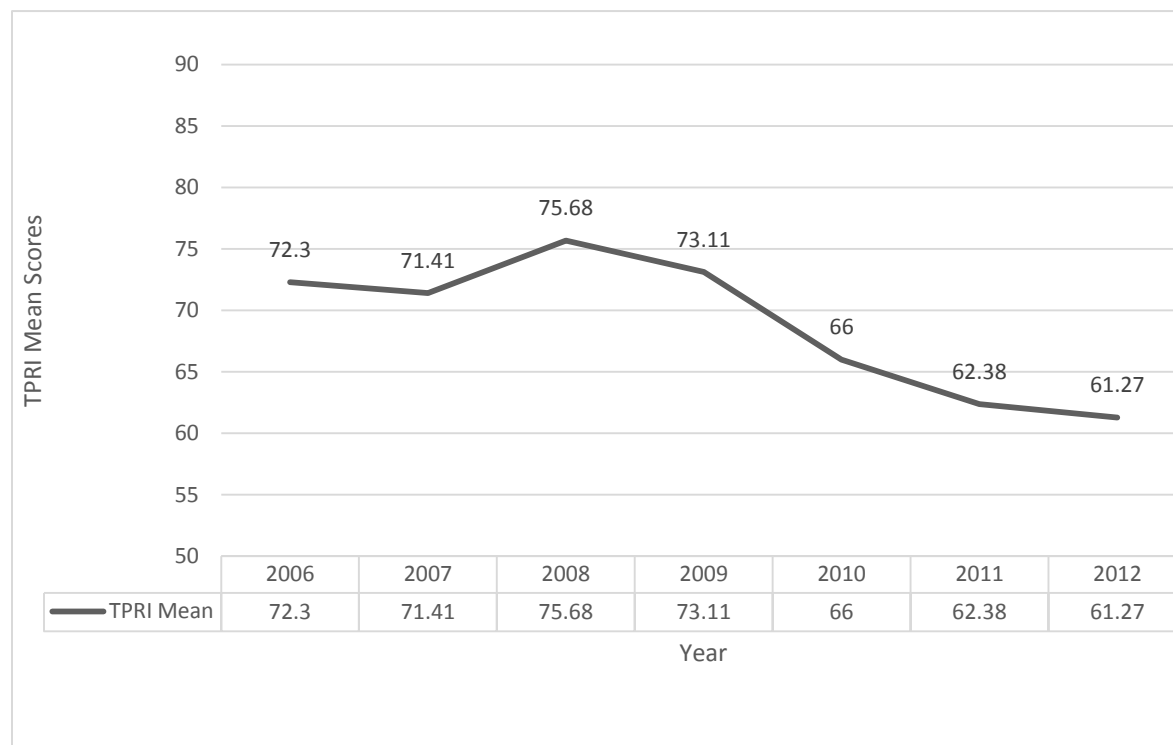


Figure 14 illustrates the seven year trend for Accuracy measurement with first grade student group. The graph shows that students made gains in reading between 2006 and 2009. The first grade accuracy scores dropped in 2010 and continued to decline. The 2012 scores were reported lower than those of 2006. The standard deviations ranged from 7.44 to 13.35 and the variances ranged from 55.35 to 178.66, indicating that the variances are significantly different from each other.

One-Way Repeated-Measures Analysis of Variance of Reading Comprehension in First Grade. How do population means on the reading comprehension measurement vary among years with the first grade group?

The one-way within subjects ANOVA used with the factor being year of test and the dependent variable being the Reading Comprehension measurement with the first grade group produced the following results. The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .472$, $F(6, 31) = 5.782$, $p < .01$. Sphericity could not be assumed with the Mauchly's Test, $\underline{W} = .188$; $p < .001$. Thus, the Greenhouse-Geisser conservative degrees of freedom were used with the F distribution to test the null hypothesis. These results showed time effect significance with the Reading Comprehension scores at the .01 alpha level. The $\eta^2 = .528$. This means that 53% of the total variance in the total Reading Comprehension data set for the first grade group was accounted for or explained by the difference between and among years. The results of 21 pairwise comparisons conducted among the means for each year revealed the following results. Seven out of the 21 pairwise comparisons were significant, controlling for error rate across the 21 tests at the .05 level, using the Holm's sequential Bonferroni procedure. All seven pairwise comparisons produced smaller p values than α ; therefore, all were significant. The first smallest p value was for the comparison of year 2008 and 2011 and the comparison of

year 2009 and 2011; their p value of .000 was less than $\alpha = .05/7 = .007$. The next smallest time period was the comparison of year 2008 and 2012; its p value of .004 was less than $\alpha = .05/5 = .01$. The next smallest comparison of year 2007 and 2011 p value of .013 was equal to $\alpha = .05/4 = .0125$. The next comparison p value between 2008 and 2010 comparison p value of .016 was less than $\alpha = .05/3 = .017$. The comparison between 2009 and 2010 p value of .018 was less than $\alpha = .025$. The final p value was for the comparison of year 2009 and 2010; its p value of .019 was less than $\alpha = .05$. The means between the six comparison times was significant.

Table 21

One-Way Repeated-Measures Analysis of Variance of Reading Comprehension Performance in First Grade

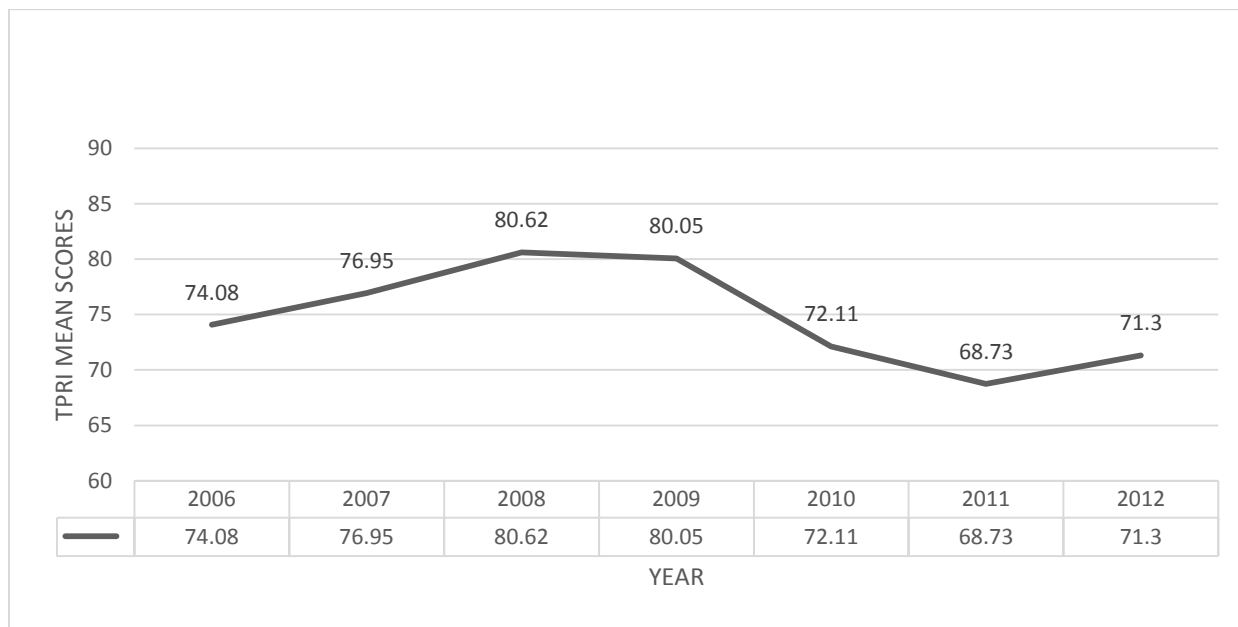
Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	13,259.00	36			
Within Subjects	30,552.85	140.36			
Between Years	4,550.02	3.79	1	1,199.40	**6.299
"Error" term	26,002.83	136.57	36	190.40	
Total	43,811.85	176.36			

* $p < .05$; ** $p < .01$

Figure 15 illustrates the seven year trend for the Reading Comprehension measurement with the first grade student group. The results indicated that students' performance in reading comprehension improved from 2006 to 2009. Scores dropped in 2010 and continued to decline. It can be concluded that practices used between the time period (2006 and 2009) were more effective than the practices implemented thereafter. The standard deviations ranged from 9.94 to 17.36, and the variances ranged from 98.80 to 301.37, indicating significant differences from each other. The p value was less than .01; therefore, it rejected the null hypothesis. There was a difference among Reading Comprehension means of the first grade student group.

Figure 15.

Means of First Grade Performance in Reading Comprehension



Second Grade Results

Three multiple linear regression and three one-way repeated-measure analyses were conducted to evaluate the second grade results. The first multiple linear regression analyses evaluated how well the size of budget and size of campus predicted reading student achievement in 37 campuses. The second linear regression analyses evaluated how well the size of budget, size of campus, and the implementation practices predict student achievement in reading in 17 campuses. The third linear regression analyses evaluated how well the budget size, campus size, and student achievement predicted implementation of the research-based reading practices in 17 campuses. Exploratory and linear regression analyses were used with the F distribution and the alpha level of .05 to carry out the test of significance. The primary statistic used in these analyses was the effect size.

The one-way repeated-measures analysis evaluated whether the group means on the TPRI variable differed significantly from each other over a seven year time period. The primary

statistic used was the Wilk's Lambda and the Greenhouse-Geisser conservative degrees of freedom with the F distribution to test the null hypothesis.

Linear Regression of Reading Achievement and Two Factors in Second Grade

Two multiple linear regression analyses were conducted to evaluate how well the budget size, campus size, and implementation practices predicted student reading achievement in second grade. The following question guided the research: What amount of the total variance in student reading achievement in second grade was accounted for by funding and campus size in 37 campuses?

The composite TPRI index measured the student achievement in graphophonemics, accuracy, and comprehension. The $N = 259$, 37 campuses from 2006 to 2012. Other relevant descriptive statistics included the mean for reading achievement scores for students in second grade = 201.80, budget mean = \$22,069, and campus size mean = 95. The results of the analyses are shown in Table 22.

The results failed to reject the null hypothesis. It can be concluded that student reading achievement in second grade was not a function of funding or campus size.

Table 22

Linear Regression of Reading Achievement and Two Factors in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.04	.002	-.006	.80
	X ₁ budget	X ₂	.014	.000	-.004	.82
	X ₂ campus	X ₁	.04	.001	-.002	.54

* $p < .05$; ** $p < .01$

- The regression equation with the two predictors, budget and campus size, did not contribute significantly to reading achievement in second grade, $R = .04$, $R^2 = .002$ adjusted $R^2 = -.006$, with an $F(2, 256) = .226$, $p > .05$.

- The budget index did not contribute significantly to second grade reading achievement, $R = .014$, $R^2 = .000$, adjusted $R^2 = -.004$ with an $F(1, 257) = .053$, $p > .05$
- Campus size did not contribute significantly to second grade student reading achievement, $R = .04$, $R^2 = .001$, adjusted $R = -.002$, with an $F(1, 257) = .370$, $p > .05$

Linear Regression of Reading Achievement and Three Factors in Second Grade

The second set of analyses included the implementation practices predictor. The following question guided the research: What amount of the total variance in reading achievement was accounted for by budget size, campus size, and implementation practices in 17 campuses? The $N = 119$; the mean for second grade student achievement in Reading = 200.39; practices mean = 47.39, budget mean = \$22068.33 and the campus size mean = 97.

Table 23

Linear Regression of Reading Achievement and Three Factors in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R^2	Adjusted R2	P
Y ₁ reading	X ₁ X ₂ X ₃	None	.19	.04	.01	.22
	X ₁ budget	X ₂ , X ₃	.10	.01	.002	.28
	X ₂ size	X ₁ , X ₃	.08	.01	-.003	.42
	X ₃ practices	X ₁ , X ₂	.02	.000	-.008	.86

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors (budget, campus size, and implementation practices) did not contribute significantly to reading achievement in second grade, $R = .194$, $R^2 = .04$, an adjusted $R^2 = .01$, with an $F(3, 115) = 1.492$, $p > .05$

- The budget index did not contribute significantly to student reading achievement in second grade, $R = .10$, $R^2 = .01$, an adjusted $R^2 = .002$ with an $F(1, 117) = 1.178$, $p > .05$
- The size of campus did not contribute significantly to reading achievement in second grade, $R = .08$, $R^2 = .01$, an adjusted $R^2 = -.003$ with an $F(1, 117) = .670$, $p > .05$
- The implementation practices did not predict significance, $R = .02$, $R^2 = .000$, an adjusted $R^2 = -.008$ with an $F(1, 117) = .032$, $p > .05$ to reading achievement in second grade.

Conclusion supported by these findings indicated that the variance in reading achievement at the second grade level was not accounted for by budget size, campus size, or implementation practices. The regression between student achievement and the budget size, campus size and implementation practices can be judged as statistically not significant at the conventional .05 level.

Linear Regression of Implementation of Research-Based Reading Practices in Second Grade

The next set of analyses evaluated how well the size of campus, size of budget, and student achievement in reading predicted implementation of research-based reading practices. For these analyses, the researcher used the following question to guide the study: What amount of the total variance in implementation or research based practices in second grade was accounted for by funding, campus size and student achievement?

The dependent variable was the implementation practices while the independent variables were campus size, budget size, and reading achievement. The findings are as follows:

Table 24

Linear Regression of Implementation of Research-Based Reading Practices in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.68	.46	.44	** .000
	X ₁ budget	X ₂ , X ₃	.65	.43	.42	** .000
	X ₂ campus size	X ₁ , X ₃	.03	.001	-.008	.77
	X ₃ TPRI	X ₁ , X ₂	.02	.000	-.008	.86

* $p < .05$; ** $p < .01$

- The regression equation with the three predictors, budget, campus size, and reading achievement contributed significantly to implementation of research-based implementation practices in second grade $R = .68$, $R^2 = .46$, adjusted $R^2 = .44$, with an $F(3, 115) = 32.235$, $p < .01$
- The budget index in second grade contributed significantly, $R = .65$, $R^2 = .43$, adjusted $R^2 = .42$ with an $F(1, 117) = 87.507$, $p < .01$ to the implementation of reading research-based practices.
- The campus size in second grade did not contribute significantly, $R = .03$, $R^2 = .001$, adjusted $R^2 = -.008$, with an $F(1, 117) = .087$, $p > .05$ to the implementation of research-based reading practices.
- Reading achievement in second grade did not contribute significantly to the implementation of research-based reading practices, $R = .02$, $R^2 = .000$, adjusted $R^2 = -.008$, with an $F(1, 117) = .032$, $p > .05$

The findings supported two conclusions. (1) The findings indicated that the size of budget can be judged statistically significant at the .01 alpha level; it rejected the null hypothesis. The findings indicated that the implementation of research based reading practices was a function of the size of the budget. (2) However, the size of the campus enrollment, and reading

achievement at the second grade level failed to reject the null hypothesis. The implementation of research based reading practices in second grade was not a function of differences in campus size or reading achievement.

One-Way Repeated-Measures Analysis of Variance of Second Grade Reading Performance

Repeated-measures ANOVA were conducted to see if population means on the graphophonemic, accuracy and reading comprehension measurements varied significantly among years for the second grade student group. The results of the Wilk's Lambda, Mauchly's Test of Sphericity, and the Greenhouse-Geisser with conservative degrees of freedom tests were used with the F-distribution to test the null hypotheses.

One-Way Repeated-Measures Analysis of Variance of Graphophonemics in Second Grade. The following question guided the study on Graphophonemics with the second grade group: How do the population means on the graphophonemic measurement vary among years for the second grade group?

The one-way within subjects ANOVA, with the factor being year of test and the dependent variable being the second grade graphophonemic measurement, produced the following results. The results of the multivariate test of the Wilks' Lambda showed a derived value, $\Lambda = .386$, $F(6, 31) = 8.217$, $p < .01$. Sphericity could not be assumed with the Mauchly's Test, $\underline{W} = .361$; $p = .024$. Thus, the Greenhouse-Geisser test was used with the F -distribution to test the null hypothesis. These results showed time effect significance with the graphophonemics scores at the .01 alpha level. The multivariate $\eta^2 = .614$. This means that 61% of the total variance in the total graphophonemic data set for the second grade group was accounted for or explained by the difference between and among trials.

Table 25

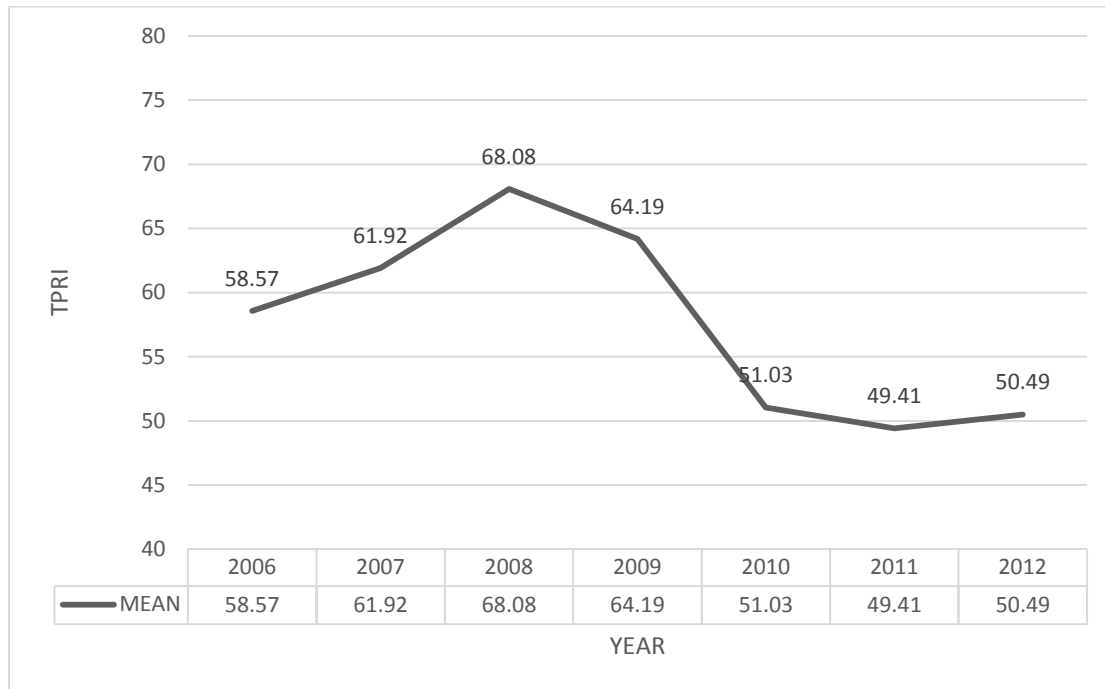
One-Way Repeated-Measure Analysis of Variance of Graphophonemic in Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	19,057.16	36			
Within Subjects	50,236.29	168.38			
Between Years	12,350.04	4.55	1	2,713.85	**11.74
"Error" term	37,886.25	163.83	36	231.26	
Total	69,293.45	204.38			

* $p < .05$; ** $p < .01$

The results of 21 pairwise comparisons conducted among the means for each year revealed the following results. Eight out of the 21 pairwise comparisons were significant, controlling for error rate across the 21 tests at the .05 level, using the Holm's sequential Bonferroni procedure. All eight pairwise comparisons produced the smaller p values than α . The smallest p value was for the comparison of year 2008 and 2010, year 2008 and 2011, year 2008 and 2012, year 2009 and 2010, and year 2009 and 2011. Their p value of .000 was less than $\alpha = .05/8 = .006$. The next smallest p value was for the comparison of year 2009 and year 2012. Its p value of .001 was less than $\alpha = .05/3 = .0166$. The next smallest p value was for the comparison of year 2007 and year 2011. Its p value of .006 was less than $\alpha = .025$. The last p value was for the comparison between 2007 and 2010. Its p value of .037 was less than $\alpha = .05$. Therefore, the means between the eight comparison times was significant. See Figure 16 for an illustration of the seven year trend for graphophonemic measurement with second grade student group. The standard deviations ranged from 13.38 to 17.46 and the variances ranged from 179.02 to 304.85, indicating that the variances are somewhat different from each other. The results of Figure 16 showed that biggest gains were made between 2006 and 2009. The biggest gap was between 2006 and 2011. The 2012 scores are lower than those of 2006.

Figure 16. Means of Second Grade Performance in Graphophonemics



One-Way Repeated-Measures Analysis of Variance of Accuracy in Second Grade.

The one-way within subjects ANOVA used with the factor being year of test and the dependent variable being the second grade Accuracy measurement produced the following results. The results of the multivariate test of the Wilks' Lambda showed $\Lambda = .506$, with an $F(6, 31) = 5.041$, $p < .01$. Sphericity could not be assumed with the Mauchly's Test, $W = .442$; $p = .121$. Thus, the Greenhouse-Geisser degrees of freedom were used with the F distribution to test the null hypothesis. These results showed time effect significance with the Accuracy scores at the .01 alpha level. The multivariate $\eta^2 = .494$. This means that 49% of the total variance in the total Accuracy data set for the second grade group was accounted or explained by the difference between and among years.

The results of 21 pairwise comparisons conducted among the means for each year revealed the following results. Five out of the 21 pairwise comparisons were significant, controlling for error rate across the 21 tests at the .05 level, using the Holm's sequential

Bonferroni procedure. All five pairwise comparisons produced smaller p values than α ; therefore, all were significant. The first smallest p value was for the comparison of year 2009 and 2011; its p value of .006 was less than $\alpha = .05/5 = .01$. The next smallest p value was for the comparison of year 2006 and 2011; its p value of .008 was less than $\alpha = .05/4 = .0125$. The pairwise comparison of year 2009 and 2010 p value = .015; it was less than $\alpha = .05/3 = .0166$. The p value for the pairwise comparison of year 2007 and year 2011 of .018 was less than $\alpha = .025$. The last p value for comparison year 2006 and year 2010 of .022 was less than $\alpha = .05$. The means between the five comparison times was significant.

Table 26

One-Way Repeated-Measures Analysis of Variance of Accuracy in Second Grade

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	9,927.04	36			
Within Subjects	25,076.57	178.69			
Between Years	3,402.91	4.83	1	704.61	**5.652
"Error" term	21,673.66	173.86	36	124.66	
Total	35,003.61	214.69			

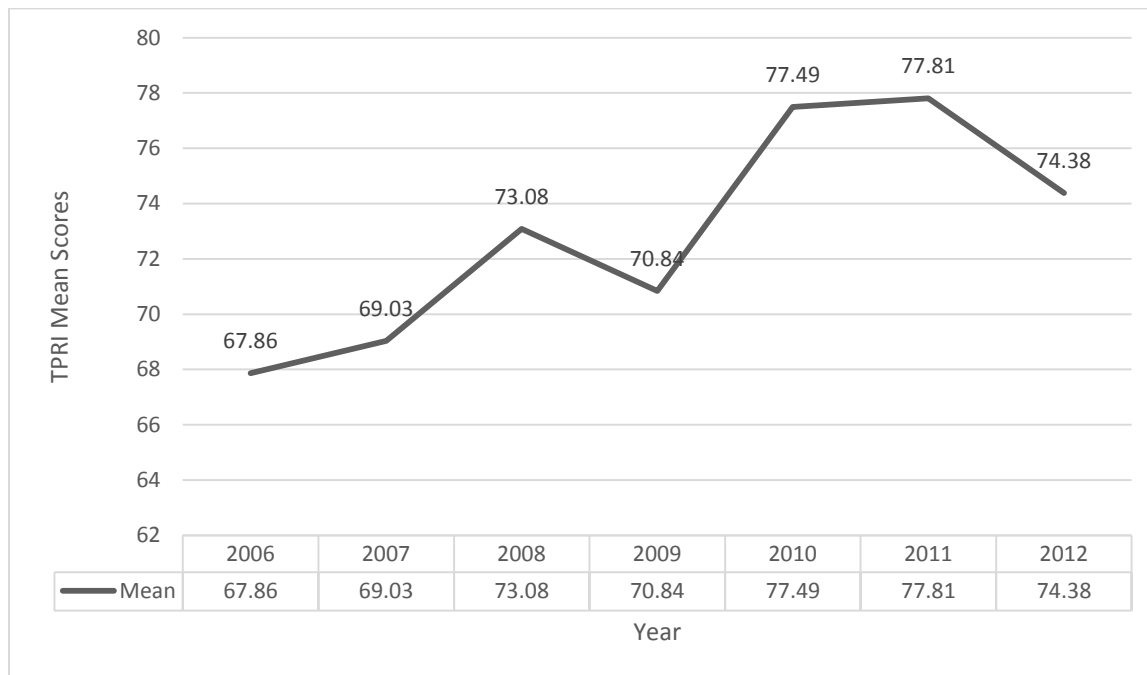
* $p < .05$; ** $p < .01$

Figure 17 illustrates the seven year trend for Accuracy measurement with second grade student group. The standard deviations ranged from 9.10 to 13.68, and the variances ranged from 82.81 to 187.14. This indicated significant differences among the means of the accuracy measurement. The p value was less than the alpha level .01; therefore, the analysis rejected the null hypothesis. It can be concluded that there was a difference among means of the Accuracy measurement with the second grade student group.

The results of Figure 17 showed that students continued to make significant gains in reading accuracy. Although students' performance in accuracy dropped approximately three

percentage points in 2009, the students continued to improve thereafter. This may suggest that the reading practices used during the Reading First time period and the current practices implemented by teachers have been effective.

Figure 17. Means of Second Grade Performance in Accuracy



One-Way Repeated-Measures Analysis of Reading Comprehension in Second

Grade. The one-way within subjects ANOVA used with the factor being year of test and the dependent variable being the Reading Comprehension measurement with the second grade group produced the following results. The results of the multivariate test of the Wilks' Lambda showed a derived value of $\Lambda = .765$, $F(6, 31) = 1.586$, $p > .05$. Sphericity could not be assumed with the Mauchly's Test, $\underline{W} = .158$; $p < .001$. Table 27 shows that the Greenhouse-Geisser test's F -distribution indicated significant time effect at the .05 alpha level; however, the lower bound conservative degrees of freedom did not.

The results of 21 pairwise comparisons conducted among the means for each year revealed pairwise comparisons were not significant. All of the p values were greater than .05.

The overall multivariate, lower bound degrees of freedom and the pairwise comparison results indicated a not significant time effect with the Reading Comprehension scores at the .05 alpha level; thus, failed to reject the null hypothesis. There is no difference among the Reading Comprehension means of the second grade group.

Table 27

*One-Way Repeated-Measures Analysis of Variance of Reading Comprehension
in Second Grade*

Sources of Variations	Sums of Squares	df usual	df conservative	MS	F
Between Subjects	17,939.82	36			
Within Subjects	33,591.14	144.51			
Between Years	2,535.12	3.91	1	649.12	*2.939
"Error" term	31,056.02	140.60	36	220.89	
Total	51,530.96	180.51			

* $p < .05$; ** $p < .01$

Figure 18. Means of Second Grade Performance in Reading Comprehension

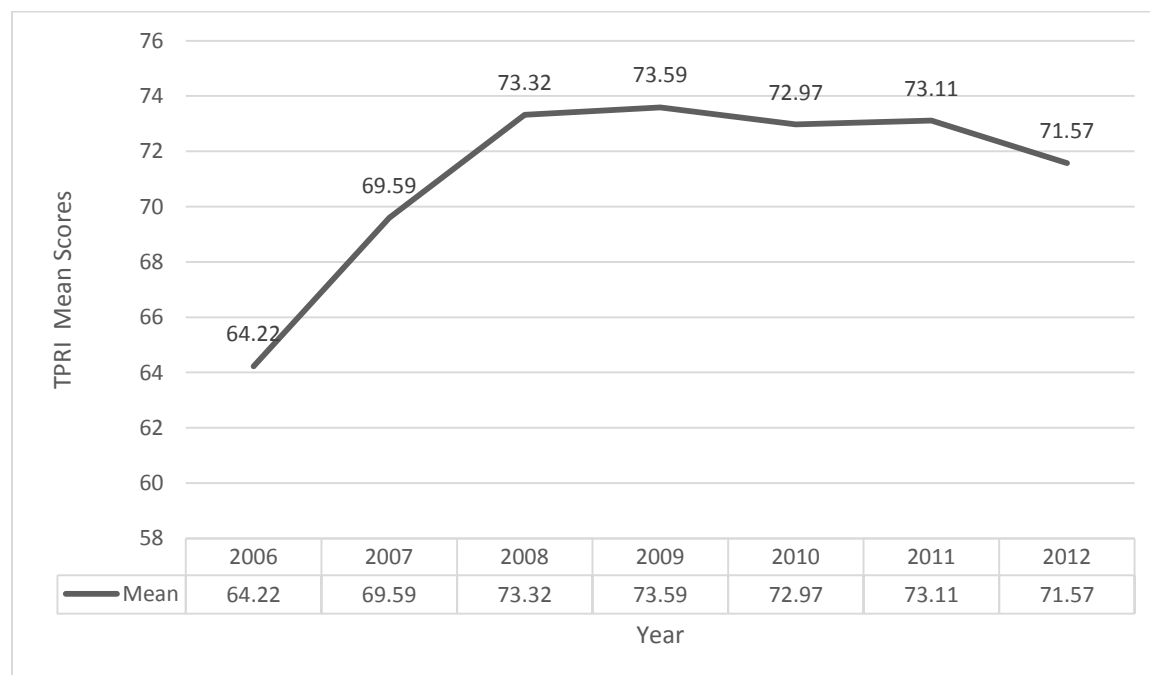


Figure 18 illustrates the seven year trend for the Reading Comprehension measurement with the first grade student group. The standard deviations ranged from 9.47 to 17.14 and the variances ranged from 89.68 to 293.78. The biggest variance from each other existed between 2006 and 2009.

Summary

Chapter IV included four (4) components of the research plan to test the hypotheses: level of significance, methods of statistical analysis, test of significance, and degrees of freedom. The researcher analyzed the collected data using exploratory and linear regression, *F*-distribution, and an alpha level of .05 to carry out the test of significance. The regression coefficients (*R*), its squared value (R^2) and the adjusted R^2 were used to analyze linear regressions. Descriptive statistics, statistics for evaluating the assumptions of sphericity, ANOVA results using the multivariate tests, tests of within subject effects, tests of between subject effects and pairwise comparisons were used in the one-way repeated-measures analyses. The decisions and conclusions of the findings are presented in Chapter V.

Chapter V hosts information on the last components of the research process: decisions and conclusion. The decisions on forty-four (44) linear regression analyses outputs and fifteen (15) one-way repeated-measures analyses followed by significant and non-significant conclusions are presented. The researcher also discusses the implications and limitations of this study. The possible implications of the research are linked back to the broader idea of the practical solutions discussed in Chapter Two. Finally, the roadblocks to this work are openly discussed so that the readers may determine for themselves whether the limitations affects the results of the study.

CHAPTER V

DISCUSSIONS AND IMPLICATIONS

At the turn of the 21st century, the United States government acknowledged that America had a serious literacy problem. According to the National Reading Panel (NICHD, 2000), too many children were struggling with learning to read. The government, through a Congressional mandate, authorized the National Reading Panel (NICHD, 2000) to identify key skills and methods that were central to reading achievement in the early grades. The National Reading Panel (NICHD, 2000) centered their study and recommendations on four factors: scientifically based research, five components of reading, effective diagnostic assessment strategy, and a professional development plan that ensured teachers had the skills and support needed to implement the program effectively.

The United States government supported the recommendations made by the National Reading Panel. Soon after, policy makers allocated a \$6 billion budget from 2002 to 2008 to American schools so that they could implement the research-based strategies recommended by the National Reading Panel (USDE, 2002). The Reading First initiative was implemented with vigor and strong momentum. Teachers across the states were trained to use research-based reading strategies. These skills provided the basis “for sound curriculum decisions and instructional approaches that can help prevent...reading failure” (NIL, 2003, p. ii). In the years that followed, states across the country reported success (Reading First, 2008). In school year 2008-2009, Congress reduced the budget by 61% (USDE, 2008a). The government stopped the program funding completely the year after.

Now that the funding is no longer available, the researcher launched a trend study over seven (7) years that provided new information about the reading program and added to the existing science of reading. While this research centered on similar factors investigated by the National Reading Panel (NICHD, 2000), it concentrated on other factors that were unique. In their study, the National Reading Panel (NICHD, 2000) focused on the five essential components of reading instruction (phonemic awareness, phonics, vocabulary, fluency and comprehension) and implementation practices (professional development, coaching, diagnosis, prevention and intervention strategies). This research focused on the above mentioned factors and added two other factors to the equation: funding and campus size.

Three (3) key questions about the Reading First program guided the study. The questions investigated (1) if teachers continued to use the research-based practices they were trained to use without the funding and (2) if students continued to make reading progress without the funding.

- What amount of total variance in student reading achievement in kindergarten, first, second, and kindergarten through second grade was a function of funding, campus size and implementation practices?
- What amount of total variance in the implementation of reading practices in kindergarten, first, second, and kindergarten through second grade was a function of funding, campus size, and/or student achievement?
- How do the population means on phonemic awareness, graphophonemics, listening comprehension, accuracy and reading comprehension vary among years for each of the kindergarten, first, second, and kindergarten through second grade groups?

In the quest for answers, the researcher examined the results of the Texas Primary Reading Inventory (TPRI) administered in grades kindergarten through second grade, budget

size, class size, and implementation reading practices as factors that could possibly determine the variance in student achievement. The researcher sent out a survey to 828 teachers to inquire about the instructional practices used in teaching children to read. The survey solicited responses on practices such as professional development, blocked reading time, intervention strategies, progress monitoring, curricular materials and access to a reading coach. 150 teachers completed the survey. Twelve (12) linear regression and fourteen (14) one-way repeated-measure analyses were conducted to complete this investigation.

Introduction to a Discussion of the Results

Literacy in America has come a long way: from the traditional alphabetic approach to John Dewey's "look and say" method, to reading and language development research from Snow, Burns, and Griffin (1998), to the National Reading Panels (NICHD, 2000) development of the Reading First program, to everything else in between. According to McCardle and Chhabra (2004), after Noah Webster published the *American Dictionary of the English Language* (1828), he developed a standardized spelling system, known as the traditional approach. For more than 100 years, the *Blue Backed Speller* and the *McGuffey Readers* were used to teach children and adults to read. McCardle and Chhabra (2004) further stated that debates on how to teach reading emerged during the early 19th century. They identified John Dewey as an influential educator who strongly believed on an alternative reading approach that relied on memorizing sight words. This approach became known as the "look and say" approach. The *Dick and Jane* reader is an example of the books used during this time period. In 1998, Snow, Burns, and Griffin identified alphabetic, fluency, comprehension as key factors that were central to reading achievement. The alphabetic principle consisted of teaching students to read sight words and to read words by mapping speech sounds to parts of words. In 2000, the

National Reading Panel added to the findings of Snow et al. The National Reading Panel (2000) identified five reading skills that were central to student achievement in the early grades: phonemic awareness, phonics instruction, vocabulary, fluency and comprehension.

Like the National Reading Panel, this research centered on the research-based methods proven to be effective in teaching children to read. While this research was centered on similar factors investigated by the National Reading Panel (NICHD, 2000), it concentrated on other distinctive factors that are unique to this study.

Kindergarten-Second Grade Results

The focus of this research was to determine the amount of the variance in student achievement, Kindergarten through second grade collectively, which might or might not be explained by funding, campus size, and/or implementation of the scientifically-based Reading researched practices. The researcher used linear regression and one-way repeated-measures models to examine and analyze data of the participants' practices that were associated with the Reading First program. The study consisted of four parts.

The first part of the study required the researcher to examine if student achievement in Reading was accounted for by the size of funding and/or size of campus. The three variables in this data set included composite reading achievement scores, funding, and campus size. The N = 259; 37 campuses participated. The data on the implementation of Reading First practices for all 37 campuses was not collected because although all teachers from all the campuses were invited to participate in the survey, not everyone participated; therefore, not every campus was represented. For this reason, the implementation measure was excluded from these sets of analyses.

A second set of analyses measured the variance in student achievement that might or might not be accounted for by size of funding, size of campus, and/or the implementation of Reading First practices. The variables for this dataset included TPRI Reading scores, funding, campus size and implementation practices. The implementation practices information collected through the teacher survey was quantified. The N = 168; teachers from approximately 24 campuses participated.

In the third set of analyses, the researcher used the same data set as the second set of analyses except that these analyses measured the variance in the implementation of research-based reading practices rather than the variance in student achievement. The factors remained the same.

The last set of analyses examined a seven year reading performance trend to observe changes in TPRI composite means of the 37 participating campuses by grade level and by measure from 2006 to 2012. Fourteen (14) one-way repeated-measures analyses were conducted. This part of the study first compared the 2006 TPRI assessment scores to 2009 and then compared 2009 TPRI scores to 2012. The year 2006 was benchmarked because it was the first year of record that schools reported the TPRI assessment as a measurement of students' reading progress for the Reading First program. The year 2008- 2009 was the year that Congress reduced the funding by 60%, 2009-2010 was the last year of the Reading First program for these campuses, and 2012 was the year the data was collected for the study. This examination allowed the researcher to visually determine the student reading performance trend over a seven year period.

Linear Regression of Reading Achievement and Two Factors

The first dataset involved two predictors (funding and campus size) and one criterion, TPRI composite scores. The total population in this dataset involved 37 campuses; $N = 259$. The composite TPRI score measured kindergarten through second grade students' achievement in five reading measurements: phonemic awareness (PA), graphophonemics (GK), listening comprehension (LC), accuracy (ACC), and reading comprehension (RC). The TPRI mean = 747.31; budget size mean = \$67,139; and the class size mean = 290.

Table 28

Reading Achievement and Two Factors in Kindergarten-Second Grade

K-2 Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.18	.03	.02	*.02
	X ₁ budget	X ₂	.17	.03	.03	*.01
	X ₂ campus	X ₁	.06	.004	.000	.31

* $p < .05$; ** $p < .01$

The findings of the linear regression analyses indicated one significant conclusion and one not significant conclusion.

1. Reading achievement in kindergarten through second grade was a function of funding in the 37 campus data set.
2. Reading achievement in grades kindergarten through second grade was not a function of campus size in the 37 campuses data set.

The first finding indicated that reading achievement was a function of funding. The size of budget was judged statistically significant at the .01 alpha level. The finding might suggest that budget was a factor that contributed to teachers teaching children in kindergarten through second grade effectively. The amount of money allocated to the campuses each year affected the students' performance.

The second finding indicated that reading achievement was not a function of the size of the campus. Wehlage, Rutter, and Tumbaugh (1987) found that at risk students are much more likely to succeed in small schools than in large schools. A closer look at the campus size in the kindergarten through second grade participant group in this study showed a large disparity in campus size among the participants. Some campuses in the study had only 150 students in the kindergarten through second grade group while others had 502 students. This might explain why student achievement was not a function of campus size with the collective group. The class size might be interpreted as the campuses not having met the optimum class size, therefore, it was logical to conclude that campus size could not have been a factor that impacted student learning.

Table 29

Kindergarten-Second Grade Mean Scores

Mean	<i>Reading First</i>					<i>Non-Reading First</i>			
	2006	2007	2008	2009	<i>RF Mean</i>	2010	2011	2012	<i>Non-RF Mean</i>
PA	74.32	76.62	*79.2	78.80	77.23	72.30	70.68	73.54	72.17
GK	78.54	80.62	*82.3	81.57	80.76	73.03	73.19	74.62	73.61
LC	69.22	66.92	73.1	73.24	70.62	*81.70	75.84	75.60	77.71
ACC	71.84	72.54	*75.7	73.76	73.47	74.14	73.57	70.03	72.58
RC	67.51	70.60	*76.3	75.30	72.42	72.05	70.35	71.30	71.23

*highest mean score

Table 29 maps the reading progress of the kindergarten through second grade group. The mean scores of the five measurements over a seven year period provides support for the impending discussion.

Linear Regression of Reading Achievement and Three Factors

The next two analyses shared the dataset. Dataset 2 consisted of four variables: student achievement as measured by TPRI scores, funding, campus size, and implementation of practices. The uniqueness between the second analyses and the upcoming third analyses depended on the criterion variable used. For example, in this set of analyses the three predictors included funding, campus size, and implementation of Reading-First practices, and the criterion was the TPRI composite score. In the upcoming third analyses, the student achievement (TPRI) criterion variable was interchanged with implementation practices. In other words, the three predictors included funding, campus size, and student achievement (TPRI), and the criterion was the implementation practices.

The newly added predictor, implementation of reading research-based practices, was obtained from the teacher survey responses. Teachers from the campuses who responded to the survey were selected as participants. The newly created subpopulation participant sample included teacher responses from 24 campuses; the $N = 168$.

Student achievement as criterion variable. In this set of analyses, the researcher evaluated how well the size of budget, size of campus and the implementation practices predicted student achievement in reading in the 24 participating campuses. The TPRI mean = 749.39; budget mean = \$68,033; campus size mean = 287, and practices mean = 55.52.

The findings indicated one significant finding and two not significant findings.

1. Reading achievement in kindergarten through second grade was a function of campus size in approximately 24 campuses data set.
2. Reading achievement in grades kindergarten through second grade was not a function of budget in the 24 campuses data set.

3. Reading achievement in grades kindergarten through second grade was not a function of implementation of research-based reading practices in the 24 campuses data set.

Table 30

Reading Achievement and Three Factors in Kindergarten–Second Grade

K-2 Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂ X ₃	None	.24	.06	.04	*.02
	X ₁ budget	X ₂ , X ₃	.14	.02	.01	.07
	X ₂ campus	X ₁ , X ₃	.22	.05	.04	** .004
	X ₃ practices	X ₁ , X ₂	.09	.01	.001	.27

* $p < .05$; ** $p < .01$

The results of the first finding were inconsistent with the results of the previous analyses, Linear Regression of Reading Achievement and Two Factors. Unlike the first set of analyses, these linear regression findings indicated that reading achievement was a function of campus size but was not a function of the size of budget. The size of campus was judged statistically significant at the .01 alpha level. The class size might be interpreted to mean that the campuses from the smaller population dataset had the optimum class size in grades kindergarten through second grade; therefore, campus size was a factor that impacted student learning. The findings are aligned to Wehlage, Rutter, and Tumbaugh's (1987) research in that at-risk students perform better in smaller schools.

The second finding indicated that reading achievement was not a function of the size of budget. A possible explanation for these results might be that budget was not a factor that explained student reading achievement in the smaller population dataset because the children's TPRI scores from these schools might not have reflected significant progress in one or more of the TPRI measurements throughout the Reading First funding years. The progress made was not significant to the amount of funding allocated.

The third finding indicated that reading achievement was not a function of the implementation of research-based reading practices in grades kindergarten through second grade. The indication that student achievement was not a function of the implementation of research-based reading practices might be interpreted to mean that the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements and/or in one or more of the grades; therefore, student learning was not impacted.

Implementation of research-based reading practices as criterion variable. As aforementioned, the second and third set of analyses were derived from the same dataset. In this set of analyses, the implementation of reading research-based practices was the criterion variable. The predictors included funding, campus size, and student achievement. The third set of analyses evaluated how well the size of campus, size of budget and student achievement predicted the implementation of reading research-based practices in 24 campuses. The N = 168, the TPRI mean = 749.39; budget mean = \$68,033; campus size mean = 286.38, and practices mean = 55.52.

Table 31

Implementation of Research-Based Reading Practices in Kindergarten-Second Grade

K-2 Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.36	.13	.12	**.000
	X ₁ budget	X ₂ , X ₃	.36	.13	.12	**.000
	X ₂ campus	X ₁ , X ₃	.10	.01	.004	.20
	X ₃ TPRI	X ₁ , X ₂	.09	.007	.001	.27

* $p < .05$; ** $p < .01$

The findings indicated one (1) significant finding and two not significant findings.

1. Implementation of research-based reading practices was a function of funding in the 24 campuses.

2. The implementation or research-based reading practices in grades kindergarten through second grade was not a function of campus size in the 24 campuses data set.
3. The implementation or research-based reading practices in grades kindergarten through second grade was not a function of reading achievement in the 24 campuses data set.

Similar to the first set of analyses, these linear regression findings indicated that implementation of research-based reading practices was a function of funding but not a function of campus size. The findings also produced comparable results with the second set of analyses, Linear Regression of Reading Achievement and Three Factors; the findings indicated that the implementation of research-based reading practices in grades kindergarten through second grade was not a function of reading achievement.

Gamse, Jacob, Horst, Boulay, and Unlu (2008) found that Reading First produced positive and statistically significant impacts on research-based reading practices. According to Gamse et al., (2008), the practices promoted by the Reading First program included professional development in scientifically based reading instruction (SBRI), support from full-time reading coaches, amount of reading instruction, and support available for struggling readers. In these set of analyses, the size of budget was judged statistically significant at the .01 alpha level. The significant findings might be interpreted to mean that teachers who completed the survey indicated that research-based reading practices in their campus might be implemented provided that they were supported financially.

The findings are supported by Wehlage, Rutter, and Tumbaugh's (1987) research. They found that at-risk students are much more likely to struggle in large schools. The class size might be interpreted as the campuses in this sample as not having the optimum class size in

grades kindergarten through second; therefore, campus size was not a factor that impacted student learning.

The third finding indicated that the implementation of research-based reading practices in grades kindergarten through second grade was not a function of reading achievement in the 24 campuses data set. These findings resonate the findings of the second set of analyses in which the findings indicated that student achievement was not a function of the implementation of research-based reading practices in kindergarten through second grade. The indication that student achievement was not accounted for by the implementation of research-based reading practices and vice-versa might suggest that student learning was not impacted because the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements.

Kindergarten- Second Grade One-Way Repeated-Measure Analyses

The next set of analyses examined a seven (7) year reading progress trend to observe changes in TPRI composite means of the 37 participating campuses by grade level and by measure from 2006 to 2012. Five (5) one-way repeated-measures analyses conducted for the kindergarten group compared the 2006 TPRI assessment scores to 2009 and then compared 2009 TPRI scores to 2012. Again, the year 2006 was benchmarked because it was first year of record that schools reported the TPRI assessment as a measurement of students' reading progress for the Reading First program. The year 2008- 2009 was the year that Congress reduced the funding by 60%, 2009-2010 was the last year of the Reading First program for these campuses, and 2012 was the year data was collected for the study. This examination allowed the researcher to visually determine the student reading performance trend over a seven year period.

The findings indicated that differences among the means of the five TPRI measurements tested in Kindergarten through second grade were significant.

1. There was a difference among the means for the phonemic awareness measurement in kindergarten through second grade group across the years.
2. There was a difference among the means for the graphophonemic measurement in kindergarten through second grade group across the years.
3. There was a difference among the means for the listening comprehension measurement in kindergarten through second grade group across the years.
4. There was a difference among the means for the accuracy measurement in kindergarten through second grade group across the years.
5. There was a difference among the means for the reading comprehension measurement in kindergarten through second grade group across the years.

The one-way repeated-measure analyses indicated that the means among all of the measurements varied significantly. Over all, the statistical regression, the one-way repeated-measures MANOVA, and the mean trend showed that students performed best during the Reading First years than the non-Reading First years in all measurements except listening comprehension. Although the mean average of the listening comprehension measurement was higher post-Reading First years than the Reading First years, the pattern shows that the students have been gradually declining after 2010.

Table 29 maps the reading progress of the kindergarten through second grade group over a seven year period. The results of long trend performance examination might infer that the practices that teachers were using in Kindergarten through second grade from 2006 to 2009 were more effective than those used thereafter.

The long trend performance table shows that the mean average for the phonemic awareness, graphophonemic, accuracy, and reading comprehension measurements were larger during the Reading First years than the mean average of the non-Reading First years. The listening comprehension mean was the only measurement that showed lower results during the Reading First years than those of the non-Reading First years. The results might indicate that the children from the lower Rio Grande Valley continued to struggle with reading. The findings might also suggest that budget size and optimum campus size might be factors that contributed to teachers teaching children successfully.

The findings were consistent with reports from the national, state, and local educational agencies in that NCES (2011) longitudinal study illustrated that the larger increases in reading comprehension for students occurred between fiscal years 2002 and 2007. The findings in this study showed increases in all measurements from 2006 to 2009.

In order to better understand the group that was most impacted by the Reading First program, the results of the kindergarten through second grade have been subdivided by grade level in the subsequent sections.

Kindergarten Results

Linear Regression of Reading Achievement and Two Factors

The first set of analyses involved two predictors (funding and campus size) and the TPRI composite score criterion. The composite TPRI score measured kindergarten achievement in phonemic awareness, graphophonemics, and listen comprehension collectively. Thirty-seven (37) campuses participated. The N= 259; the TPRI mean = 236.49; mean budget size = \$21,569.54; and the mean class size = 93.

Table 32

Reading Achievement and Two Factors in Kindergarten

Grade Level	Variables	Variable	R	R ²	Adjusted	P
Kindergarten	Include X	Removed			R	
Y ₁ reading	X ₁ X ₂	None	.12	.01	.01	.16
	X ₁ budget	X ₂	.09	.01	.01	.14
	X ₂ campus	X ₁	.07	.01	.001	.28

* $p < .05$; ** $p < .01$

The findings of the multiple linear regression analyses indicated that both conclusions were not significant.

1. Reading achievement in kindergarten was not a function of funding in the 37 campuses data set.
2. Reading achievement in kindergarten was not a function of campus size in the 37 campuses data set.

Table 33

Kindergarten Mean Scores

	Reading First						Non-Reading First			
Mean	2006	2007	2008	2009	<i>RF Mean</i>		2010	2011	2012	<i>Non-RF Mean</i>
PA	67.70	72.27	*75.38	74.46	72.45		71.59	65.70	68.32	68.54
GK	92.43	92.08	90.95	*93.24	92.18		93.22	89.92	92.05	91.73
LC	69.22	66.92	73.08	73.24	70.62		*81.68	75.84	75.60	77.70

*highest mean scores

The findings indicated that reading achievement was not a function of funding or campus size. Table 33 illustrates that students whose campus received funding in 2006 performed the same as the students whose campus did not receive funding in 2012 in phonemic awareness and

graphophonemics. This might explain why the regression analyses determined that budget size was not a factor that impacted students' learning. The class size might be interpreted as the campuses not having had met the optimum kindergarten class size; therefore, it might be logical to conclude that campus size was not a factor that impacted student learning.

Linear Regression of Reading Achievement and Three Factors

Student achievement as criterion variable. The second set of analyses involved three predictors (funding, campus size, and implementation of Reading-First practices) and the TPRI composite score criterion. As previously mentioned, this set of analyses included an additional predictor, implementation of reading research-based practices. The implementation of reading research-based practices predictor was obtained from teacher survey responses. These set of analyses evaluated how well the size of budget, size of campus and the implementation practices predicted student achievement in reading in the participating 17 campuses. The $N = 119$, the TPRI mean = 233.10; budget mean = \$21,695; campus size mean = 90, and practices mean = 36.63. The findings indicated three (3) not significant findings.

Table 34

Reading Achievement and Three Factors in Kindergarten

Grade Level	Variables	Variable	R	R ²	Adjusted	P
Kindergarten	Include X	Removed			R ²	
Y ₁ reading	X ₁ X ₂ X ₃	None	.16	.02	-.001	.41
	X ₁ budget	X ₂ , X ₃	.10	.01	.001	.30
	X ₂ campus	X ₁ , X ₃	.01	.000	-.009	.96
	X ₃ practices	X ₁ , X ₂	.04	.002	-.007	.63

* $p < .05$; ** $p < .01$

1. Reading achievement in kindergarten was not a function of funding in the 17 campuses data set.

2. Reading achievement in kindergarten was not a function of campus size in the 17 campuses data set.
3. Reading achievement in kindergarten was not a function of implementation practices in the 17 campuses data set.

The findings in this set were similar to those found in the first set of analyses, Linear Regression of Reading Achievement and Two Factors, in that student achievement in kindergarten was not a function of budget size or campus size. The third factor, implementation or research-based Reading First practices, was also found to be not significant. As previously inferred, the marginal TPRI test results in phonemic awareness and listening comprehension might be reasons as to why the regression analyses determined that budget size or implementation of research-based Reading First practices were not the factors that impacted students' learning. Students whose campus had received funding in 2006 performed the same as the students whose campus did not receive funding in 2012 in the two measurements.

In the same way as the first set of analyses, the class size might have been interpreted as the campuses not having optimum kindergarten class size; therefore, it might be logical to concur that campus size could not have been a factor that impacted student learning.

It might also be inferred that budget size or implementation practices were not the factors that contributed to teachers teaching graphophonemics to the kindergarten children successfully because the percentage of students performing well has been consistently above average throughout the seven year period (see Table 33). The students performed the same in 2006 as the students whose campus did not receive funding in 2012.

Implementation of research-based reading practices as criterion variable.

Reiterating once more, the third set of analyses included the same variables as the second set of

analyses, except that in this set of analyses, the dependent variable was identified as the implementation of reading research-based practices and not student achievement. In these analyses, the predictors were funding, campus size, and student achievement and the criterion was the implementation of reading research-based practices. The third set of analyses evaluated how well the size of campus, size of budget and student achievement predicted the implementation of reading research-based practices in 17 campuses. The $N = 119$, the TPRI mean = 233.10; budget mean = \$21,695; campus size mean = 90, and practices mean = 36.63. The findings indicated one (1) significant finding and three (3) not significant findings.

Table 35

Implementation of Research-Based Reading Practices in Kindergarten

Grade Level Kindergarten	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.57	.33	.31	**.000
	X ₁ budget	X ₂ , X ₃	.54	.29	.29	**.000
	X ₂ campus	X ₁ , X ₃	.01	.000	-.009	.94
	X ₃ TPRI	X ₁ , X ₂	.04	.002	-.007	.63

* $p < .05$; ** $p < .01$

1. Implementation of research-based reading practices in kindergarten was a function of funding in the 17 campuses data set
2. Implementation of research-based reading practices in kindergarten was not a function of campus size in the 17 campuses data set.
3. Implementation of research-based reading practices in kindergarten was not a function of reading achievement in the 17 campuses data set.

The first finding indicated that the implementation of research-based reading practices was a function of funding. These findings were consistent with the first findings, the Linear Regression of Reading Achievement and Two Factors. The size of budget was judged

statistically significant at the .01 alpha level. The significant findings might be interpreted to mean that teachers who completed the survey indicated that funding was important to implementing the research-based reading practices in their classrooms provided that they were supported with appropriate training and curricular resources.

The second finding indicated that implementation of research-based reading practices in kindergarten was not a function of campus size in the smaller data set; it was consistent with the previous two sets of kindergarten analyses. The class size might be interpreted as the campuses in this sample not having met the optimum kindergarten class size, therefore, campus size could not have been a factor that impacted student learning.

The third finding indicated that the implementation of research-based reading practices in kindergarten was not a function of reading achievement. This finding resonates on the findings of the second set of analyses in that student achievement was not accounted for by the implementation of research-based reading practices in kindergarten. The indication that student achievement was not accounted for by the implementation of research-based reading practices and vice-versa might suggest that student learning was not impacted because the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements throughout the seven (7) year time period (see Table 33).

Kindergarten One-Way Repeated-Measures Analyses

The next set of analyses examined a seven (7) year reading progress trend to observe changes in TPRI composite means of the 37 participating campuses by grade level and by measure from 2006 to 2012. Three (3) one-way repeated-measures analyses conducted for the kindergarten group compared the 2006 TPRI assessment scores to 2009 and then compared 2009 TPRI scores to 2012. As aforementioned, the year 2006 was the first year of record that schools

reported the TPRI assessment as a measurement of students' reading progress for the Reading First program. The year 2008- 2009 was the year that Congress reduced the funding by 60%, 2009-2010 was the last year of the Reading First program for these campuses, and 2012 was the year data was collected for the study. This examination allowed the researcher to visually determine the student reading performance trend over a seven year period.

The findings indicated that out of the three TPRI measurements tested in Kindergarten, only the differences among the listening comprehension measurement mean was significant. The difference among the means for phonemic awareness and graphophonemics were found to be not significant.

1. There was a difference among the means for the listening comprehension measurement in kindergarten across years.
2. There was no difference among the means for the phonemic awareness measurement in kindergarten across years.
3. There was no difference among the means for the graphophonemic measurement in kindergarten across years.

Table 33 charts the reading achievement trend of the kindergarten student group over a seven year period. This table compares the mean student achievement score of the 37 participating campus during the Reading First years (2006 to 2009) to the mean student achievement score during the post-Reading First years (2010-2012). The three literacy measurements include phonemic awareness, graphophonemics, and listening comprehension. The initial mean score for each of the three literacy measurements was derived from SPSS II version 19 calculations. Additionally, the researcher calculated a *RF Mean* and a *Non-RF Mean*.

The Texas Primary Reading Inventory (2010) measured students' ability to demonstrate awareness of phonemes through a variety of tasks such as segmentation, deletion, blending and substituting words. The graphophonemic measurement assessed students' ability to identify letters by name and demonstrate knowledge of letter-sound correspondence. The activities included combining and manipulating word parts to change words and spelling patterns. Students' knowledge of listening comprehension was also measured. The teacher read the passages aloud to the student, and the student demonstrated comprehension by answering comprehension questions about the text. The mean scores for the three kindergarten TPRI measurements over a seven year period provided support for the discussion.

Kindergarten phonemic awareness. The one-way repeated-measures analysis for the phonemic awareness measurement produced conflicting results. Three tests (Wilk's Lambda, Lower-bound, and the pairwise comparison) indicated non-significant results while the Greenhouse-Geisser and Huyn-Feldt showed significant results. In order to avoid committing a type I alpha error, the researcher concluded a not-significant finding. In other words, there was no difference among the means for the phonemic awareness measurement in kindergarten between and among years.

The not-significant finding might be interpreted to mean that Reading First students and the non-Reading First students performed the same throughout the seven year time period. Table 33 indicates that students in kindergarten performed poorly in phonemic awareness at the beginning of the Reading First program, steadily improved over the next two years, and then gradually declined back to the performing poorly status again. The table illustrates the beginning mean score of phonemic awareness in 2006 as 67.7, indicating that students were struggling with the phonemic awareness measurement. In the two years that followed, students showed

improvement; the reported means were 72.7 and 75.38. The year 2008 marked the highest percentage passing for the seven year timeline. Over all, the mean average for the phonemic awareness measurement during the Reading First time period was 72.45 whereas, the mean average during the non-Reading First time period was 68.54, indicating a 4% drop in the number of students meeting expectations in the phonemic awareness measurement after the funding ended.

The trend as seen on Table 33 shows that Reading First students performed better than the non-Reading First students. These findings might be suggesting that practices used during the Reading First practices were slightly more effective than those of post-Reading First. The drop in scores during the non-Reading First years might indicate that changes made after the Reading First program were less effective.

These campuses might need to revisit their reading programs to identify the changes that contributed to the decline in student performance. Possible factors that might have impacted the kindergarten students' performance in phonemic awareness might include shifts in implementation of new reading instructional programs and policies, teacher qualification, or changes in administration.

Kindergarten graphophonemics. The analysis for the graphophonemics also indicated a not-significant result. In other words, there was no difference among the mean scores for the graphophonemics measurement in kindergarten between and among the seven (7) years. The Reading First students and the non-Reading First students performed the same throughout the seven year period. Although this is true, it is important to note that Reading First and the non-Reading First students performed at or above the 90% mark throughout the seven years. This might be inferred as (1) teachers had a strong understanding on how to teach graphophonemics

effectively to students prior to the implementation of the Reading First program or, (2) teachers gained knowledge on how to teach graphophonemics to kindergarten children from the professional development training provided by the Reading First program and then continued to use the Reading First best practices they learned past the funding years.

The range for the graphophonemic mean scores from 2006 to 2012, as illustrated by Table 33, might be suggesting that the practices that teachers have been using in Kindergarten throughout the seven year time period have been effective. The trend reflects that 92.18 percent of student met expectation in this measurement during the Reading First time period, and 91.73% of the students met the expectation after the end of the Reading First program. Based on these results, it might appear that teachers continued to use effective graphophonemics strategies to teach children.

Kindergarten listening comprehension. The results for the listening comprehension measurement indicated that there was a significant difference among the means in the listening comprehension scores in kindergarten between and among the seven (7) years. The variances in the listening comprehension measurement ranged from 93.35 to 375.20. Five pairwise year comparison were significant. See Table 33 for information on the significant pairs: (2007 & 2010), (2006 & 2010), (2009 & 2010), (2010 & 2011), and (2007 & 2011).

Table 33 shows that Kindergarten students made significant progress with the listening comprehension measurement throughout the Reading First time period and thereafter. It shows that approximately 69% of the students met the standard in 2006 compared to 75.6% in 2012. Furthermore, the mean average during the Reading First time period was 70.62 whereas, the mean average during the non-Reading First time period was 77.7, indicating that more students

continued to meet expectations in the listening comprehension measurement after the funding ended.

Although the long trend might be suggesting that the factors and instructional practices currently used are effective, an average of only 78% of the students met expectation on this measurement in the last three years. The one-way repeated measure analyses findings of this study might be suggesting that teachers may need re-training in research-based strategies, on how to teach phonemic awareness and listening comprehension to kindergarten children.

The results are consistent with some of the National Reading Panel's (NICHD, 2000) findings. The National Reading Panel's (NICHD, 2000) findings indicated that (1) phonemic awareness helped children with learning to spell, (2) phonemic awareness instruction was significantly better than other alternative forms of training in helping children learning to read, (3) teaching children to manipulate phonemes using letters produced bigger effect size than teaching children without letters and, (4) preschool and kindergarten children showed larger effect sizes in acquiring phonemic awareness than children in first grade and higher. The National Reading Panel (NICHD, 2000) also found that phonics instruction significantly improved children's word recognition, spelling, and reading comprehension. The effect sizes revealed that children receiving phonics instruction read better than the control group. The National Reading Panel's (NICHD, 2000) findings provide support to this study's conclusions.

The results summarized on Table 33 indicate that (1) kindergarten students performed four percentage points better in phonemic awareness during the Reading First time period than post-Reading First, (2) students performed at or above the 90% in the graphophonemics measurement throughout the seven year time period and, (3) kindergarten students continued to improve on the listening comprehension measurement after the Reading-First funding was no

longer available. The findings might be suggesting that the practices implemented during the Reading First time period were more effective than those used after the funding was no longer available.

If the United States' goal is to be among the top ten countries in student performance, more children need to meet the passing standard with the phonemic awareness and listening comprehension measurements.

First Grade Results

Linear Regression of Reading Achievement and Two Factors

The first set of analyses involved two predictors (funding and campus size) and the TPRI composite score criterion. The composite TPRI score measured first grade achievement in phonemic awareness, graphophonemics, accuracy, and reading comprehension. Thirty-seven (37) campuses participated. The N= 259; the TPRI mean = 309; mean budget size = \$23,491; and the mean class size = 102. The findings of the three linear regression analyses indicated one finding to be significant and one finding to be not significant.

Table 36

Reading Achievement and Two Factors in First Grade

First Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.30	.09	.08	**.000
	X ₁ budget	X ₂	.30	.09	.09	**.000
	X ₂ campus	X ₁	.06	.004	.000	.33

* $p < .05$; ** $p < .01$

1. Reading achievement in first grade was a function of funding in the 37 campuses data set.
2. Reading achievement in first grade was not a function of campus size in the 37 campuses data set.

Table 37 charts the reading progress of the first grade student group. The mean scores for the four measurements over a seven year period provide support for the discussion.

Table 37

First Grade Mean Scores

Year	Reading First					Non-Reading First			
	2006	2007	2008	2009	<i>RF Mean</i>	2010	2011	2012	<i>Non-RF Mean</i>
PA	80.00	81.08	*83.84	82.78	<i>81.92</i>	73.84	74.05	80.81	<i>76.23</i>
GK	88.41	90.16	*90.65	88.57	<i>89.44</i>	79.38	81.16	85.05	<i>81.86</i>
ACC	72.30	71.41	*75.68	73.11	<i>73.13</i>	66.00	62.38	61.27	<i>63.22</i>
RC	74.08	76.95	*80.62	80.05	<i>77.92</i>	72.11	68.73	71.30	<i>70.70</i>

*highest scores

The first finding indicated that the reading achievement was a function of funding in the 37 campus data set. The size of budget was judged statistically significant, $p < .01$. According to Table 37, students in first grade performed better during the Reading First time period than the post Reading First time period. It might be inferred that funding was an important factor in teaching children to read in first grade successfully.

The second finding indicated that reading achievement was not a function of the size of campus. It might be inferred that campus size might have lacked optimal class size; therefore, it contributed to the non-significant conclusion.

Linear Regression of Reading Achievement and Three Factors

Student achievement as criterion variable. The second set of analyses involved three predictors (funding, campus size, and implementation of Reading-First practices) and the TPRI composite score criterion. As previously mentioned, this set of analyses included an additional

predictor, implementation of reading research-based practices. The second set of analyses evaluated how well the size of campus, size of budget and the implementation practices predicted student achievement in reading in 12 campuses. The $N = 84$, the TPRI mean = 309.80; budget mean = \$22,955; campus size mean = 100, and practices mean = 39.45. The findings indicated two significant conclusions and one not significant conclusion.

Table 38

Reading Achievement and Three Factors in First Grade

First Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂ , X ₃	None	.37	.14	.11	**.008
	X ₁ budget	X ₂ , X ₃	.24	.06	.05	*.03
	X ₂ campus	X ₁ , X ₃	.34	.11	.10	**.002
	X ₃ practices	X ₁ , X ₂	.20	.04	.03	.08

* $p < .05$; ** $p < .01$

1. Reading achievement in first grade was a function of funding in the 12 campuses dataset.
2. Reading achievement in first grade was a function of campus size in 12 campuses dataset.
3. Reading achievement was not accounted for by Implementation of research-based reading practices in first grade was a function of funding in 12 campuses data set.

The first finding indicated similar results as the Linear Regression of Reading Achievement and Two Factors in that the reading achievement was a function of funding too. The size of budget was judged statistically significant, $p < .05$. According to Table 37, students in first grade performed better during the Reading First time period than the post Reading First time period. It might be inferred that funding was an important factor in teaching children to read in first grade successfully.

The second finding indicated that reading achievement was a function of campus size, $p < .01$. It might be inferred that campus size might have been of optimal class size; therefore, it contributed to the significant conclusion.

The third finding indicated that the implementation of research-based reading practices in first grade was not a function of reading achievement in the 12 campuses data set. These findings might suggest that student achievement was not accounted for by the implementation of research-based reading practices. Student learning was not impacted because the TPRI composite scores of the participants in this sample might have been marginal in one or more of the measurements.

Implementation of research-based reading practices as criterion variable. The predictors in the third set included funding, campus size, and student achievement and the criterion was the implementation of reading research-based practices. The third set of analyses evaluated how well the size of budget, size of campus and student achievement predicted the implementation of reading research-based practices in 12 campuses. The $N = 84$, the TPRI mean = 309.80; budget mean = \$22,955; campus size mean = 100, and practices mean = 39.45. The findings indicated two (2) significant finding and one (1) not significant findings.

Table 39

Implementation of Research-Based Reading Practices in First Grade

First Grade	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y ₁ practices	X ₁ X ₂ X ₃	None	.52	.27	.25	**.000
	X ₁ budget	X ₂ , X ₃	.46	.21	.20	**.000
	X ₂ campus	X ₁ , X ₃	.36	.13	.12	**.001
	X ₃ TPRI	X ₁ , X ₂	.20	.04	.03	.08

* $p < .05$; ** $p < .01$

1. Implementation of research-based reading practices in first grade was a function of funding in the 12 campuses data set.
2. Implementation of research-based reading practices in first grade was a function of campus size in 12 campuses data set.
3. Implementation of research-based reading practices in first grade was not a function of reading achievement in the 12 campuses data set.

Similar to the findings of the Linear Regression of Reading Achievement and Three Factors, findings one and two indicated that implementation of research-based reading practices was a function of budget and campus size. Finding one indicated that the size of budget was judged statistically significant, $p < .01$. The significant findings might be interpreted to mean that teachers need funding in order to implement the research-based reading practices in the classrooms that might help them educate first grade students. Finding two indicated that the implementation of research-based reading practices was a function of size of campus as well. The campus size was judged statistically significant, $p < .01$. The significant findings might be interpreted to mean that campuses whose teachers completed the survey indicated that campus size was important to teaching first grade students successfully. The class size in this sample might be inferred as having had optimum class size.

The third finding indicated that the implementation of research-based reading practices in first grade was not a function of reading achievement. These findings resonate the findings of the second set of analyses in which the findings indicated that student achievement was not accounted for by the implementation of research-based reading practices in first grade. The indication that student achievement was not accounted for by the implementation of research-based reading practices and vice-versa might suggest that student learning was not impacted

because the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements.

First Grade One-Way Repeated-Measures Analyses

The next set of analyses examined a seven (7) year reading progress trend to observe changes in TPRI composite means of the 37 participating campuses by grade level and by measure from 2006 to 2012. Four (4) one-way repeated-measures analyses were conducted for the first grade group. This part of the study first compared the 2006 TPRI assessment scores to 2009 and then compared 2009 TPRI scores to 2012. This examination allowed the researcher to visually determine the student reading performance trend over a seven year period.

The findings indicated that four out of the four TPRI measurements tested in first grade were significant.

1. There was a difference among the means for the phonemic awareness measurement in first grade across years.
2. There was a difference among the means for the graphophonemic measurement in first grade across years.
3. There was a difference among the means for the accuracy measurement in first grade across years.
4. There was a difference among the means for the comprehension measurement in first grade across years.

These set of analyses showed that there was a difference among the means for the phonemic awareness, graphophonemic, accuracy, and reading comprehension measurements in first grade. These results might suggest that Reading First students outperformed non-Reading First students in the four measurements: phonemic awareness, graphophonemics, accuracy, and

reading comprehension. Again, the results might suggest that the reading instructional practices used during the Reading First period were more effective than the practices used thereafter. The drop in scores during the non-Reading First years might indicate that changes made after the Reading First program were less effective. These campuses might need to revisit their reading programs to identify the changes that contributed to the decline in student performance. Possible factors that might have impacted the students' performance in the four measures might include shifts in implementation of new reading instructional programs and policies, teacher qualification, or changes in administration.

First grade phonemic awareness. The phonemic awareness mean ranged from 126.56 to 288.60, indicating that the variances were different from each other. The pairwise comparison report showed two significant pairs: (2008 & 2011) and (2011 & 2012).

The seven year trend of the first grade reading performance, as illustrated in Table 37, shows some gains and larger losses throughout the time period. The trend indicates that students' performance reached their highest point of the timeline in 2008 before beginning to gradually decline. Furthermore, it reflects that on an average, 81.92 percent of students met expectation in this measurement during the Reading First time period, and 76.23 percent of the students met the expectation after the end of the Reading First program. The drop in scores during the non-Reading First years might indicate that changes made after the Reading First program were less effective. The long trend results might be suggesting that the practices that teachers used to teach phonemic awareness to children in first grade during the Reading First time period were more effective than the reading practices used during the non-Reading First years. These campuses might need to revisit their reading programs to identify the changes that contributed to the decline in student performance. Possible factors that might have impacted the

students' performance in phonemic awareness may include shifts in implementation of new reading instructional programs and policies, teacher qualification, or changes in administration.

First grade graphophonemics. The graphophonemics measurement mean variances ranged from 58.52 to 195.16. These results indicated that the variances are different from each other. Six pairwise comparisons were significant: (2008 & 2010), (2008 & 2011), (2007 & 2010), (2009 & 2010), (2007 & 2011), (2008 & 2012).

Table 37 allows the reader to see the mean range and the trend in student performance over a seven year period. It shows that students made more gains in reading during the Reading First time period than after the Reading First time period. Furthermore, the trend indicates that students' performance reached their highest point of the timeline in 2008 before gradually declining. In 2010, the scores dropped to 79.38, a loss of 9.19 points. The average of mean scores were higher during the Reading First funding years (89.44) than those thereafter (81.86).

These findings might suggest that practices used during the Reading First practices were more effective than those used post-Reading First. The drop in scores during the non-Reading First years might indicate that changes made after the Reading First program were less effective. These campuses might need to revisit their reading programs to identify the changes that contributed to the decline in student performance. Possible factors that impacted the students' performance in phonemic awareness might include shifts in implementation of new reading instructional programs and policies, teacher qualification, or changes in administration.

First grade accuracy. The variances for the accuracy measurement ranged from 55.35 to 178.66, indicating that the variances were different from each other. The results of the pairwise comparison revealed that six pairs were significant. The significant comparison pairs

included (2008 & 2012), (2008 & 2010), (2008 & 2011), (2009 & 2011), (2009 & 2012) and (2006 & 2012).

Table 37 shows that students performed best in 2008 before declining steadily. Students performed 11.03 points lower in 2012 than 2006. The trend reflects that an average of 73.13 percent of student met expectation in this measurement during the Reading First time period, and an average of 63.22 percent of the students met the expectation after the end of the Reading First program. The drop in scores during the non-Reading First years might indicate that changes made after the Reading First program were less effective. These campuses might need to revisit their reading programs to identify the changes that contributed to the decline in student performance. Possible factors that might have impacted the students' performance in phonemic awareness might include shifts in implementation of new reading instructional programs and policies, teacher qualification, or changes in administration.

First grade reading comprehension. The Reading Comprehension measurement variances ranged from 98.80 to 301.37, indicating significant mean differences from each other. The results indicated that seven pairwise comparisons were significant: (2008 & 2011), (2009 & 2011), (2008 & 2012), (2007 & 2011), (2008 & 2010), (2009 & 2010) and (2009 & 2012).

The seven year trend for the reading comprehension measurement with the first grade group, as illustrated in Table 37, indicates that students' performance improved from 2006 to 2009 and dropped 7.94 points in 2010. The mean score in 2012 is lower than the mean score in 2006. The trend reflects that an average of 77.92 percent of student met expectation in this measurement during the Reading First time period, and an average of 70.7 percent of the students met the expectation after the end of the Reading First program. The long trend examination might be suggesting that the practices that teachers were using in first grade from

2006 to 2009 were effective and the changes made after the Reading First program were less effective.

Gamse, Jacob, Horst, Boulay, & Unlu (2008) found that Reading First produced a positive and statistically significant impact on the amount of instructional time spent on the five essential components of reading instruction promoted by the program in first grade: phonemic awareness, phonics, vocabulary, fluency and comprehension. The impact was equivalent to an effect size of 0.33 standard deviation in first grade. Although this study did not measure impact on the amount of instructional time spent on the five essential components of reading instruction, this study's findings are somewhat consistent with Gamse et al., (2008) findings in that significant results were found in this study among the means for the phonemic awareness, graphophonemics, accuracy, and comprehension between and among seven years in grade one. Although Gamse et al., (2008) found no consistent pattern of effects over the 2006 and 2009 time period, the findings from this study indicate that the students' performance pattern over the seven year period were larger during the Reading First time period than those of the post-Reading First time period.

Second Grade Results

Linear Regression of Reading Achievement and Two Factors

The first set of analyses involved two predictors (funding and campus size) and the TPRI composite score criterion. The composite TPRI score measured second grade achievement in graphophonemics, accuracy and reading comprehension collectively. Thirty-seven (37) campuses participated. The N= 259; the TPRI mean = 201.80; mean budget size = \$22,069.97; and the mean class size = 95.30. The findings of the linear regression analyses indicated that both conclusions were not significant.

1. Reading achievement in second grade was not a function of funding in the 37 campuses data set.
2. Reading achievement in second grade was not a function of campus size in the 37 campuses data set.

Table 40

Reading Achievement and Two Factors in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R ²	Adjusted R ²	P
Y ₁ reading	X ₁ X ₂	None	.04	.002	-.006	.80
	X ₁ budget	X ₂	.014	.000	-.004	.82
	X ₂ campus	X ₁	.04	.001	-.002	.54

* $p < .05$; ** $p < .01$

Table 41

Second Grade Mean Scores

Mean	<i>Reading First</i>					<i>Non-Reading First</i>			
	2006	2007	2008	2009	<i>RF Mean</i>	2010	2011	2012	<i>Non-RF Mean</i>
GK	58.57	61.92	*68.08	64.19	63.19	51.03	49.41	50.49	50.31
ACC	67.86	69.03	73.08	70.84	70.20	77.49	*77.81	74.38	76.56
RC	64.22	69.59	73.32	*73.59	70.18	72.97	73.11	71.57	72.55

*highest mean score

The findings indicated that reading achievement in second grade was not a function of funding or campus size. Table 41 might explain why the regression analyses determined that budget size was not a factor that impacted students' learning. Students' performance in all three measurements were marginal throughout the seven year time period in graphophonemics, accuracy, and reading comprehension. Student learning was not impacted because although children continued to make progress, more than 25% of the students did not meet the

performance standard with the accuracy and reading comprehension components and more than 50% of the students struggled with the graphophonemics measurement. The class size might have been interpreted as the campuses not having had met the optimum kindergarten class size; therefore, it was logical to conclude that campus size could not have been a factor that impacted student learning.

Linear Regression of Reading Achievement and Three Factors

Student achievement as criterion variable. The second set of analyses involved three predictors (funding, campus size, and implementation of Reading-First practices) and the TPRI composite score as the criterion. The implementation of reading research-based practices predictor was obtained from teacher survey responses. These set of analyses evaluated how well the size of budget, size of campus and the implementation practices predicted student achievement in reading in 17 campuses. The $N = 119$, the TPRI mean = 200.39; budget mean = \$22,068.33; campus size mean = 96.74, and practices mean = 47.39. The findings indicated three (3) not significant findings.

Table 42

Reading Achievement and Three Factors in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y ₁ reading	X ₁ X ₂ X ₃	None	.19	.04	.01	.22
	X ₁ budget	X ₂ , X ₃	.10	.01	.002	.28
	X ₂ campus	X ₁ , X ₃	.08	.01	-.003	.42
	X ₃ practices	X ₁ , X ₂	.02	.000	-.008	.86

* $p < .05$; ** $p < .01$

1. Reading achievement in second grade was not a function of funding in the 17 campus data set.

2. Reading achievement in second grade was not a function of campus size in the 17 campus data set.
3. Reading achievement in second grade was not a function of implementation practices in the 17 campus data set.

Findings one and two produced similar results as the linear regression of Reading Achievement and Two Factors in that the reading achievement was not a function of funding or campus size. The third finding indicated that the implementation of research-based reading practices in second grade was not a function of reading achievement.

As previously inferred, it might be concluded that reading achievement in second grade was not a function of funding, campus size or implementation practices because the students' performance in one or more of the measurements were marginal throughout the seven year time period. The class size might have been interpreted as the campuses not having had met the optimum second grade class size; therefore, it might be logical to conclude that campus size could not have been a factor that impacted student learning.

The third finding indicated that the reading achievement was not a function of the implementation of research-based reading practices in second grade. The indication that student achievement was not accounted for by the implementation of research-based reading practices might suggest that student learning was not impacted because the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements throughout the seven (7) year time period (see Table 41). Although children continued to make progress with the graphophonemics, accuracy, and reading comprehension measurements, more than 25% of the students did not meet the performance standard; therefore, it might be inferred that student learning was not impacted.

Implementation of research-based reading practices as criterion variable. The third set of analyses included the same variables as the second set. In these analyses, the predictors included funding, campus size, and student achievement and the criterion as the implementation of reading research-based practices. The third set of analyses evaluated how well the size of campus, size of budget and student achievement predicted the implementation of reading research-based practices in 17 campuses. The $N = 119$, the TPRI mean = 200.39; budget mean = \$22,068.33; campus size mean = 96.74, and practices mean = 47.39. The findings indicated one (1) significant finding and two (2) not significant findings.

Table 43

Implementation of Research-Based Reading Practices in Second Grade

Second Grade	Variables Include X	Variable Removed	R	R^2	Adjusted R^2	P
Y_1 practices	X_1 X_2 X_3	None	.68	.46	.44	**.000
	X_1 budget	X_2 , X_3	.65	.43	.42	**.000
	X_2 campus	X_1 , X_3	.03	.001	-.008	.77
	X_3 TPRI	X_1 , X_2	.02	.000	-.008	.86

* $p < .05$; ** $p < .01$

1. Implementation of research-based reading practices in second grade was a function of funding in the 17 campuses data set.
2. Implementation of research based reading practices in second grade was not a function of campus size in the 17 campus data set.
3. Implementation of research based reading practices in second grade was not a function of reading achievement in the 17 campus data set.

The first finding indicated that the implementation of research-based practices in second grade was a function of budget; however, it was not a function of campus size or student achievement. The size of budget was judged statistically significant, $p < .01$. The significant

findings might be interpreted to mean that teachers who completed the survey indicated that funding was important to implementing the research-based reading practices in their classrooms provided that they were supported with appropriate training and curricular resources.

The second finding indicated that reading achievement in second grade was not a function of campus size. The class size might be interpreted as the campuses in this sample not having met the optimum class size, therefore, campus size could not have been a factor that impacted student learning.

The third findings indicated that the implementation of research-based reading practices in second grade was not a function of reading achievement. These findings resonate the findings of the second set of analyses in which the findings indicated that student achievement was not accounted for by the implementation of research-based reading practices. The indication that student achievement was not accounted for by the implementation of research-based reading practices and vice-versa might suggest that student learning was not impacted because the TPRI composite scores of the participants in this sample were marginal in one or more of the measurements throughout the seven (7) year time period (see Table 41). Although children continued to make progress with the graphophonemics, accuracy, and reading comprehension measurements, more than 25% of the students did not meet the performance standard in accuracy and reading comprehension, and approximately 50% of the students did not meet the performance standard in graphophonemics; therefore, student learning was not impacted.

Second Grade One-Way Repeated-Measures Analyses

The one-way repeated-measure analyses indicated significance among the means of two measurements (graphophonemics and accuracy) and a not significant conclusion for the reading comprehension measurement with the second grade student group.

1. There was a difference among the means for the graphophonemic measurement in second grade across years.
2. There was a difference among the means for the accuracy measurement in second grade across years.
3. There was no difference among the means for the reading comprehension measurement in second grade across years.

Second grade graphophonemics. The standard deviations for the graphophonemics means ranged from 13.38 to 17.46. The variances ranged from 179.02 to 304.85, indicating that the variances were somewhat different from each other. Significant variances were noted in eight pairwise comparison. The comparison years that produced the smallest *p* values were (2008 & 2010), (2008 & 2011), (2008 & 2012), (2009 & 2010), (2009 & 2011), (2009 & 2012), (2007 & 2011), and (2007 & 2010).

The mean score trend as depicted by Table 41 shows that an average of 63.19 percent of students met expectations in graphophonemics during the Reading First years compared to an average of 50.31 percent during the non-Reading First years. The highest score was 68.08 in 2008; all other scores were below that mark. The drop in scores during the non-Reading First years might indicate that the procedures that teachers were using in second grade in graphophonemics from 2006 to 2009 were more effective than those used thereafter; the changes made were less effective. This might indicate that students in second grade struggled and continued to struggle with learning graphophonemic reading content.

Based on the statistical results, it might be determined that teachers were not successful in teaching graphophonemics to students; therefore, none of the factors could have contributed to teachers teaching children in second grade successfully. Teachers might benefit from scientific-

based training on vocabulary development and spelling strategies so that they may teach children effectively.

Second grade accuracy. The standard deviation for the accuracy means ranged from 9.10 to 13.68. The variances ranged from 82.81 to 187.14, indicating that the variances were different from each other. Five pairwise comparison analyses produced significant results. The biggest difference among the means were noted between these years: (2009 & 2011), (2006 & 2011), (2009 & 2010), (2007 & 2011), (2006 & 2010). It might be inferred that teachers have continued to make progress with this measure, even after the funding ended. However, it is important to note that 70.20 percent of the students met the standard in accuracy measurement during the Reading First time period compared to 76.56 percent meeting the standard during the non-Reading First years. This might suggest that although children continued to perform better with the accuracy component over time, more than 25% of the children in the study group did not meet the standard. Teachers could benefit from scientific-based training on accuracy strategies so that they may teach children to read accurately and fluently.

Second grade reading comprehension. The standard deviation for the reading comprehension means ranged from 9.47 to 17.14. The variances ranged from 89.68 to 293.78, indicating that the variances were different from each other. The results of the year pairwise comparison showed that none of the pairs were significant in evaluating the differences among the means.

The seven year trend for the reading comprehension measurement with the second grade group shows that students' performance continued to improve with fractional gains across the years. The trend reflects that 70.18 percent of the students met the standard during the Reading First time period; whereas, 72.55 percent of the student met the standard after the funding

ceased. This might suggest that the reading practices used during the Reading First time period and the practices currently in place have been somewhat effective in teaching reading comprehension strategies to children. However, it is important to note that less than 75% of the students have met the standard with the reading comprehension measurement.

Numerous researchers (Anderson and Nagy, 1992; Bramlett, 1994; Duffy, 1993; Pressley, 1998) found that many teachers might not have used effective comprehension instruction strategies because they themselves had not had the preparation in instruction. The NRP's research showed that students of teachers who participated in well-designed professional development activities produced better results (NICHD, 2000) than those who did not. Since the percent of students meeting the standard is low, it might be inferred that second grade teachers might benefit from research-based reading comprehension training.

Synopsis of the Research

These findings were fairly consistent with the findings of Gamse et al., (2008). In their study, Gamse et al., (2008) stated, "Reading First did not produce a statistically significant impact on student reading comprehension test scores in grades one, two or three" (p. v). This study produced significant results among the means for the comprehension measurement for first grade, but did not produce a significant result among the means for the reading comprehension measurement in second grade. Gamse et al. (2008), also found that a systematic decline in reading instruction impacted grade two over time. Similarly, this study found a systematic decline of the reading mean scores post-Reading-First (see Table 28).

A few differences exist between this study and the study conducted by Gamse et al. A primary difference between these two studies is the test used to measure student achievement. Gamse et al. used the Stanford Achievement Test 10, Reading Comprehension subtest to

measure student achievement while the researcher in this study used the Texas Primary Reading Inventory test to report student achievement results. The SAT-10 was given to students in grades one, two, and three while the TPRI was given to kindergarten, first, and second grade students. Gamse et al., multi-year study comprised of data collection over the course of three years: 2004-05, 2005-06, and 2006-07. This study's multi-year collection encompassed data collection over the course of seven years: 2006-07, 2007-08, 2008-09, 2009-10, 2010-11, 2011-12 and 2012-13.

The results of this study are consistent with Gamse et. al (2008) findings in that the eight measurements out ten performed better during the Reading First time period than post-Reading First. The seven groups/measurements who performed better during the Reading First time period than the post-Reading First time period were kindergarten phonemic awareness, kindergarten graphophonemics, first grade phonemic awareness, first grade graphophonemics, first grade accuracy, first grade reading comprehension, and second grade graphophonemics. The three groups who performed better post-Reading First included kindergarten listening comprehension, second grade accuracy, and second grade reading comprehension. Further research is needed to determine the factors that might have contributed to the groups' ability to maintain progress or improve in these measurements.

The reader is cautioned against making casual interpretations about the data presented. It is important to note that the original TPRI assessment format was revised in 2010, in particular with the Accuracy and Reading Comprehension measures. The composite reading scores might have been influenced by factors such as changes in student demographics, implementation of new programs and policies, teacher qualifications, shifts in assessment, changes in administration, and influx of student immigrants into the United States.

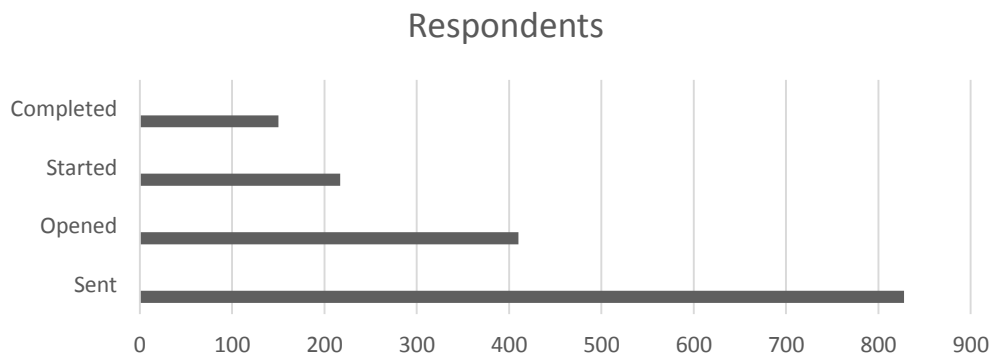
Limitations

Limitations to the study that may have negatively affected the results of the study included (1) superintendents' refusal to participate, (2) low rate of return on the surveys and bias responses, (3) lack of funding information, (4) modifications to the assessment, and (5) missing TPRI information.

As presented in Chapter III, the subjects in this study were purposive selected. The purposive sampling strategy used to conduct the study was based on an archived list of participating Reading First districts and campuses outlined in the Texas Education Agency Cycle 2, Year 1 Grant (2007) program. Out of the seven districts, two districts refused to participate in the study; thus, 10 campuses were lost from the initial study.

A second limitation may have been the low return rate of the surveys. The researcher sent out 848 surveys to teachers. As suggested by Gay, et al., (2009), the researcher compensated for the low return rate by sending follow-up reminders to the non-respondents. The final outcome of the survey is illustrated in Figure 2.

Figure 19. Survey Respondents



Out of the 848 surveys sent out, 410 (49%) of the e-mails were opened and 217 teachers started the survey. Out of the 217 that were started, 150 (69%) teachers completed the survey. Out of the 150 teacher responses, bias responses could have affected the results. Teachers could

have easily marked on a self-report what they know they should do rather than what they actually did.

Another factor that could have affected the study may have been the lack of funding information after the termination of the Reading First funding. The participating districts submitted Reading First Grant (2006-2009) financial expenditure summary reports with accuracy; however, the budgets allocated to campus after the termination of the grant were not as precise. To compensate for this, the researcher estimated the funds allocated to each campus by standardizing a dollar amount of \$50 per child and multiplying it by grade level size. These amounts were close estimates of the campus reading budget.

Still another factor that could have affected the study might have been the modifications made to the test. The original assessment format of the Texas Proficiency Reading Inventory (TPRI) was revised in 2010. The new instrument assessed an additional measurement in accuracy and an additional measurement in reading comprehension. For this study, the researcher used the Accuracy 1 and Reading Comprehension 1 scores for each of the data sets during the 2010 to 2012 time periods.

The final factor that could have affected the study may have been the exclusion of some campus from the study because of missing data. Three campuses from one of the districts were excluded from the analysis because they had two post RF years of TPRI data missing.

Implications for Practitioners: Funded Years vs. Non-funded Years

In 2011, after the funding was no longer available, the questions remained: What were the states' planned responses to Reading First budget reduction and which Reading First program elements did state-level staffs believe could be sustained beyond Reading First? Gamse et al., (2011) sought answers in their report entitled, *The Reading First Implementation Evaluation:*

Final Report. Results from interviews with RF directors, Title I directors, and reading representatives across the 54 states revealed that 50 percent of the directors reported that their state would be affected by the budget cuts and 50 percent reported that they would not be affected until the 2009-2010 school year or later. It is important to note that the states were at different points in the grant cycles when interviews were conducted because the Department of Education awarded funds to states on a “rolling basis” during the six-year grant cycle (Gamse et al., 2011, p. xiii).

According to Gamse et al. (2011), 33 percent of the RF directors reported that some RF elements could be sustained through inclusion in state standards or new early learning programs.

- Six of the 54 states reported plans to support additional RF cohorts.
- 67 percent of the states reported that they would need alternative sources of funding such to sustain elements of the program.
- 39% of RF directors stated it was unrealistic to sustain RF using other state funds due to financial shortfall in all aspects of the state budgets.

The states perception towards the anticipated federal budget cuts and the sustainability of specific Reading First practices varied. As reported above, some states reported efforts to integrate Reading First into ongoing existing reading programs while others predicted that Reading First would disappear once the funding was no longer available. The results of this study indicated that the campuses sustained their reading program with local funds. It is unclear if they used the limited funds to sustain previously learned Reading First practices or other alternative approaches.

This study’s results varied in comparison to Gamse et al., (2011) findings. According to the authors, 56% of the participants in their study claimed that the use of reading coaches was

worth sustaining. The findings in this study indicated that 52% of the campuses funded initiatives to keep a reading coach post-Reading First. According to Gamse et al., 76 percent of RF directors anticipated a reduction in state technical assistance and professional development. The teachers in this study reported that 42% had received professional development training in scientifically based reading strategies. According to Gamse et. al. (2011), 33 percent of the RF directors reported that some RF elements could be sustained through inclusion in state standards or new early learning programs. In this study, 46% reported that their schedule allowed for 90 minutes of uninterrupted reading, and 84% reported that their reading program included universal screening assessments that assisted teachers in identifying students who were struggling readers. According to Gamse et. al. (2011), thirty-nine percent (39%) of the directors stated that the Reading First curricula and thirty-five (35%) of the directors stated that the data driven instruction were worth sustaining. In this study, the curricula materials and the data driven instruction results were inconclusive. The design of the survey instrument did not allow the researcher to capture or compare the specific details of the curricula materials or the driven instruction used during and post Reading First. A qualitative design with focus groups and interviews might provide answers to this part of the inquiry.

This study has significance for educational and political leaders. It is of interest to policymakers such as board trustees, superintendents, and principals to identify the specific program elements that were effective in the time period 2006-2009. The findings provide educational leaders a better understanding of the key practices that are essential for reading success; thus, informed decisions on the budget and appropriate allocation of funds to support research based reading programs could be made. School administrators and teachers could use this information to determine if the research based instructional practices used during the

implementation of the Reading First program were effective enough for continuing implementation in their schools today.

Implications for Researchers

Both studies (Gamse et al., 2011; Gamse, et al., 2008) found that the elements of Reading First program worth sustaining included use of reading coaches, Reading First materials and curricula, data driven instruction, assessment, and scientifically based reading instruction. Based on this information, the researcher was guided by two questions: (1) Did the students from the formerly funded RF schools continue to make progress after the funding was discontinued and (2) did the teachers continue to use the RF practices after the monies were discontinued?

The answer lies in the findings. The researcher captured important information about each of the elements of the Reading First program listed above; however, more research is needed. For example, although 42% of the teachers stated that they received scientific based phonemic awareness instruction professional development in 2012; this research did not capture the specifics of the training. During the Reading First era, systematic SBRI professional training was developed at the state level and filtered down to Regional Education Service Centers and local schools. Unlike the Reading First program, the teacher survey showed that the majority of the training was provided by local personnel; only 7% claimed to have received state level assistance. More research is needed to clarify if the campuses that continued to perform well did so because they continued to use the strategies that they were trained to use or if they opted for a more effective alternative approach. A qualitative study that compares current instructional practices with the Reading First practices could help close this gap.

Summary

The linear regression findings led the researcher to the following conclusions. (1) Student achievement in reading was accounted for by funding in the kindergarten through second grade group and the first grade group but it was not accounted for in kindergarten or second grade. (2) The implementation of research-based practices were accounted for by budget in all groups: kindergarten, first, second, and kindergarten through second grade.

The one-way repeated-measure ANOVA was used to determine whether the student achievement mean scores varied significantly among a seven year period of time. The findings led the researcher to conclude that student achievement mean scores varied significantly in all but two measurements. The analysis indicated significance in Kindergarten listening comprehension; in first grade phonemic awareness, graphophonemics, accuracy, and reading comprehension; and in second grade graphophonemic, accuracy and reading comprehension measurements. The analysis indicated no significance with the Kindergarten phonemic awareness, and graphophonemics. Overall, the ANOVA of the collective group, Kindergarten through second grade, showed significance in all five measurements.

The information discovered through this study added to the existing body of knowledge of what is known about the Reading programs. This study provided a lens for readers to see that fewer students from five of the Rio Grande Valley school districts have met the passing standard in reading comprehension as measured by the Texas Primary Reading Inventory in the last three years in grades Kindergarten through second. These numbers suggest that many children made significant progress in learning to read during the implementation of the Reading First program. Today, the TPRI scores reflect that more children continue to struggle with learning to read.

The challenge falls to each school leader to identify those specific factors that contribute to the variance in their student achievement. A qualitative follow-up study focusing on interviews and focus groups could clarify this anonymity.

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APPENDIX A

APPENDIX A
LETTER TO SUPERINTENDENTS

July 18, 2013

Superintendent of Schools

I am a doctoral candidate at the University of Texas Pan American requesting your assistance with a study. I am interested in conducting an investigative study of Reading First schools in the Rio Grande Valley to determine if the variance in student achievement in grades kindergarten through third is accounted by implementation levels of Reading First practices and funding.

Your school district has been chosen for the study because eight of your campuses participated in the Reading First program, according to the Texas Education Agency Cycle 2, Year 1 Grant Program list. Attached is a list of the schools.

As you may already know, the federal government allocated millions of dollars to the states to implement scientific based research practices between the time period 2003 and 2008. The government began to decrease the funding in 2008 and eventually ceased the funding completely. Now that the Reading First funding is gone, it would be interesting to identify the Reading First practices that were worth sustaining in spite of the loss of funding.

With your permission, I would like to collect and gather data on the teachers experiences through an electronic survey. The teachers' participation will be solicited through their district's e-mail account. I am also requesting your permission to review the Texas Primary Reading Inventory (TPRI) results to compare longitudinal student achievement scores. Lastly, I am requesting your permission to review the dollar amounts awarded during the duration of the grants. The reports I am requesting to review are open records and do not breach confidentiality. All information gathered will be treated confidentially and will be securely stored.

This information is useful to educational leaders because it may offer insights on the schools' practices that could ultimately help educational leaders make informed decisions about their reading program.

I will provide you with the questionnaire designed to obtain information about the Reading program practices and a summary of the results of the survey so that you can examine the responses. Your permission to visit the campuses and speak to the principals is requested.

Enclosed are the consent form and self-addressed envelope for your convenience. The consent form must be printed on your letterhead. The signed consent form is required by the University of Texas Pan American Institutional Review Board. I will call your office next week to follow up on this request and perhaps schedule an appointment to visit with you so that we may discuss any questions or concerns that you may have about this study. Please feel free to call me at 956-358-0880 or e-mail me at mrodrigue69@utpa.edu.

Your support in this endeavor is sincerely appreciated.

Respectfully,

Maricela Salaiz

APPENDIX B

APPENDIX B

QUALTRICS SURVEY SUPERINTENDENT'S PERMISSION FORM

July 29, 2013

Maricela Salaiz
Edinburg, TX 78539
mrodrigue69@utpa.edu

RE: Educational Practices, Funding, and the
Implementation of a Reading First Program

Dear Maricela,

I am granting permission for you to conduct research at _____ Consolidated Independent School District as part of your UTPA research project: Educational Practices, Funding, and the Implementation of a Reading First Program. I understand that participants, teachers in grades Kindergarten through third grade, will be asked to complete a survey in order to obtain data needed for the study. All participant responses will be completely anonymous and confidential. All participant data will be coded to maintain anonymity.

In addition, I grant permission to you, Maricela Salaiz, to analyze the results of the study.

If you have any questions regarding site permission, please contact me at _____.

Sincerely,

Superintendent of Schools

APPENDIX C

APPENDIX C

SUPERINTENDENT'S CONSENT FORM

I, _____, Superintendent of _____ school district give permission to Maricela Salaiz to contact (1) campuses (recipients of the Reading First grant as outlined by the Texas Education Agency, Cycle 2, Year 1 Grant Program) to solicit teacher participation for a study regarding the implementation levels of the Reading First practices (2) assessment and/or curriculum departments to access Texas Primary Reading Inventory (TPRI) results (3) technology or PEIMS departments to synchronize e-mail accounts with Qualtrics software for the dissemination of teacher survey and (4) business office to access grant awards information.

Superintendent of Schools

Date

BIOGRAPHICAL SKETCH

Maria Maricela Rodriguez-Salaiz was born in Mercedes, Texas to Francisco V. Rodriguez and Luciana Perez-Rodriguez. She was the second of seven children: four sisters and two brothers. She married Richard Salaiz and together have a daughter, Lauren Ashley. Coming from humble beginnings, Maricela understood the cultural needs of Hispanic, economically-disadvantaged, migrant families first hand. Her quest for knowledge is evident in the numerous degrees and certifications she acquired. She earned a Doctorate in Education, a Bachelor of Business Administration, and a composite secondary Business Education certification from University of Texas - Pan American. Maricela also earned a Master of Science with certification in Mid-Management from the University of Texas - Kingsville, Counseling and Guidance certification from the University of Texas – San Antonio, and Vocational Counseling certification from Texas State University – San Marcos. She graduated from Edcouch-Elsa High School. Through hard work and perseverance, she managed to balance family, career, and education simultaneously. As a professional, she has carried out many different assignments: teacher, counselor, assistant principal, dean of instruction, and director of testing. She currently works as a part-time lecturer at the University of Texas Pan American and continues to work with the school community as an independent educational consultant and an external research evaluator.