



INSTRUCTIONAL LEADERSHIP: USING A RESEARCH APPROACH TO  
EVALUATE THE IMPACT OF A READING INTERVENTION PROGRAM

A Doctoral Thesis Presented to the  
Faculty of the College of Education  
University of Houston

In Partial Fulfillment  
of the Requirements for the Degree

Doctor of Education  
in Professional Leadership

by

John M. O'Hare

May, 2012

INSTRUCTIONAL LEADERSHIP: USING A RESEARCH APPROACH TO  
EVALUATE THE IMPACT OF A READING INTERVENTION PROGRAM

A Doctoral Thesis for the Degree  
Doctor of Education

by

John M. O'Hare

Approved by Doctoral Thesis Committee:

---

Angus J. MacNeil, Ph. D., Co-Chairperson

---

Steve Busch, Ed. D., Co-Chairperson

---

M. Wayne Emerson, Ed. D., Committee Member

---

Alex Torrez, Ph. D., Committee Member

---

Dr. Robert H. McPherson, Dean  
College of Education

May, 2012

## ACKNOWLEDGEMENTS

I extend my deep appreciation to each of the members who served on my dissertation committee for sharing their time, insight and expertise. Dr. Angus J. MacNeil, Dr. Steve Busch, Dr. M. Wayne Emerson and Dr. Alex Torrez have given generously of their time, encouragement and support throughout this process. I would also like to extend my appreciation to Dr. Doris Prater for her guidance and feedback and to Dr. Rayyan Amine for her advice on the finer points of quantitative statistics.

I thank my wife, Reagan, for her enduring patience, support, understanding and encouragement throughout this process. She has always brought out the best in me. I thank my sons, Michael, Noah and Riley, for their smiles, hugs and understanding.

I extend my thanks and appreciation to Gail Love for always having faith in me. I thank Joseph Ruiz for always seeing the best in me and pushing me to do more. And I thank Robert Bayard for inspiring me to begin this journey.

INSTRUCTIONAL LEADERSHIP: USING A RESEARCH APPROACH TO  
EVALUATE THE IMPACT OF A READING INTERVENTION PROGRAM

An Abstract  
of a Doctoral Thesis Presented to the  
Faculty of the College of Education  
University of Houston

In Partial Fulfillment  
of the Requirements for the Degree

Doctor of Education  
in Professional Leadership

by

John M. O'Hare

May, 2012

O'Hare, John O. "Instructional Leadership: Using a Research Approach to Evaluate the impact of a Reading Intervention Program." Unpublished Doctor of Education Thesis, University of Houston, May, 2012.

## ABSTRACT

Though campus principals must take on many leadership roles, their primary responsibility is to facilitate effective teaching and learning with the overall mission of enhancing student achievement. One way to provide instructional leadership is to evaluate and select effective instructional programs that align with campus goals of improving student achievement.

The primary objective of this study will be to evaluate the effect of the reading intervention program, READ 180, on the reading achievement of struggling intermediate school readers in grade eight in a Texas independent school district. The study will employ a quasi-experimental, non-equivalent control group design. A group of *ABC* ISD eighth grade students who participated in the READ 180 program are compared to a well-matched control group of students from other Texas school districts who participated in more traditional reading classes. Statistically significant differences between the treatment and control groups in reading achievement and other variables of interest are examined.

## TABLE OF CONTENTS

### Chapter

|  |     |
|--|-----|
| I. INTRODUCTION .....  | 1   |
| Background of the Study .....                                  | 3   |
| Statement of the Problem .....                                 | 9   |
| Research Questions .....                                       | 10  |
| Significance of the Study .....                                | 11  |
| Limitations of the Study .....                                 | 12  |
| Definition of Terms .....                                      | 13  |
| II. REVIEW OF THE LITERATURE .....                             | 15  |
| The Need for Effective Leadership to Address Achievement ..... | 19  |
| History of Literacy in the United States .....                 | 23  |
| The Need for Intervention .....                                | 26  |
| Improving Reading Fluency .....                                | 30  |
| Improving Reading Comprehension .....                          | 32  |
| The Slavin Synthesis Review .....                              | 38  |
| Relevant Research on READ 180 .....                            | 41  |
| III. METHODOLOGY .....   | 53  |
| Introduction .....   | 53  |
| Research Questions .....                                       | 53  |
| Population and Sample .....                                    | 54  |
| Instrumentation .....  | 59  |
| Procedure and Time Frame .....                                 | 64  |
| Data Analysis .....  | 65  |
| Scope and Limitations .....                                    | 69  |
| IV. ANALYSIS OF DATA AND RESULTS .....                         | 71  |
| Results for 2009-2010 School Year .....                        | 71  |
| Results for 2010-2011 School Year .....                        | 85  |
| Summary .....  | 99  |
| V. SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS .....            | 101 |
| Summary of Findings .....                                      | 101 |
| Conclusions .....  | 111 |
| Limitations .....  | 114 |
| Implications for Instructional Leadership .....                | 116 |
| Recommendations for Further Research .....                     | 121 |
| REFERENCES .....   | 123 |
| APPENDIX A .....   | 136 |

## LIST OF TABLES

| Table | Page   |
|-------|--|
| 1     | Descriptive Statistics on Demographic Variables for READ 180 for<br>2009-2010 ..... 72 |
| 2     | Skewness and Kurtosis Values for 2009-2010 . . . . . 74                                |
| 3     | Result of Independent Samples T-Test for 2009-2010 . . . . . 82                        |
| 4     | Logistic Regression Categorical Variables 2009-2010 . . . . . 83                       |
| 5     | Regression Model Summary 2009-2010. . . . . 83   |
| 6     | Logistic Regression Analysis 2009-2010 Cohort. . . . . 84                              |
| 7     | Descriptive Statistics on Demographic Variables for READ 180 for<br>2010-2011 ..... 86 |
| 8     | Skewness and Kurtosis Values for 2010-2011 . . . . . 88                                |
| 9     | Result of Independent Samples T-Test for 2010-2011 . . . . . 96                        |
| 10    | Logistic Regression Categorical Variables 2010-2011 . . . . . 97                       |
| 11    | Regression Model Summary 2010-2011. . . . . 97   |
| 12    | Logistic Regression Analysis 2010-2011 Cohort. . . . . 98                              |



## LIST OF FIGURES

| Figure  | Page |
|---|------|
| 1 Histogram of Intervention group . . . . .   | 74   |
| 2 Histogram of Control group . . . . .  | 75   |
| 3 Mean scores comparisons of pre/post-test differences scores . . . . .                                   | 76   |
| 4 Error bars of pre/post-test mean differences among all respondents . . . . .                            | 76   |
| 5 Mean scores comparisons of pre/post-test differences among the<br>Economically Disadvantaged . . . . .  | 77   |
| 6 Error bars of pre/post-test mean differences among the economically<br>disadvantaged . . . . .          | 78   |
| 7 Mean scores comparisons of pre/post-test differences among Hispanics . . . .                            | 79   |
| 8 Error bars of pre/post-test mean differences among Hispanics . . . . .                                  | 79   |
| 9 Mean scores comparisons of pre/post-test differences among African<br>Americans . . . . .               | 80   |
| 10 Error bars of pre/post-test mean differences among African Americans . . . .                           | 81   |
| 11 Histogram of Intervention group . . . . .  | 88   |
| 12 Histogram of Control group . . . . .   | 89   |
| 13 Mean scores comparisons of pre/post-test differences scores . . . . .                                  | 90   |
| 14 Error bars of pre/post-test mean differences among all respondents . . . . .                           | 90   |
| 15 Mean scores comparisons of pre/post-test differences among the<br>Economically Disadvantaged . . . . . | 91   |
| 16 Error bars of pre/post-test mean differences among the Economically<br>Disadvantaged . . . . .         | 92   |

| Figure |   | Page |
|--------|---|------|
| 17     | Mean scores comparisons of pre/post-test differences among Hispanics . . .                | 93   |
| 18     | Error bars of pre/post-test mean differences among Hispanics . . . . .                    | 93   |
| 19     | Mean scores comparisons of pre/post-test differences among African<br>Americans . . . . . | 94   |
| 20     | Error bars of pre/post-test mean differences among African Americans . . .                | 95   |

## CHAPTER I: INTRODUCTION

Kofi Anan, who served as the seventh Secretary General of the United Nations, wrote, “Acquiring literacy is an empowering process, enabling millions to enjoy access to knowledge and information which broadens horizons, increases opportunities and creates alternatives for building a better life” (Johnson, 2009, p. 1). Anan led an organization that strives to support struggling and developing nations across the globe. However, even the United States, one of the world’s most developed nations, struggles with acquiring literacy. In 2001, the passage of President George Bush’s No Child Left Behind Act strove to achieve national literacy with the Reading First initiative and a commitment to ensure that every child would be able to read by the end of his or her third grade year (U.S. Department of Education, 2002). President Bush’s legislation was a response to persistent achievement gaps between poor and minority students and their peers and to his belief that many of the neediest children in America were being left behind (U.S. Department of Education, 2002). The Reading First program offered competitive funding to recipients who would implement instructional strategies with a foundation in scientific reading research (No Child Left Behind Act, 2001).

It has been ten years since the passage of the No Child Left Behind Act and little progress has been made. According to the Nation’s Report Card released in 2009, the National Assessment of Educational Progress (NAEP) showed that about one quarter of eighth graders performed below the Basic level in reading (National Center for Education Statistics, 2009b). Furthermore, while the average eighth grade reading score in 2009 was one point higher than in 2007, it was the same as the average eighth grade reading

score in 1998 and was not consistently higher than any of the years in between (NCES, 2009b).

The NAEP reading study, which assessed 178,000 fourth graders and 160,000 eighth graders, also found that achievement gaps between racial/ethnic groups and socioeconomic groups have changed very little over the past ten years (NCES, 2009b). The Alliance for Excellent Education reported in 2003 that approximately six million of the nation's secondary school students read well below grade level (Alliance for Excellent Education, 2008). Data from the Scholastic Assessment Test (SAT) shows that, while verbal scores rose briefly in the early 1980s, the scores have essentially remained below 1960s levels ever since (NCES, 2009a). Other studies have also suggested that in recent history the level of literacy in the United States is not just stagnant, but it is actually declining (Chall, 1996). Reading scores on the ACT, for example, were lower in 2010 than they had been for the prior four years (ACT, 2010a). This coupled with the reported decline in newspaper reading and book reading in favor of increased television viewing, especially among children, creates a sense of alarm (Chall, 1996).

Since the 1950s when Hyman G. Rickover began testifying before Congress on the threat to the national interest, created by poor reading skills and poor educational preparation for the changing workplace, corporations and businesses have continued to express concerns that too many workers lack the reading skills needed for their jobs. Business and industry have had to bridge this gap by spending millions of their own dollars on instruction in technical reading and writing for employees (Chall 1996). There is a growing concern that today's students will not be prepared for the demands that will

be placed upon them in a workplace that is becoming more and more technical. Their failure to succeed places in jeopardy the global competitiveness of the nation.

### **Background of the Study**

The struggle to acquire literacy begins before students even enter the school house. Students who finish first grade with substandard reading skills rarely catch back up to their peers by the time they leave elementary school (Torgessen, 2002). Early reading problems can affect vocabulary growth (Cunningham & Stanovich, 1998). The development of reading comprehension strategies is also slowed (Brown, Palincsar, & Purcell, 1986). These effects can lower student's attitudes and motivation toward reading, further aggravating the problem (Oka & Paris, 1986). Biancarosa writes, "Each successive year in school, students need to gain an exponentially greater proportion of new knowledge by reading" (2005, p.17). The struggle to acquire literacy reaches the critical point in grades four through twelve where the demands for reading comprehension increase (Biancarosa, 2005). Failure to stay on grade level in reading greatly increases a student's chances of becoming a high school drop out (Biancarosa & Snow, 2004). Currently, one third of students who enter the ninth grade each year drop out of high school before graduation day (Alliance for Excellent Education, 2008).

While there have been numerous education reforms directed at improving the reading skills of students in the elementary grades, students in the middle and high school grades continue to stagnate or decline in reading achievement on every national and international measure (Alliance for Excellent Education, 2008). At the secondary level, low reading comprehension ability often prevents students from mastering multiple subjects (ACT, 2006). Struggling readers experience difficulty in text-heavy courses and

this often prevents them from attempting courses that are more academically challenging (ACT, 2006). There is a need for quality reading instruction in the middle and secondary grades to prevent even readers categorized as excellent in the elementary grades from falling behind (Biancarosa & Snow, 2004).

Functional literacy goes beyond just the ability to read on grade level. Reading is an essential component of college and workplace readiness. Of the high school graduates tested with the ACT in 2010, only fifty two percent were found to be ready for the reading requirements of college coursework (ACT, 2010b). Certain subpopulations, such as economically disadvantaged African American or Hispanic students, were found to be even far less likely to be prepared for collegiate level reading demands (Vitale & Schmeiser, 2006). Over ten percent of students who enter college after graduating high school are enrolled in remedial reading courses (Vitale & Schmeiser, 2006). Seventy percent of the students enrolled in remedial reading courses do not attain a college degree within eight years (ACT, 2006).

Poor reading skills can limit a person's opportunities throughout his or her lifetime. Torgessen puts it this way, "the demands for high levels of literacy are rapidly accelerating in our society. Clearly, children who become adults with low levels of literacy are at an increasing disadvantage in a society that is creating ever-higher demands for effective reading skills within the workplace" (2002, p. 8). Students take their reading deficits with them into the work place when they leave high school or college. Recent skills-gap surveys consistently reveal that a majority of businesses in America are facing a serious shortage of qualified employees (National Association of Manufacturers, 2009). Poor reading has been cited as a primary reason for this shortage

(ACT, 2006). In 2000, a survey found that when employers administered tests to their prospective employees to assess the applicant's qualifications, they found that thirty-eight percent of prospective employees did not have the required reading skills for the job (Center for Workforce Preparation, 2002). American companies, faced with a shortage of qualified employees, are spending time and resources to offer their own remedial education. The cost has been estimated in the billions of dollars. It was this threat to our nation's ability to compete in the global marketplace that prompted then President Bush to enact No Child Left Behind. NCLB is ten years old, and the threat still lies before us.

Recent reform efforts such as NCLB prompted changes and some success in improving early literacy in the primary grades has been documented (Biancarosa and Snow, 2004). However, fewer efforts have been made to make inroads in improving literacy at the middle and high school levels, and these efforts have met with limited success (Biancarosa & Snow, 2004). The need for more complex reading skills and the fact that reading is embedded into a variety of other subject matters make the task of improving literacy at the secondary level more challenging (Biancarosa & Snow, 2004).

### **Reading Improvement in Texas**

The state of Texas created the Texas Assessment of Knowledge and Skills in large part as a response to the call for increased accountability made by reform efforts such as NCLB. This system, referred to as the Student Success Initiative, is in alignment with NCLB and requires that all eighth grade students pass a reading TAKS test at the end of their eighth grade year in order to be promoted to the next grade level. Students who fail to pass the reading test are mandated to receive six weeks of accelerated reading instruction before taking a retest. Students who fail the retest are mandated for further

accelerated instruction before taking a second retest. Due to the short timelines for accelerated instruction between the retests, many school districts have begun to target students who failed to meet the passing standard on the seventh grade reading TAKS for accelerated reading instruction. The idea is to improve the reading achievement of these students so that they will meet the passing standard on the first administration of the eighth grade TAKS tests and thereby avoid any retesting altogether. No Child Left Behind stresses the need for research based programs that meet rigorous standards and provide reliable results (Simpson, LaCava, & Graner, 2004). The U.S. Department of Education has even established the What Works Clearinghouse (WWC) to promote the use of research based practice and to provide resources to educators. However, the WWC is a recent development, and its website includes a list of instructional resources that research shows have met with only limited success. As such, schools across Texas continue to implement a variety of programs for remedial reading instruction and accelerated reading instruction with each school and district selecting the program it determines to be best for its students. In 2011, the Texas state legislature began looking at a four billion dollar reduction in state funding for education. With money for education becoming scarce and many instructional programs at risk of losing funding, it is imperative for educational leaders in Texas to evaluate the effectiveness of their campus instructional programs.

School districts in the state have not yet succeeded in achieving the goals NCLB. In the recently released Nation's Report Card, the NAEP found that the average reading score for Texas students in 2009 was not significantly different from their average score in 2007, nor was it significantly different from their average score in 1998 (NCES,



2009c). The study showed that the achievement gap between students in Texas scoring at the 75<sup>th</sup> percentile and students in Texas scoring at the 25<sup>th</sup> percentile remained relatively unchanged when compared to the same achievement gap in 1998 (NCES, 2009c). The NAEP study also showed no significant difference in 2009 in percentage of students who scored below the basic level, achievement gap between black and white students, achievement gap between Hispanic and white students, and achievement gap between low income students and their peers when compared to the scores of Texas students in 1998 (NCES, 2009c).

### **The Role & Responsibility of the Campus Leader**

Against this backdrop of reading achievement gaps, uncertainty and unproven solutions, leadership from the campus principal is essential to solving the literacy crisis for middle school students. Today's school leaders are charged not only with implementing promising reform efforts but also with demonstrating improved academic performance for each student in their school (Gentilucci & Muto, 2007). The accountability mandate created by NCLB makes it necessary for principals to refocus their energies on raising student achievement, while still overseeing their responsibilities as school managers (Gentilucci & Muto, 2007). According to Kenneth Leithwood, for educators, "leadership is all about organizational improvement; more specifically, it is all about establishing widely agreed upon and worthwhile directions for the organization and doing whatever it takes to prod and support people to move in those directions" (Leithwood, Day, Sammons, Harris, & Hopkins, 2006, p.11). Though campus principals must take on many leadership roles, their primary responsibility is to "facilitate effective teaching and learning with the overall mission of enhancing student achievement"

(O'Donnell & White, 2005, p56). Sergiovanni goes as far as to state that campus principals are the foundation for instructional leadership at the campus level (1998). One way to provide instructional leadership is to evaluate and select effective instructional programs that align with campus goals of improving student achievement. These instructional choices should be made using a research-based approach. Leithwood states that “the field of educational leadership should focus a considerable proportion of its attention on best practices identified using research-based approaches. It should focus little or no attention on best practices identified through any other approach” (2008, p.73). With the research on effective reading intervention practices for secondary students in its infancy, campus leaders may need to conduct their own research on effective reading instruction in addition to seeking out the research of others.

### **READ 180**

The READ 180 program by Scholastic is one of several programs promoted by the What Works Clearinghouse. According to Scholastic, READ 180 was developed in cooperation by the Cognition and Technology Group at Vanderbilt University, the Orange County Literacy Project and Scholastic Inc. (Scholastic, 2008). The program is designed for elementary, middle and high school students who are struggling with reading. The program calls for students to be grouped in small groups of fifteen or fewer students and to receive ninety minutes of instruction per day. During the ninety minutes, each student starts with a twenty minute reading lesson and then rotates between three activity stations. The first activity station is computer assisted instruction. The computer assisted instruction portion includes videos about relevant topics. The students watch the videos and then read about content related to the video. The computer program engages

the student in questions that involve vocabulary development and reading comprehension. The second station is small group instruction with the teacher, and the third is independent reading using proscribed leveled paperbacks of a variety of genres.

### **Statement of the Problem**

The purpose of this study is to look at the value of the READ 180 program and analyze its effectiveness for improving the literacy of eighth grade learners in the *ABC* Independent School District. *ABC* ISD began using the READ 180 program in 2005 to provide accelerated reading instruction to students with identified reading deficits. Specifically, this study investigates the achievement gains for *ABC* ISD eighth grade students who participated in the READ 180 program during the 2009-2010 and 2010-2011 school years. These achievement gains will be compared to the achievement gains of a control group of students with comparable demographics and reading ability who did not participate in the READ 180 program during the 2009-2010 and 2010-2011 school years. Differences in achievement gains between subpopulations of the READ 180 group and the control group will also be compared. The reading achievement of African American students in the READ 180 group will be compared to the reading achievement of African American students in the control group. The reading achievement of Hispanic students in the READ 180 group will also be compared to the reading achievement of similar students in the control group. The reading achievement of high SES students and low SES students in the READ 180 group will be compared to the reading achievement of similar high SES students and similar low SES students in the control group. The results of this study will assist the leaders of the *ABC* Independent School district in making decisions regarding future accelerated reading instruction. The study will also

assist other school districts in the state of Texas with comparable demographics in their search for effective research-based reading programs that meet the needs of the Texas accountability system.

### **Research Questions**

What follows are the research questions for this study:

1. Does the READ 180 program have a statistically significant effect ( $p < .05$ ) on the reading achievement of eighth grade students when compared to similar students who do not participate in the READ 180 program?
2. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Economically Disadvantaged eighth grade students who participate in the READ 180 program when compared to similar Economically Disadvantaged students who did not participate in the READ 180 program?
3. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Hispanic eighth grade students who participate in the READ 180 program when compared to similar Hispanic students who did not participate in the READ 180 program?
4. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for African American eighth grade students who participate in the READ 180 program when compared to similar African American students who did not participate in the READ 180 program?
5. Will the effect size calculated for the READ 180 program's effect on student reading achievement in this study be lower than effect sizes calculated for READ

180 in other studies which used large limited English proficient (LEP) student populations?

### **Significance of the Study**

There is a need for a collection of effective research-based programs that educators in Texas and other states can select from to provide quality accelerated reading instruction to the targeted groups of students that require such assistance. While some research has been done on Scholastic's READ 180 program, the usefulness of a great portion of this research comes into question when the studies undergo closer examination. Several of the studies were conducted or commissioned by Scholastic and can not be considered impartial. Many of the research studies conducted did not use an experimental design or a quasi-experimental design with a control group. Studies that do include control groups often select student populations that are predominately made up of special needs students, limited English proficient students, students of low socio-economic status or students predominantly from one ethnic/racial subpopulation. It is difficult to generalize some of these results to a more homogeneous student population. Additionally, reading achievement gains from READ 180 documented for special needs students or limited English proficient students may be significantly higher or lower than the gains that could be experienced from READ 180 by a more homogenous population. After excluding the studies which concentrate on special or select student populations and the studies that did not utilize control groups, very little research on the READ180 program remains. This demonstrates the need for more research on the READ 180 program that uses a research design involving control groups and focuses on a more homogenous sample of students. Only with this research will educators in the state of

Texas and other similar states feel confident that the research results will generalize to the majority of the state's student population.

### **Limitations of the Study**

The design of this study is a quasi-experimental, non-equivalent control group design. The use of this design eliminates threats to internal validity caused by history, maturation, instrumentation or attrition. The students selected for the treatment group in this study were eighth grade students enrolled in the READ180 program in the *ABC* Independent School District. The students selected for the control group in this study were eighth grade students enrolled in three other Texas school districts where the READ 180 program was not in use. Archival data was used for this study. Given this method of selection, some threats to internal validity exist. As the groups were not randomly assigned, a differential selection threat, or a threat of initial differences in the two groups, exists. Efforts were made to match students in the treatment group with students in the control group in order to minimize the effects of this threat. Students were matched based on pretest score, ethnicity and economic status. Student achievement data from the Texas Assessment of Knowledge and Skills, or TAKS test, was used to measure reading achievement. The students' scores on the prior year's test were used for pretest data. Thus, the possibility of a testing effect exists as well. In order to minimize the effect of this threat, the pre-test data and post-test data were purposefully selected from two different administrations of the TAKS test that were administered with a significant amount of time in between - one calendar year. Additionally, the TAKS test was specifically selected because students in Texas are required to take this exam each year. It could be argued that any testing bias that existed could be mitigated by the fact that

most of these students had already taken a TAKS test each year for at least the past half dozen years.

Threats to external validity affect the extent to which the results of this study can be generalized. The selection of eighth grade students in the *ABC* Independent School District for the treatment group limits the generalizations that can be made from the results of this study. These results will be more applicable to eighth grade students in the state of Texas that reside in school districts with similar demographics to *ABC* I.S.D. The difference in class sizes between the treatment group and the control group is also a concern. The READ 180 program calls for class sizes of no more than eighteen students in order to be implemented with fidelity. The class sizes for the control group classes were closer to twenty-five students on the average. Finally, while every effort was made by *ABC* I.S.D. to ensure and maintain the fidelity of the READ 180 program, some differences in implementation may have existed. These factors should all be taken into account when generalizations are made using the results of this study.

### **Definition of Terms**

*Achievement gap* – The difference in reading achievement between subpopulations of a group of students. For the purpose of this study, achievement gaps between African American students and their white peers were considered, as were achievement gaps between Hispanic students and their white peers.

*Economically disadvantaged*- For the purposes of this study, Economically Disadvantaged students are those students who meet the requirements to qualify for the free and reduced lunch program in the state of Texas. The acronym, SES, will be used to stand for “Socio Economic Status.”

*Limited English proficient* – For the purposes of this study, limited English proficient students are students who meet the definition of limited English proficient as defined by Texas state law. Students are identified as limited English proficient (LEP) by the Language Proficiency Assessment Committee (LPAC) according to criteria established in the Texas Administrative Code.

*Minimum proficiency* – For the purposes of this study, minimum reading proficiency is defined by the minimum passing standard set by the Texas Education Agency for the reading TAKS test. Students who “meet expectations” on the reading TAKS will be considered to have minimum proficiency.

*Reading achievement*- For the purposes of this study, reading achievement will be defined using student scores and test data from the reading Texas Assessment of Knowledge and Skills test.

*Struggling readers*- For the purpose of this study, struggling readers will be defined as readers who failed to meet the passing standard on the reading Texas Assessment of Knowledge and Skills.



## CHAPTER II: REVIEW OF THE LITERATURE

Over the last half century, there has been rapid technological transformation in our society (Deane, 2004). The reading skills required to get a well paying, blue collar job in the 1960s are not sufficient for finding good work in the 21<sup>st</sup> century (Deane, 2004). The Alliance for Excellent Education published a report in 2002 that stated “no student with low literacy skills can graduate from high school prepared for college or a career” (Wise, 2009, p.369). In 2003, the Organization for Economic Cooperation and Development ranked the United States 15<sup>th</sup> out of 29 countries in the area of reading literacy (Wise, 2009). Cynthia Greenleaf and Kathleen Hinchman go so far as to describe the deplorable state of adolescent literacy in the United states as “an enormous human rights issue,” citing the impact that millions of illiterate eighth graders will have on the nation’s future and the global economy (2009, p.5).

Literacy is difficult to define, and its definition is not static. The United States Department of Education adopted the following definition of literacy in 2003: Literacy is defined as the ability to use "printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (NCES, 2003, p.2). This definition was also adopted by the American Library Association’s Committee on Literacy in 2005 (Deane, 2004). With this “new literacy”, it becomes even more important to take a hard look at what now defines a struggling adolescent reader. Old definitions and old programs may not be suitable for the 21<sup>st</sup> century, and, in fact, Paul Deane recommends in his article, *Literacy Redefined*, that every title published before 1990 should be discarded (2004).

A deeper look at the report from the Alliance for Excellent Education gives a clearer picture of today's struggling adolescent readers (Wise, 2009). The report stated that about six million middle and high school students read below grade level (Wise, 2009). However, only a small percentage (between five and ten percent) of these students were in need of "intense" or "massive" help to get them caught up (Wise, 2009, p. 369). These students were usually ninth graders that entered high school reading at only a second or third grade level who still experienced difficulty decoding words (Wise, 2009). The report also highlighted a second (and much larger) group of struggling readers who entered high school with a sixth or seventh grade reading level (Wise, 2009). This group had difficulty with reading fluency (Wise, 2009). Additionally, research suggests that a third group of struggling adolescent readers exists. This group of students enters high school either on grade level or close to grade level, but they lack the more advanced reading capabilities needed to be successful in today's more challenging high school courses (Biancarosa & Snow, 2004). These students often lack the comprehension and vocabulary skills necessary for tackling the increasingly technical and difficult texts of their math, science, history and English classes (Wise, 2009). The most shocking revelation of all, however, may be the discovery that many of these students were reading on grade level as late as the third grade (Biancarosa & Snow, 2004).

State and national policy writers have, for years, propagated the idea that the literacy problem in America could be solved by providing a strong reading foundation in the early years (Wise, 2009). In fact, early drafts of the 2001 No Child Left Behind Act, legislation targeting the nation's literacy crisis, mentioned high schools just twice (Wise, 2009). However, prominent researchers Gina Biancarosa and Catherine Snow note that

even excellent third grade readers can experience difficulty in the secondary grades if their reading instructional support is not continued (2004). While literacy levels in the elementary grades have climbed over the last three decades, the literacy levels of adolescents have remained the same (Wise, 2009).

Continuities and discontinuities in literacy development are experienced by today's students as they move from primary school to the middle grades (Kitson, 2011). This highlights the paradigm shift that is now occurring in reading education. While a strong foundation in the early years is important, it is essential to continue to intentionally build and support reading, writing and critical thinking skills through the secondary grades as well (Wise, 2009). Research shows that even as early as fourth grade, previously successful readers can begin to experience new comprehension difficulties in a phenomenon labeled the "fourth grade slump" (Chall & Jacobs, 2003, para.4). One possible explanation for this phenomenon could be the students' transition to Piaget's concrete operations stage of cognitive development (Kitson, 2011). The transition to this stage in which students can apply logical reasoning to solve concrete problems can often occur at the fourth grade year (Kitson, 2011). A successful transition to this stage would increase a student's reading comprehension abilities, but an unsuccessful transition could cause new difficulties and delay in literacy attainment (Kitson, 2011).

After fourth grade, students begin to read-to-learn, and they are exposed to longer, more varied reading materials that are more factual in nature, requiring underlying curriculum knowledge and containing more advanced vocabulary and more complex sentence structures (Kitson, 2011). Adolescent readers can usually sound out words and comprehend the literal meaning of what they read without difficulty (Greenleaf &

Hinchman, 2009). However, the reading difficulties of older students come in greater variety and usually in the harder to measure areas such as abstract comprehension (Greenleaf & Hinchman, 2009).

Today's adolescent readers must also know how to read-to-learn in the content areas as well as how to find and assess the value of information needed for school and the workplace (Kitson, 2011). Today's adolescent readers are "more likely to struggle with understanding needed vocabulary, background, or organization of arguments in texts they encounter in their day-to-day activities" (Greenleaf & Hinchman, 2009, p. 5). To achieve this "new literacy", today's struggling adolescent readers will need support in the secondary grades with reading fluency, vocabulary and comprehension skills beyond just the basics (Wise, 2009). Too often today's adolescent readers do not receive instruction to assist them in reading the increasingly complex texts of today's secondary curriculum (Greenleaf & Hinchman, 2009). Additionally, most secondary students engage in very limited sustained reading, engage in few discussions over what they have read, and spend little time on how to interpret or analyze texts (Greenleaf & Hinchman, 2009).

Support needs to be integrated across the curriculum in secondary schools, just as it is currently at the elementary level, and not just left to be the responsibility of the English teacher (Wise, 2009). However, too often the pressure felt by secondary teachers to cover a broad content efficiently causes teachers to simply explain text content to students rather than allow the student to read and comprehend the text individually (Greenleaf & Hinchman, 2009). The paradigm shift in literacy attainment focusing on the secondary grades has gained national attention. In 2006, with the encouragement of President Bush, the Striving Readers program was started (Wise, 2009). This pilot

program endeavored to fund successful secondary programs that addressed adolescent literacy (Wise, 2009). This movement is still in its early stages, and research on effective programs geared toward the newly defined adolescent illiterates remains minimal.

### **The Need for Effective Leadership to Address Achievement**

When it comes to improving literacy in America, leadership matters. Research shows that there is a significant, positive correlation between students' achievement and school leadership with an average effect size between leadership and student achievement of 0.25 and with some studies reporting effect sizes as high as 0.50 (Waters, Marzano, & McNulty, 2005). Leadership explains five to seven percent of the difference in pupil learning and achievement across schools, with this difference accounting for about one quarter of the total difference across schools (Leithwood, Harris, & Hopkins, 2008). This places school leadership as second only to classroom teaching in the ability to influence student learning (Leithwood et al., 2008).

Marzano, Waters and McNulty analyzed seventy studies on educational leadership and identified twenty-one key areas of responsibility that were found to positively correlate with increased student achievement (2005). Direct involvement with curriculum design and implementation, monitoring the effectiveness and impact of school practices or programs, providing teachers with needed resources for instruction, and possessing knowledge of the curriculum and the instructional program were just some of these identified key areas (Waters et al., 2004). West, Ainscow and Stanford surveyed head teachers in thirty-four secondary schools and identified four leadership strategies as having the most success in raising student achievement (2005). The strategies were changing school culture, a focus on teaching and learning, using data in a purposeful

way, and reviewing the school data (West, Ainscow, & Stanford, 2005). In a study of over three hundred schools conducted by the Education Trust, researchers found tracking student progress, increasing emphasis on achieving basic skills in math and reading, and the purposeful use of student data to be among the leadership practices that were especially effective with low-income background student populations (The Education Trust, 1999). A research report put out by the National College for School Leadership reviewed research summaries from the previous three years and identified four broad categories of core practices of successful school leadership (Leithwood et al., 2006). The four categories identified were setting directions, developing people, redesigning the organization and managing the instructional program (Leithwood et al., 2006).

Leithwood summarizes the relationship between leadership and achievement by stating that “leadership is about direction and influence”, and, while stability is the goal of management, “improvement is the goal of leadership” (Leithwood et al., 2006, p. 11). Schools with more challenging environments will have an even greater need for a leadership focus on teaching and learning (West et al., 2005). In order to improve student achievement, school leaders should “know strong instruction when they see it, know how to encourage it when they do not and know how to set conditions for continuous academic learning among their teaching staff” (Stein & Spillane, 2005, p.44). Given this research, it would seem that the practices of reviewing data and research on a reading instructional program, selecting an appropriate reading instructional program, and conducting ongoing evaluations of the effectiveness of the reading instruction program would all be considered essential and effective leadership strategies for improving student reading achievement.

## **Instructional & Transformational Leadership**

Over the years, school leadership has been categorized, redefined and re-envisioned with labels such as instructional leadership, transformational leadership, moral leadership, constructivist leadership, or primal leadership (Goleman, Boyatzis, & McKee, 2002; Leithwood, et al. 2006). Some of these qualify as bonafide leadership theories, while others are just slogans (Leithwood et al., 2006). In an effort to explore the principal's contribution to school effectiveness, Phillip Hallinger and Ronald Heck conducted a large scale literature review of research from 1980 to 1995 that focused on the relationship between principal leadership and student achievement (1998). The review considered both direct leadership effects on student achievement and indirect leadership effects (effects mediated by other persons) on student achievement (Hallinger & Heck, 1998). The review found that two major conceptual models of school leadership dominated the fifteen years of research: instructional leadership and transformational leadership (Hallinger & Heck, 1998). The review found that through instructional and transformational leadership, principals "exercise a measurable, though indirect effect on school effectiveness and student achievement", and that, "while this effect is relatively small, it is statistically significant and meaningful" ( Hallinger & Heck, 1998, p. 186).

Over the past several decades, the definition of instructional leadership has evolved (O'Donnell & White, 2005). Research in the 1980's identified instructional leadership as "strong, directive leadership focused on curriculum and instruction" (Hallinger, 2003, p. 329; Edmonds, 1979; Leithwood & Montgomery, 1982). By the 1990's two views, a broad view of instructional leadership and a narrow view of instructional leadership, had emerged (O'Donnell & White, 2005; Sheppard, 1996). In

the narrow view, instructional leadership is a stand-alone component of a principal's actions which encompasses actions that directly impact curriculum, instruction, staff supervision and staff development (O'Donnell & White, 2005; Leithwood, 1994; Murphy, 1988). In the broad view, principal instructional leadership encompasses any actions that have an impact on student learning (O'Donnell & White, 2005; Donmoyer & Wagstaff, 1990; Murphy, 1988). Currently, the most popular concept of instructional leadership is a three part model developed by Hallinger which states that "defining the school's mission, managing the instructional program, and promoting a positive school-learning climate" are the primary actions of an instructional leader (Hallinger, 2003, p. 332).

Instructional leadership fell out of fashion in the 1990's when it was believed the leadership model focused too heavily on the principal as the center of authority and expertise (Hallinger, 2003). Transformational leadership then eclipsed instructional leadership as the conceptual model of choice (Hallinger, 2003). However, as Hallinger notes, it is an idea that refuses to go away (Louis, Dretzke, & Wahlstrom, 2010; Hallinger, 2005). However, recent research promotes the notion that instructional leadership used in concert with transformational leadership may lead to greater gains in student achievement (Hallinger, 2003). In a recent study using teacher surveys from a research project funded by the Wallace Foundation, thousands of teachers were surveyed from 2005 to 2008 over principal leadership (Louis et al., 2010). The study found that instructional leadership practices do have a significant effect on student achievement, but this effect is often indirect and mediated by the principal's ability to effect instruction through interactions with teachers in professional learning communities (Louis et al., 2010). The researchers also found instructional leadership to have a greater effect in



elementary schools than in secondary schools where the broader curriculum made it more difficult for the principal to manage alone (Louis et al, 2010). The study concluded that both instructional leadership and shared leadership have an impact on student achievement, and that these leadership concepts, though often regarded as competing, were most effective when used together (Louis et al., 2010).

School principals are expected to have a firm grasp of the essential elements of quality instruction and to have a working knowledge of the curriculum that will enable them to ensure that the appropriate content is being offered to the students (Marzano, et al., 2005; Louis et al., 2010). Some stress the impact that a principal's complete understanding of curriculum, content, and instructional resources can have on a school (Stein & Nelson, 2003; Louis et al., 2010). Other researchers place higher value on the principal's role in supporting and improving instruction (Leithwood, 2001; O'Donnell & White, 2005; Louis et al., 2010). The value and need for instructional leadership persists as research demonstrates the existence of an ever increasing pressure on school principals to promote, deliver and support quality instruction, because this principal support has been shown to make a difference (Hallinger, 2005; Louis et al., 2010).

### **History of Literacy in the United States**

In order to understand the present literacy crisis as well as the new literacy needed for the 21<sup>st</sup> century, it is useful to consider the historical development of literacy in the United States. It is difficult to isolate changes in literacy demanded by American society from individuals (Mikulecky, 1986). However, one helpful method is to look at what the American people were reading during certain time periods in history and to consider why the citizens were reading it (Mikulecky, 1986). Using this method, it can be stated that

the American public concerned themselves with five standards of literacy between the year 1800 and the year 1980 (Myers, 1986).

The first standard was oral literacy (Myers, 1986). Citizens meeting this standard could speak the English language with fluency. The second standard was “signature literacy” (Myers, 1986, p. 2). Citizens meeting this standard could sign their name legibly. Prior to 1840 when citizens were asked to self report their level of literacy in the U.S. Census, signatures on public documents like contracts or deeds provide the only widespread data on literacy levels (Kaestle & Steadman, 1986). By the middle of the 1800’s records of ownership, claims and property began to be kept and contracted regularly, making signature literacy essential for American citizens (Myers, 1986). At the arrival of the Civil War, most native-born American whites were counted as literate by this standard (Kaestle & Steadman, 1986). The third standard of literacy was “recitation literacy” (Myers, 1986, p.3). The need for recitation literacy in America began after 1880 (Myers, 1986). The rise of immigration into the United States created the need for a higher level of literacy to assimilate large quantities of immigrants into American culture (Mikulecky, 1986). In 1880, “white male and female census illiteracy rates were less than 2 percent apart, at 8.6 and 10.2 percent respectively,” while “among nonwhites, 67.3 percent of males and 72.7 percent of females stated they were illiterate” with about 12 percent of foreign-born whites responding that they were illiterate in any language (Kaestle & Steadman, 1986, p.4). Having citizens and prospective citizens, young and old, implement the regular recitation of texts that made up the core of the American culture helped to achieve this assimilation (Myers, 1986). Recitation literacy still persists in public schools today with the daily reading of the Pledge of Allegiance.

Major wars bring with them the need for increased literacy in order to enhance military performance (Mikulecky, 1986). After 1915, the advent of World War I and the need to communicate in a standard way with army soldiers from all over America pushed citizens of the United States toward a higher standard of literacy (Myers, 1986). Using “sign literacy”, citizens could recite and read the alphabet and recognize simple sight words and pictures (Myers, 1986, p.3). These citizens could match letter groups to sounds and read unfamiliar texts (Myers, 1986). The fifth standard of literacy, comprehension literacy, became necessary at the dawn of the Cold War in the late 1950’s (Myers, 1986). In order to remain globally competitive, all American students would need to be able read and understand both familiar and unfamiliar texts in context and relate the meaning of these texts to their own lives and experiences (Myers, 1986).

Each of the stages built upon the next and the passage from each stage to the next marked important advances in American history (Myers, 1986). As America moved through each standard of literacy, the American school and its focus changed to adjust (Myers, 1986). By the late 1980’s, the proliferation of media through television, print, radio, and the computer pushed America to a higher standard of literacy, “inferential literacy” (Myers, 1986, p.8). With information coming at them from so many sources and in increasing volume, the American citizen now needed to not only be able to read and comprehend, but also to consider such elements as author bias, the validity and source of information, sarcasm, intended audience and inference (Myers, 1986).

The skills needed to be “literate” in America have changed rapidly, even during the time period of a single life span; so much so,, that only a small fraction of America’s population in 1910 would be considered literate by the modern standards (Mikulecky,

1986). Today's students must meet a far higher standard of literacy and achieve this standard in a much shorter time span than their ancestors. Two persistent factors, that data suggest have historically hindered literacy acquisition in America, are economic status and race/ethnicity (Mikulecky, 1986). In 1998, the NAEP began a longitudinal literacy study with a group of kindergarten students and tracked them through fifth grade (Barton, 2003). The most disturbing result of the study was that the differences in reading ability that existed between racial and ethnic groups prior to entering kindergarten persisted all the way through the fourth grade (Barton, 2003). African American and Hispanic students began kindergarten behind their white and Asian peers and remained behind through the years of public education (Barton, 2003). When considering the economic factor, the result is similar. Not only do poor students and minority students begin behind in reading ability and remain behind their peers in reading ability as school progresses, but these differences in literacy translate directly into inequality in the labor market as well (Barton, 2003). P.E. Barton highlights this relationship between literacy and the labor market when he states, "The market rewards literacy skills: whatever the level of education, weekly wages increase as the level of literacy advances" (2003). In addition, literacy attainment in America directly affects voting patterns, with ninety percent of adults at the highest literacy level reporting regular voting compared to just fifty percent of adults at the lowest level regularly exercising their right to vote (Barton, 2003).

### **The Need for Intervention**

Historically, the definition of literacy has shifted in America. Today, the level of literacy necessary to be a thriving, productive citizen has become more difficult to attain,

particularly for adolescents. Since the announcement of the literacy crisis, education groups and reformers in America have been creating reading intervention programs aimed at improving reading comprehension and fluency and evaluating the effectiveness of these programs. More recently, these efforts have begun to focus specifically on the literacy attainment of adolescents.

Children who are slower to acquire reading skills than their peers are at-risk for reading failure (Foorman & Torgessen, 2001). These students still need to obtain the same reading skill set as their peers to become good, literate readers (Foorman & Torgessen, 2001). However, these at-risk students will have different instructional needs (Foorman & Torgessen, 2001). Joseph Torgessen, a leading researcher on reading intervention, believes that “instruction for children who have difficulties learning to read must be more explicit and comprehensive, more intensive, and more supportive than instruction required by the majority of children” (Foorman & Torgessen, 2001, p. 206). For Torgessen, preventing reading failure in children goes beyond simply providing more effective classroom instruction (2000). At-risk children will require instructional interventions that surpass the limits of a regular classroom teacher (Torgessen, 2000).

Many at-risk children come to school in the very beginning with deficits, and these reading difficulties can be categorized into two main groups (Foorman & Torgessen, 2001). Some children enter school with “adequate general verbal ability and cognitive weaknesses limited to the phonological/language domain” (Foorman & Torgessen, 2001, p.207). To put it simply, these children have difficulty in reading fluency and in reading print words accurately (Foorman & Torgessen, 2001). The other group of students, coming from families that are predominately low socioeconomic or

minority status, begin school with deficits in “prereading skills” (Foorman & Torgessen, 2001, p.207). These students have difficulty in reading comprehension and pre-knowledge necessary to understand and read printed words (Foorman & Torgessen, 2001).

Older struggling readers, who may have received sound instruction in the early grades, will also find that their difficulties fall into the two categories of reading fluency or reading comprehension (Roberts, Torgessen, Boardman, & Scammacca, 2008). For older struggling readers, “comprehension difficulties are complex and may relate to inadequate vocabulary or conceptual knowledge, weak reasoning or inferential skills, or an inability to apply active comprehension strategies” (Roberts et al., 2008, p.63).

Whether children or adolescents experience fluency or comprehension problems, they will require intentional support if they are to make up lost ground and progress with their peers (Foorman & Torgessen, 2001). Torgessen contends that the type of instruction that these students will require is similar regardless of whether the children’s weaknesses are a result of neurobiological factors, genetics, environment or home culture (Foorman & Torgessen, 2001). Additionally, the extra instruction needed for students who enter school with deficits is also needed for older struggling readers who have received insufficient early reading instruction (Roberts et al., 2008).

Students at risk for reading failure need instruction that is more “phonemically explicit” than the instruction received by their peers (Foorman & Torgessen, 2001, p.208). These students need to be given “direct, systematic, and comprehensive instruction to build phonemic awareness and phonemic decoding skills” (Foorman & Torgessen, 2001, p. 208). Research demonstrates that this type of explicit instruction

produces strong growth in word reading ability (Torgessen, Wagner, Rashotte, Rose, Lindamood, Conway, & Garvin, 1999). Results reported by Brown and Felton (1990), Hatcher, Hulme and Ellis (1994), and Iversen and Tunmer (1993) similarly provide evidence of the clear benefits of phonemically explicit instruction (Foorman & Torgessen, 2001). Explicit instruction in knowledge and skills, aimed at supporting reading accuracy and fluency, needs to be paired with explicit instruction in other language and reading skills that support good reading comprehension (Foorman & Torgessen, 2001).

Torgessen and Foorman state that in order to be effective, this instruction must also be more intensive (2001). The two ways to increase intensity are increasing total instructional time or providing reading instruction in small groups (Foorman & Torgessen, 2001). Research shows that increasing instructional intensity through grouping delivers consistently positive effects (Elbaum, Vaughn, Hughes, & Moody, 1999). Small group instruction is not only effective for early readers, but it is also an effective instructional tool for allowing older struggling readers to catch up in critical reading skills (Roberts, et al., 2008). Additionally, research has demonstrated that small group instruction can yield positive effects similar to the positive effects experienced with one-on-one instruction (Elbaum et al., 1999). To address the needs of children at risk for reading failure (whether these children present with deficits in fluency or comprehension), explicit, intensive and supportive instruction needs to be provided by the school (Foorman & Torgessen, 2001).

### **Improving Reading Fluency**

Reading fluency is the measure of a student's speed and success in using accurate decoding skills to process words from a printed page. Once a neglected component of reading instruction, reading fluency has most recently been stressed in reading remediation, targeting older struggling readers (Dudley, 2005). While successful readers can correctly read 120 to 170 words per minute, struggling readers read at a slower pace and expend much more effort, often laboring over difficult or unfamiliar words (Archer, Gleason, & Vachon, 2003; Osborn, Lehr, & Hiebert, 2003; Tindal, Hasbrouk, & Jones, 2005). Additionally, while average readers may read 100,000 to 1,000,000 words per year, struggling readers read as few as 10,000 (Nagy & Anderson, 1984). This allows average readers to continue to make gains over struggling readers in background knowledge and vocabulary (Dudley, 2005). Successful readers' recognition of most words in the text is automatic (Archer et al., 2003; Osborn et al., 2003). Struggling readers, however, "have less developed sight word repertoires, read less fluently, and understand less of what they read" (Roberts et al., 2008, p.65).

In 2007, Scammacca, Roberts, Vaughn, Edmonds, Wexler and Reuterbuch performed a meta-analysis on research concerning reading interventions. The review found that reading fluency interventions using repeated oral reading (repeatedly reading aloud the same passage) had a limited effect on improving a struggling reader's reading rate and accuracy with  $g=.26$ ,  $n=4$ , 95 percent CI=-.0.8, .61(Scammacca, Roberts, Vaughn, Edmonds, Wexler & Reuterbach, 2007). Numerous studies exist demonstrating that repeated reading of the same passage or repeated oral reading causes some improved reading fluency (Roberts, et al., 2008). However, these fluency gains disappear when the



student is presented a new, unfamiliar passage that contains different vocabulary (Rashotte & Torgessen, 1985).

While older struggling readers can make fluency gains made from repeated oral reading, similar gains can also be made through reading a wide variety of non-repetitive texts with a focus on increasing reading speed and word identification (Homan, Klesius, & Hite, 1993). Significant gains in reading fluency have been demonstrated using interventions that focus on teaching fluency through instruction in phonics, instruction in sight phrases and instruction in oral reading (Mercer, Campbell, Miller, Mercer, & Lane, 2000). In 2000, a study was completed using the Great Leaps Reading Program with three groups of learning disabled students receiving the program for three different lengths of time (Mercer, et al., 2000). Middle school students were given daily one-on-one sessions of fluency instruction that lasted five to six minutes (Mercer, et al., 2000). This experimental pre-test/post-test three-group design reported effect sizes of 1.52, 1.55 and 2.42 when looking at the effect of the reading intervention on curriculum based measurement scores (Mercer, et al., 2000). The study concluded that specific reading fluency instruction should be considered as a viable intervention for older students who have reading problems (Mercer, et al., 2000).

The purpose of reading fluency instruction should be to provide reading practice, to increase the student's reading rate and to increase the student's reading accuracy (Dudley, 2005). There is a close relationship between reading fluency and reading comprehension, with research demonstrating that "increasing a student's reading fluency at his or her independent reading level will heighten the student's reading comprehension

on independent-level texts and it may increase the student's reading fluency on instructional-level and grade-level texts" (Dudley, 2005, p. 20).

### **Improving Reading Comprehension**

Reading comprehension difficulties are complicated and may be caused by poor vocabulary development, poor background knowledge or weak reasoning or inferential skills (Roberts et al., 2008). Successful readers self-monitor their understanding by creating links between new text and prior knowledge (Roberts et al., 2008). Additionally, when strong readers encounter comprehension difficulty, they utilize appropriate strategies such as adjusting their reading rate or selectively rereading difficult passages (Roberts et al., 2008). Struggling readers often fail to access or fail to possess prior knowledge that supports new text they encounter, or they may access incorrect or unrelated information (Roberts et al., 2008). Teacher assistance in previewing key concepts and predicting with pre-passage and post-passage reading has been shown to be effective in improving the ability of struggling readers to make connections (Boyle, 1996). Additionally, graphic organizers can be used to preview important information before reading as well as to assist students in accessing and organizing prior knowledge (DiCecco & Gleason, 2002).

Struggling readers also often fail to self-monitor their understanding (Roberts et al., 2008). Using comprehension monitoring strategies is important because it allows struggling readers to track and identify areas where understanding breaks down as they read (Roberts et al., 2008). Some common comprehension monitoring strategies include re-reading difficult passages, re-stating pieces of the text in the reader's own words, using context clues and using decoding skills to identify unknown vocabulary (Klingner,

Vaughn, & Boardman, 2007). Targeted intervention in these areas, as well as providing comprehension strategy instruction throughout the school day in the content areas, is beneficial for older struggling readers (Roberts et al., 2008).

### **Importance of Explicit Reading Comprehension Instruction**

Genevieve Manset-Williamson and Jason Nelson conducted a research study focusing on the explicitness of reading comprehension instruction with upper elementary and middle school students (2005). These two researchers believe that “comprehension is reading”, and that “students must decode and know the meaning of words in order to comprehend what they read” (Manset-Williamson & Nelson, 2005, p.61). Manset-Williamson and Nelson recognize a gap in our understanding of best practices for teaching older struggling readers to comprehend what they read (2005). The study uses twenty-one students from grades four through eight who read at least two years below their expected grade level (Manset-Williamson & Nelson, 2005). Students with emotional disorders, behavior disorders, autism, hearing disorders, vision impairments, as well as students for whom English was a second language were excluded from the study (Manset-Williamson & Nelson, 2005). The students were randomly assigned to two groups (Manset-Williamson & Nelson, 2005). Each group was provided with a supplemental, strategic reading intervention that focused on decoding, fluency and reading comprehension (Manset-Williamson & Nelson, 2005). However, the groups differed in the degree of explicitness of the reading comprehension strategy instruction (Manset-Williamson & Nelson, 2005).

Each group received one-on-one tutoring four days per week for one hour per day over a six week period provided by trained tutors in a community based reading clinic

(Manset-Williamson & Nelson, 2005). Reading comprehension was measured using the WJ-3 Reading Fluency subtest by having students orally recall main ideas in an expository passage and by having students answer multiple choice questions over an expository passage (Manset-Williamson & Nelson, 2005). The study found that the students receiving more explicit reading comprehension instruction outperformed the students in the control group on oral retell quality,  $F(1,17)=4.792, p<.05, d=.91$ , and main idea identification,  $F(1,17)=5.763, p<.05, d=1.07$ , with both effect sizes being large (Manset-Williamson & Nelson, 2005). No significant difference between the groups was found on the multiple choice test,  $F(1,17)=1.01, p<.05, d=.44$  (Manset-Williamson & Nelson, 2005). The study concluded that “the more explicit the comprehension strategy and self-regulatory instruction, the higher the likelihood that older children with reading difficulties will make significant gains in reading comprehension” (Manset-Williamson & Nelson, 2005, p. 71).

### **Wanzek Synthesis Study**

In 2010, Jeanne Wanzek, Jade Wexler, Sharon Vaughn and Stephen Ciullo published a synthesis review of twenty years of research over reading interventions for struggling readers in the upper elementary grades. The group collected studies that focused on groups of fourth and fifth grade students with reading difficulties and reading disabilities (Wanzek, Wexler, Vaughn, & Ciullo, 2010). Fourth and fifth grade students have been shown to be more similar to secondary students than elementary students when it comes to literacy instruction (Kamil, M.L., Borman, G.D., Dole, J., Kral, C.C., Salinger, T., Torgessen, J., 2008). Additionally, longitudinal studies have shown that student progress in reading comprehension at the end of the fifth grade largely determines

their reading comprehension progress in the seventh grade (Mancilla-Martinez, Kieffer, Biancarosa, Christodoulou, & Snow, 2011).

Evidence from a previous synthesis study published in 2009 by Edmonds, Vaughn, Wexler, Reutebauch, Cable and Tackett had shown that fourth and fifth grade students could benefit from reading interventions designed to meet the needs of struggling readers in grades six through twelve (Wanzek et al., 2010). This earlier synthesis of thirteen experimental and quasi-experimental studies showed positive reading outcomes for older struggling readers when explicit instruction was given in strategies for decoding words, strategies for finding the meanings of unknown words and comprehension strategies (Edmonds, Vaughn, Wexler, Reutebuch, Cable, & Tackett, 2009). The mean weighted average effect size of these studies on comprehension outcomes was 0.89 in favor of treatment students over comparison students, which suggested that older struggling readers significantly benefitted from the interventions (Edmonds et al., 2009).

Wanzek's research group endeavored to answer the question "How effective are reading interventions on reading outcomes for students with reading difficulties and disabilities in the fourth and fifth grade?" (Wanzek et al., 2010, p. 891). Using several keyword searches in ERIC as well as a hand search of nine major education journals, Wanzek's research group identified twenty-four studies that met their criteria for the synthesis (Wanzek, et al., 2010). The studies that met the criteria needed to concentrate on fourth and fifth grade students, focus on struggling readers, be available in English, include reading interventions provided in fifteen or more sessions, include reading interventions focused on fluency, vocabulary, comprehension or a combination of these,

use a research design that was treatment comparison, single group or single subject and measure reading outcomes (Wanzek et al., 2010). Effect sizes were calculated using a procedure by Bryant and Wortman (Wanzek et al., 2010).

The Wanzek group identified five studies that focused on comprehension strategies and skills (Wanzek et al., 2010). One of these studies, conducted by L.H. Mason, compared the effects of the reading intervention program Think Before Reading, While Reading, After Reading (TWA) to an alternate treatment on students with reading difficulties (2004). TWA uses nine comprehension strategies that are used before, during and after reading (Mason, 2004). The Wanzek research group calculated an effect size of 0.99 for the TWA intervention on the measures of identifying main idea, summarizing and retell (Wanzek, et al., 2010). When measures were administered three weeks following the TWA intervention, an effect size of 0.90 was found (Wanzek et al., 2010).

Another comprehension study that met the criteria for the Wanzek group synthesis was a study conducted by Miranda, Villaescusa and Vidal-Abarca, published in 1997, that compared the relative effects of two interventions with a comprehension focus (Wanzek, et al., 2010). The study focused on three groups of struggling readers; one group using self-instruction, including training and practice in comprehension strategies such as connecting to prior knowledge, previewing text, self-questioning and mapping main ideas; another group using self-instruction plus attribution training with teacher modeling; and a third group as a control group that received neither self-instruction strategies or attribution training (Miranda, Villaescusa, & Vidal-Abarca, 1997). On measures assessing cloze, recall and main idea identification, the students in the self-instruction group outperformed the students in the control group with the self-instruction

intervention logging an effect size of 3.46 (Miranda et, al., 1997; Wanzek et, al., 2010). The self-instruction plus attribution training intervention recorded an effect size of 2.63 (Wanzek, et al., 2010).

A third comprehension study which met the criteria to be included in the Wanzek research group synthesis study was published by Xin and Rieth in 2001. This study compared a group of struggling readers that received reading comprehension instruction and activities through video to a group that received instruction through printed texts (Xin & Rieth, 2001). On measures of word definitions and cloze, the video instruction group outperformed the text-only group, and the video instruction intervention recorded an effect size of 0.58. (Wanzek et al., 2010). However, on the specific measure of comprehension of content taught, the video instruction intervention recorded an effect size of only 0.02 (Wanzek, et al., 2010).

The final two studies focusing on reading comprehension that met the criteria to be included in the Wanzek research group's syntheses did not provide enough disaggregated data to allow for effect size calculations (Wanzek et al., 2010). Both the study by Lederer, published in 2000, and the study by Takala, published in 2006, found no significant difference between the treatment and control groups (Wanzek et al., 2010). However, when taken as a whole, the Wanzek research group's synthesis study does support the National Reading Panel's conclusion that the highest student improvements in reading achievement occur when explicit, systematic instruction is provided in areas such as fluency and comprehension (National Reading Panel, 2000).

### **The Slavin Synthesis Review**

In 2008, Slavin, Cheung, Groff and Lake published a best evidence synthesis study over effective reading programs for middle schools and high schools. The purpose of this study was to identify “well evaluated programs capable of enabling middle and high school students with poor reading skills to meet the demands of complex tests” in order to “ensure that these students not only succeed in their high school course work but also graduate ready for college and work related reading tasks” (Slavin, Cheung, Groff, & Lake, 2008, p. 291). Slavin et al. recognized that increased state and federal accountability standards had caused substantial growth in the use of remedial reading programs at the middle and high school level. Yet, there was little consensus as to which reading programs were likely to be effective with middle and high school students (Slavin et al., 2008).

The review attempts to apply a common scale to all types of reading programs that are geared toward enhancing the reading achievement of middle and high school students (Slavin et al., 2008). This scale could then be used as an unbiased resource for educators and law makers when making decisions and selecting appropriate programs (Slavin et al., 2008). Slavin’s group conducted a broad literature search and found nearly two hundred studies published between 1970 and 2007 that addressed reading achievement (Slavin et al., 2008). This search concentrated on larger studies that were conducted over a significant period of time and focused on reading instruction approaches from four categories: reading curricula, mixed-method models, computer assisted instruction and instructional process programs (Slavin et al., 2008). There were



nine criteria that the studies needed to meet in order to be considered well designed studies that would provide relevant data for the review (Slavin et al., 2008):

1. The study had to have evaluated reading programs for middle or high school students.
2. The study had to involve middle and high school students in grades 7-12.
3. The study had to have a treatment group receiving the reading program and a control group using an alternative program.
4. The study had to be available in English.
5. The study had to use random assignment or matching with appropriate adjustments for any pretest differences.
6. The study had to have provided pretest data.
7. The dependent measures of the study must include quantitative measures of reading performance.
8. The study had to have a minimum duration of at least twelve weeks.
9. The study had to have at least fifteen students in each treatment group.

After applying these criteria, only thirty-three studies remained and were included in the final synthesis review (Slavin et al., 2008).

### **The Results of Slavin**

The synthesis review conducted by Slavin et al. looked at effect sizes. These effect sizes were pooled across studies for each program and for the four categories of programs (Slavin et al., 2008). In order to maximize the importance of larger studies, weighted means were used. No studies from the reading curricula category met the final selection criteria. Nine studies from the mixed-methods category met the final selection

criteria. Of these studies, eight of them looked at Scholastic's READ 180 program, a reading intervention program that focuses on both reading fluency and reading comprehension using small group instruction and computer assisted instruction. Across these eight studies, the mean effect size weighted by sample size was +0.24 (Slavin et al., 2008). The remaining study looked at the Voyager Passport program and was found to have a mean effect size of +0.17 (Slavin et al., 2008). Eight studies from the computer assisted instruction (CAI) category met the criteria for final selection. While these eight studies looked at several different programs, the overall weighted mean effect size for CAI was +0.10 (Slavin et al., 2008). Sixteen studies from the instructional process programs category met the final criteria for selection. The overall weighted mean effect size for the studies in this category was +0.21 (Slavin et al., 2008).

### **The Slavin Synthesis and READ 180**

The synthesis review conducted by Slavin et al. looked at thirty three studies of the READ 180 program. Of these thirty three studies, only eight of them were found to meet the Slavin group's nine inclusion criteria for well designed studies that could provide relevant data. These were the 2006 study by White, Haslam & Hewes, the 2004 study by Papalewis, the 2006 study by Mims, Lowther, Strahl & Nunnery, the 2002 study by Interactive Inc., the 2006 study by Haslam, White, & Klinge, the 2007 study by Woods, the 2007 study by Caggiano and the 2007 study by Nave. Of these remaining eight studies, seven of these included middle school students in grades six through eight. Three of those seven concentrated on populations of low performing African American students in high urban areas. Two others concentrated on populations of low performing

limited English proficient students from very urban areas. The remaining study concentrated on a group of 110 at-risk seventh grade students.

The study by Nave yielded the highest mean effect size for the READ 180 program at +1.58. The Papalewis study recorded the next highest mean effect size at +0.68 followed by the Woods study with a mean effect size of +0.43. The lowest mean effect size was recorded by the Mims, Lowther, Strahl & Nunnery study at -0.12 followed by the Caggiano study with a mean effect size of +0.01. From this information it can be seen that while the Slavin group found a mean effect size of +0.24 for all eight of the READ 180 studies taken together, there is some significant disparity in the results of the studies when taken individually. The +0.24 mean effect size recorded by the READ 180 programs was the highest effect size recorded out of the four categories looked at by the Slavin group.

As such, current literature seems to point to the READ 180 program as one of the most promising for improving reading achievement in middle and high school students. Additionally, upon closer examination, the eight READ 180 studies that meet the final selection criteria for providing relevant data seem to concentrate heavily on African American, limited English proficient and high urban populations. It would seem that more research is needed to resolve the true effectiveness of the READ 180 program. Additionally, more research is needed on how the READ 180 program will effect a more homogenous, suburban population.

### **Relevant Research on READ 180**

While the results of the eight READ 180 studies included in Slavin's synthesis study may generalize only to limited populations, these results can still provide relevant

information on the effectiveness of the program in improving reading achievement.

Interactive Inc. was contracted by Scholastic Inc. to conduct an independent validation study of the effects of READ 180 on the reading achievement of low performing students (Interactive Inc., 2002). Interactive Inc. selected their sample from middle school students in grades six through eight from seven of the largest urban school districts across six states including Texas (Interactive Inc., 2002).

The plan was for each school district to select two middle schools to implement the READ 180 program. Each school would create two READ 180 classrooms that would service a total of 120 students in four classes of class size 15. The expected sample size of 1,680 students was diminished by implementation issues to 1,182. The final control group contained 888 students. Scheduling concerns, parent requests and student requests honored by the individual school districts acting in what they thought was the best interest of the student caused this decrease. For similar reasons, while the study attempted to have true random assignment, the “realities of local control” prevented this and reasonably comparable control groups were used in some cases instead.

This study followed a randomized control group, pre-test/post-test design. Separate administrations of the Stanford 9 test were used for both pre-test and post-test data. Interactive Inc. addressed three research questions with the study (Interactive Inc., 2002):

1. What impact does READ 180 have on student reading achievement and reading proficiency?
2. How faithfully did teachers implement READ 180 and what factors mediate the level of implementation?

### 3. How is fidelity of implementation related to various student outcomes?

Among the conclusions of the study was the importance of leadership. The defining characteristic in the four districts where READ 180 was well implemented was effective leadership in the form of district level personnel specifically tasked as a READ 180 liaison (Interactive Inc., 2002). In the other three districts without this form of leadership, implementation was sporadic (Interactive Inc., 2002).

In the end, only half of the classrooms implemented READ 180 with complete fidelity. Forty-two percent implemented a modified model. With respect to student reading achievement, the Interactive Inc. study found that students in classrooms where READ 180 was implemented with complete fidelity or modified fidelity experienced significant growth in reading achievement scores (2002). Specifically, after using analysis of covariance to control for prior levels of achievement, the difference in the adjusted mean between the control and treatment groups is statistically significant ( $F=12.624$ ,  $\alpha=.000$ ) and in favor of the students in the treatment group (Interactive Inc., 2002).

### **READ 180 and English Language Learners**

In 1999, Dr. Rosemary Papalewis began a study on reading intervention with low performing students in the Los Angeles area. The main focus of her study was to determine the impact of a reading intervention program on students repeating the eighth grade in a large urban inner city school district (Papalewis, 2004). Students were selected for the treatment program based on two criteria using data from SAT-9 scores and report cards. Students earning a grade of D or F in eighth grade English and a non-passing grade on the writing performance test were selected to receive the READ 180 program

(Papalewis, 2004). The majority of the students selected were repeating their eighth grade year (Papalewis, 2004). A close look at the demographics of the sample shows that 78% of the students receiving the READ 180 program were Hispanic and 42% were classified as limited English proficient (LEP) with an additional 27% that had recently been reclassified from LEP (Papalewis, 2004). For the control group, a comparable group of students were selected and matched on the basis of writing scores, gender and ethnicity (Papalewis, 2004). These students were not exposed to the READ 180 program.

The study was conducted using a pre-test/post-test matched control group design with the SAT-9 test used for both pre-test and post-test administrations. Ongoing support for the teachers of the READ 180 program was provided by Scholastic as well as repeated one day or half day training sessions (Papalewis, 2004). To verify that the READ 180 program was implemented with fidelity, a trained observer performed twenty-five one hour visits to classrooms using the READ 180 Observer Evaluation Form (Papalewis, 2004). The READ 180 program was implemented well in over fifty percent of the classrooms and in general, there was evidence that most of the classrooms used the ninety minute class periods, whole group instruction time, core class activities and modeled reading prescribed by the READ 180 program (Papalewis, 2004). Additionally, every class was between fifteen and twenty students in size (Papalewis, 2004).

The results of the study showed that while the READ 180 students made significant improvements in Reading and Language Arts from pre-test to post-test, the control group students actually lost ground (Papalewis, 2004). The READ 180 students made significant gains of over three normal curve equivalents in Reading and nearly two normal curve equivalents in Language Arts (Papalewis, 2004). The control group of

students who were matched on pre-test means, gender, ethnicity and language proficiency lost ground from pre-test to post-test (Papalewis, 2004). The results from this study demonstrate that the READ 180 program is particularly effective with limited English proficient (LEP) learners (Papalewis, 2004). However, as the study included only 15 white students, 9 Filipino students, 2 Pacific Islander students and 75 African American students in a treatment group of 537, it is difficult to generalize the gains demonstrated in this READ 180 study to a more diverse population.

### **READ 180 in Texas**

In the 2004-2005 school year, Haslam, White and Klinge studied the use of the READ 180 program in the Austin Independent School District (AISD). AISD selected 409 seventh and eighth grade students to receive the READ 180 program, targeting students who were reading below grade level (Haslam, White, & Klinge, 2006). These students were matched using TAKS assessment scores, Scholastic Reading Inventory scores, LEP status and demographic data to students in a control group (Haslam et al., 2006). Only 307 of the original 409 students could be matched to students in the control group (Haslam et al., 2006). The remaining 102 students could not be matched because their records were incomplete, missing some element of TAKS data, SRI data or demographic data (Haslam et al., 2006). The result was a treatment group and control group that were both close to 94% Hispanic and close to 95% Economically Disadvantaged. The treatment group was 88.6% LEP while the control contained 73.3% LEP students.

Pre-test and post-test data for both groups was collected using separate administrations of the Texas Assessment of Knowledge and Skills (TAKS) Reading Test.

The design of the study was a pre-test/post-test matched control group design. The study found that the READ 180 students gained more in reading achievement than the matched control group students on the post-test (Haslam et al., 2006). Both the READ 180 students and the control group students scored higher on the posttest than they did on the pre-test (Haslam et al., 2006). However, the READ 180 students recorded a larger gain (6.6 NCEs,  $\pm 0.6$ ) than the control group (4.7 NCEs,  $\pm 0.7$ ), and this difference in gains was found to be statistically significant (Haslam et al., 2006).

The AISD study made several suggestions for further research, including studies using samples of students that were “substantially different in their demographic composition and academic background” than those used in the AISD study (Haslam et al., 2006, p.10). The study also suggested further research was needed on students who participated in READ 180 for multiple school years, and it called for looking at “a broader range of academic outcomes” associated with implementing the READ 180 program using attendance data, discipline data, course grades, grade retention/promotion and other data (Haslam et al., 2006, p.10).

### **Struggling African American Readers**

During the 2006-2006 school year, John A. Caggiano studied a group of low performing, mostly African American, struggling middle school students in southeastern Virginia. The goal of Caggiano’s study was to assess the impact of the READ 180 reading intervention program on sixth, seventh and eighth graders at ABC Middle School who had been identified as struggling readers (Caggiano, 2007). During the 2005-2006 school year, the student demographics at ABC Middle School were 50% Caucasian, 43% African American, 2% Asian and 2% Hispanic (Caggiano, 2007). Additionally, the



school had a 13% special education student population and 45% of the students were Economically Disadvantaged (Caggiano, 2007).

Caggiano set out to look at differences in reading achievement between the students who participated in READ 180 and those who did not (Caggiano, 2007). He was also concerned with examining differences in reading achievement between African American students who participated in the READ 180 program and African American students who did not (Caggiano, 2007). The study used a nonequivalent control group design. The study used an experimental group of sixty students and a control group of sixty students (Caggiano, 2007). Each group of sixty contained twenty students per grade level (Caggiano, 2007). The students in the experimental group were matched with students in the control group by grade level, gender, ethnicity and pretest scores (Caggiano, 2007). Of the 120 students selected, 88% were African American and 12% were Caucasian. Separate administrations of the Virginia Standards of Learning (SOL) Assessment in Reading were used for the pre-test and post-test.

The control group students received fifty-five minutes a day of instruction in language arts with an additional twenty minute period of silent reading (Caggiano, 2007). In addition to the fifty-five minutes of language arts instruction a day and the twenty minutes of silent reading, the experimental group also received ninety minutes of reading intervention through the READ 180 program every other school day in lieu of their physical education or elective classes (Caggiano, 2007). The study found that students in both the experimental and control groups in all three grade levels experienced gains in reading comprehension during the 2005-2006 school year (Caggiano, 2007). However, only the students in the grade six experimental group recorded higher mean scores on the

2006 Virginia SOL reading assessment, and the findings indicated that there was no statistically significant treatment effect for any of the students in the experimental group regardless of grade level (Caggiano, 2007). Additionally, the study found no significant effects of the treatment on African American students (Caggiano, 2007). Caggiano noted in his study that generalizing the results of his study to all middle school students was risky due to his method of sample selection (Caggiano, 2007). He may also have been concerned that his sample, which was 88% African American, was not representative of the student population of ABC Middle School with its 50% Caucasian and 43% African American student population.

The Caggiano study seems to indicate the READ 180 reading intervention may not be helpful to struggling African American middle school students. This finding is further validated by the work of Mims, Lowther, Strahl and Nunnery, whose study of one thousand mostly African American students in Little Rock, Arkansas yielded a mean effect size of -0.12 for the READ 180 program (2006). However, a study similar to the Caggiano study, conducted by Donna Woods, seems to suggest otherwise.

Like Caggiano, Woods chose to study the effects of the READ 180 program on a group of struggling adolescent readers from a southeastern Virginia middle school. Woods chose an urban middle school with similar demographics (50% White, 44% African American, 3% Latino, and 2% Asian or Pacific Islander) to ABC middle school (Woods, 2007). The Woods study, however, looked at a group of 384 middle school students over a period of three school years (Woods, 2007). Her study used a non equivalent control group design similar to Caggiano's. The 192 students in the control group received fifty-five minutes a day of language arts in addition to twenty minutes of

silent reading (Woods, 2007). These students also received ninety minutes every other day of a traditional reading remediation program for one quarter of the school year (Woods, 2007). The 192 students in the experimental group received ninety minutes of the READ 180 program every other day for the entire school year in addition to fifty-five minutes of daily language arts instruction and twenty minutes of silent reading (Woods, 2007). Additionally, Woods had Scholastic Inc. rate the fidelity of the READ 180 program at her selected middle school, and the program implementation was rated at Level Two, the second highest rating (Woods, 2007).

Students were selected for the study based on Virginia SOL Reading Test results, Degrees of Reading Power (DRP) test results, STAR test results and teacher recommendations (Woods, 2007). Students in the experimental group were matched with students in the control group using DRP test results for cohort 1 and STAR test results for cohort 2 (Woods, 2007). The sample selected for the treatment group was 66.6% African American and 28% White. The sample selected for the control group was 59.9% African American and 33.8% White.

The results of the study did show a significant difference in the reading achievement of the students who participated in the READ 180 program compared to the students in the traditional reading remediation program with the READ 180 students showing greater gains in reading achievement (Woods, 2007). Woods made a point to note that during the first year of the study, READ 180's effect on reading achievement was not statistically significant (2007). She attributed this largely to computer and software problems that effected the implementation of the READ 180 program during the first year (Woods, 2007).

The Woods study highlights the importance of the fidelity of implementation for the READ 180 program when studying its effects on reading achievement. However, the difference in the results of the Woods study and the Caggiano study could be due to several other factors. Woods used the STAR and DRP tests for pre-test and post-test measures, whereas Caggiano used the Virginia Sol Reading test. Woods studied data from three school years compared to Caggiano's one, and the sample Woods chose did not contain as high a concentration of African American students as the sample selected by Caggiano. It would seem that more research is needed to resolve the conflicting results yielded by these two studies.

### **Socio-Economic Status and Reading Achievement**

Jayson Nave examined the reading achievement of seventh grade students from the Sevier County Public School system for the 2004-2005 academic school year. His purpose was to compare the academic achievement of at-risk seventh grade students participating in a READ 180 pilot program to their academically at-risk peers not enrolled in the program (Nave, 2007). Nave also endeavored to find out if differences in the reading achievement of students in the control group and READ 180 group were influenced by the students' socioeconomic status (Nave, 2007).

Nave used an ex post facto research design for his study (Nave, 2007). He looked at test scores on the Tennessee Comprehensive Assessment Program (TCAP) for students participating in the READ 180 program during the 2004-2005 school year and compared them to the test scores of students not participating in the program (Nave, 2007). Nave compared 110 at-risk students participating in READ 180 with 50 of their at-risk peers who were not enrolled in the program (Nave, 2007). The students in both groups were

matched using pretest data, gender and socioeconomic status (Nave, 2007). The study did not list the ethnicity/race of the students in the sample.

The results of the study showed a significant change in seventh grade test scores (from pre-test to post-test) between the control group and the READ 180 group (Nave, 2007). The post-test scores for the READ 180 seventh graders were higher than their pre-test scores by an average of 23.85 points (Nave, 2007). The post-test scores for the control group were higher than their pre-test scores by an average of 8.27 points (Nave, 2007). Additionally, the study found no significant difference in reading achievement when high and low socioeconomic status was considered as an interaction variable (Nave, 2007).

### **Conclusions from READ 180 Research**

Several conclusions can be draw from reviewing the available research on the READ 180 reading intervention program. First, while there are dozens of studies on the READ 180 program, only a handful are recognized by research groups such as Slavin's as being relevant, well designed studies. Secondly, these studies offer conflicting evidence on the effect of the READ 180 program with mean effect sizes ranging from -0.12 to +1.58. Third, all of these studies used samples that were either heavily African American, heavily LEP or heavily low SES. These samples were often not representative of the student population of the schools in which the studies were conducted. Fourth, some studies included more information on the fidelity of the implementation of the READ 180 program. These studies made efforts to ensure high fidelity and on average reported higher mean effect sizes. Fifth, there is conflicting evidence on the success of the READ 180 program at improving the reading achievement of African American

students. Lastly, many studies stress the importance of staff development as a component of READ 180 implementation.

Taken as a whole, these studies indicate that further research is needed to determine the effectiveness of the READ 180 program and its effects on the reading achievement of middle school students. In order to make the best instructional decisions for their students, school leaders of middle school campuses with diverse demographics need more information on how READ 180 will benefit all of their struggling readers, and not just the struggling readers with limited English skills or struggling readers from one particular race/ethnicity or socioeconomic class. Further research is needed to determine the effect of the READ 180 program on struggling middle school readers. Attention should also be paid to resolving the conflicting evidence pertaining to the effect of the READ 180 program on the reading achievement of African American middle school students.

## CHAPTER III: METHODOLOGY

### **Introduction**

The primary objective of this study was to evaluate the effect of the reading intervention program READ 180 on the reading achievement of struggling intermediate school readers in grade eight in a Texas independent school district, which will be referred to as *ABC* ISD for the purposes of this study. The study employed a quasi-experimental, non-equivalent control group design. A matched pairs design was applied to control for any pre-test differences that existed between the treatment group and the control group on the variables of interest. A t-test was applied to the gain scores (post-test/pre-test) to examine group means for reading achievement. T-tests on gains scores were also used to determine if statistically significant differences existed between the treatment and control groups on other dependent variables of interest. A logistic regression was calculated to determine the probability that a student would meet the passing standard on the posttest given the variables of intervention program, pretest score, ethnicity and socio-economic status. This chapter will discuss the research questions, population, sample, instrumentation, procedure, time frame, data analysis, scope and limitations concerning this study.

### **Research Questions**

What follows are the research questions for this study:

1. Does the READ 180 program have a statistically significant effect ( $p < .05$ ) on the reading achievement of eighth grade students when compared to similar students who do not participate in the READ 180 program?

2. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Economically Disadvantaged eighth grade students who participate in the READ 180 program when compared to similar Economically Disadvantaged students who did not participate in the READ 180 program?
3. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Hispanic eighth grade students who participate in the READ 180 program when compared to similar Hispanic students who did not participate in the READ 180 program?
4. Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for African American eighth grade students who participate in the READ 180 program when compared to similar African American students who did not participate in the READ 180 program?
5. Will the effect size calculated for the READ 180 program's effect on student reading achievement in this study be lower than effect sizes calculated for READ 180 in other studies which used large limited English proficient (LEP) student populations?

### **Population and Sample**

The treatment group was a subset of students from the *ABC* Independent School District. *ABC* Independent School District is located in southeast Texas, just outside of a major metropolitan area. The district encompasses three smaller cities as well as the surroundings areas. The 2009-2010 Academic Excellence Indicator System (AEIS) report for *ABC* Independent School District lists the demographics of the district as being 10% African American, 45% Hispanic, 43% White, and 2% Asian/Pacific Islander.



Additionally, the report shows that the 56.7% of the students in the district were classified as Economically Disadvantaged, 8.6% of the students were classified as limited English proficient (LEP), and 10.8% of the students qualified for special education services. This study looked at two years of data. The reading achievement of 204 eighth grade students over the 2009-2010 school year was examined. The reading achievement of 230 eighth grade students over the 2010-2011 school year was also examined. These two groups were studied independently, and their data analysis and results are reported separately.

For the 2010-2011 school year, the treatment group for this study consisted of eighth grade students in the *ABC* Independent School District who failed to meet the passing standard on the 2010 7<sup>th</sup> Grade TAKS Reading assessment. Of these 102 students, 14.8% are African American, 67% are Hispanic, 18.3% are White, 8% are LEP, 74.8% are Economically Disadvantaged and 24% are identified as SPED. Additionally, 55% of the students in the treatment group are male and 45% are female. Members of this group were selected using pre-test scores obtained from the students' scores at the end of their seventh grade year from the Texas Assessment of Knowledge and Skills (TAKS) reading assessment for seventh graders. Students in the treatment group were enrolled in the READ 180 program for their eighth grade year and received one hundred minutes a day of instruction through this program.

The control group for the 2010-2011 academic year consisted of similar students from three other Texas school districts (these districts agreed to submit data for the study on the condition that the districts' specific names remain undisclosed in the final research study). The control group was an individually well matched sample; matching on pre-test

scores, race/ethnicity, and SES status. Students in this group were identified by matching pre-test scores with READ 180 participants using the students' scores at the end of their seventh grade year from the Texas Assessment of Knowledge and Skills (TAKS) reading assessment for seventh graders. Students in the control group were enrolled in traditional Language Arts classes for their eighth grade year and were not exposed to the READ 180 program. Their traditional Language Arts classes provided approximately fifty-five minutes (on average) of daily instruction. Additionally, the majority of these students received supplemental daily Language Arts instruction which varied in length from fifteen to fifty-five minutes in length.

For the 2009-2010 school year, the treatment group for this study consisted of eighth grade students in the *ABC* Independent School District who failed to meet the passing standard on the 2009 7<sup>th</sup> Grade TAKS Reading assessment. Of these 115 students, 8.8% are African American, 60.8% are Hispanic, 30.4% are White, 8% are LEP, 59.8% are Economically Disadvantaged and 19% are identified as SPED. Additionally, 54% of the students in the treatment group are male and 46% are female. Members of this group were selected using pre-test scores obtained from the students' scores at the end of their seventh grade year from the Texas Assessment of Knowledge and Skills (TAKS) Reading assessment for seventh graders. Students in the treatment group were enrolled in the READ 180 program for their eighth grade year and received one hundred minutes a day of instruction through this program.

The control group for the 2009-2010 academic year consisted of similar students from three other Texas school districts (these district agreed to submit data for the study on the condition that the districts' specific names remain undisclosed in the final research

study). The control group was an individually well matched sample; matching on pre-test scores, race/ethnicity, and SES status. Students in this group were identified by matching pre-test scores with READ 180 participants using the students' scores at the end of their seventh grade year from the Texas Assessment of Knowledge and Skills (TAKS) reading assessment for seventh graders. Students in the control group were enrolled in traditional Language Arts classes for their eighth grade year and were not exposed to the READ 180 program. Their traditional language arts classes provided approximately fifty-five minutes (on average) of daily instruction. Additionally, the majority of these students received supplemental daily language arts instruction which varied in length from fifteen to fifty-five minutes in length.

### **READ 180**

The READ 180 program was created by Dr. Ted Hasselbring for struggling readers who can read at approximately a 1.5 grade level (or above) and demonstrate facility with phonics and decoding (Scholastic, 2009). The program, now owned and distributed by Scholastic, was created using the research on cognition and technology, as each related to literacy development, produced by Dr. Hasselbring at Vanderbilt University (Scholastic, 2009). READ 180 offers support in mastering writing skills, grammar skills, reading fluency, academic specific terminology, as well as reading comprehension. The program implements adaptive technology to motivate students, customize instruction to the needs of individual learners, and consistently monitor students' progress (Scholastic, 2009).

“The READ 180 instructional model is a research-based design for explicit, direct instruction and classroom organization for intensive intervention for struggling readers”

(Scholastic, 2009, p.4). Each day's classroom session starts and ends with whole-group, teacher-directed instruction (Scholastic, 2009). "In between, students break into three small groups," (a group that uses instruction software, a group that receives small group differentiated instruction, and a group for modeled and independent reading) "for differentiated instruction that includes practice, reinforcement, and re-teaching to build reading and language proficiency" (Scholastic, 2009, p. 4). The program provides a balance of direct instruction, small group differentiation, individual practice and computer assisted instruction. The READ 180 technology, used by the students during the computer assisted instruction small-group time, is described as intelligent software that provides individualized practice for a range of language learners (Scholastic, 2009). It collects data based on individual student responses and adjusts instruction to meet the needs of the student at his or her level, accelerating his or her path to successful literacy acquisition.

At the beginning of the program, students are given a pre-assessment of their literacy skills. This assessment is used to determine their Lexile score. Students are then assigned readings or novels (provided by the READ 180 program) that are fifty to one hundred points above their Lexile level in order to stretch their reading skills. Students are periodically reassessed throughout the program and their Lexile scores and resulting reading materials are realigned based on these assessments. Scholastic provides both additional and follow-up staff development and training for READ 180 teachers and administrators. All ABC Independent School District READ 180 teachers and campus administrators for the 2009-2010 and 2010-2011 academic years received this training. Additionally, Scholastic provides campus administrators with program assessment tools

to maintain and monitor the fidelity of the implementation of READ 180 on the campus. Since 2009, *ABC I.S.D.* campus administrators have used these materials, including the “READ 180 Administrator Walk Through” form, to complete regular classroom walk-throughs in READ 180 classes. Analysis of these walk-through results show that the READ 180 program was implemented with fidelity in *ABC I.S.D.*

### **Instrumentation**

For the group of students examined in the 2010-2011 school year, the members of both the treatment and control groups were assessed in April of 2010 using the Texas Assessment of Knowledge and Skills (TAKS) Reading test for seventh grade. The 2010 7<sup>th</sup> Grade Reading TAKS Test’s individual student results were used as pre-test data. In April of 2011, both the treatment group and the control group were assessed using the 2011 8<sup>th</sup> Grade Reading TAKS. The 2011 8<sup>th</sup> Grade Reading TAKS test’s individual student results were used as post-test data.

For the group of students examined in the 2009-2010 school year, the members of both the treatment and control groups were assessed in April of 2009 using the Texas Assessment of Knowledge and Skills (TAKS) Reading test for seventh grade. The 2009 7<sup>th</sup> Grade Reading TAKS test’s individual student results were used as pre-test data. In April of 2010, both the treatment group and the control group were assessed using the 2010 8<sup>th</sup> Grade Reading TAKS. The 2010 8<sup>th</sup> Grade Reading TAKS test’s individual student results were used as post-test data. This study used archival data only.

*Texas Assessment of Knowledge and Skills (TAKS) (from the 2010 TEA Technical Digest)*

In 2003, The Texas Assessment of Knowledge and Skills (TAKS) replaced TAAS as the prescribed statewide assessment program in Texas (Texas Education Agency,

2010). “TAKS was designed by legislative mandate to be more comprehensive than its predecessors and to measure more of the state-mandated curriculum, the Texas Essential Knowledge and Skills (TEKS), at more grade levels” (Texas Education Agency, 2010, p. 3).

The TAKS test is designed to measure the extent to which a student has learned and is able to apply the defined knowledge and skills at each tested grade level. Every TAKS test is directly aligned to the Texas Essential Knowledge and Skills (TEKS). By law, students for whom TAKS is the graduation testing requirement must pass exit level tests in four content areas—English Language Arts, mathematics, science, and social studies—to graduate from a Texas public high school. “The Student Success Initiative (SSI), enacted by the Texas Legislature in 1999, makes satisfactory performance on the grade 3 TAKS reading assessment, the grade 5 TAKS reading and mathematics assessments, and the grade 8 TAKS reading and mathematics assessments a promotion requirement for Texas students” (Texas Education Agency, 2010, p. 3). In 2009, HB 3 removed the SSI requirement for students in grade 3 to pass the TAKS reading test to be promoted to grade 4 (Texas Education Agency, 2010). Texas educators—K–12 classroom teachers, higher education representatives, curriculum specialists, administrators, and Education Service Center (ESC) staff—played a vital role in the test development process (Texas Education Agency, 2010). Educator committees represented the state geographically, ethnically, by gender, and by type and size of school district (Texas Education Agency, 2010). After the initial test development phase was complete, Texas educator committees convene annually to review new test items that are then field-tested for inclusion in test item banks (Texas Education Agency, 2010). Pearson is

TEA's primary contractor for the provision of support services to the statewide assessment program.

Students received a raw score based on the number of questions answered correctly (Texas Education Agency, 2010). By itself the raw score has limited utility; it can be interpreted only in reference to the total number of items on a subject-area test, and raw scores should not be compared across tests or administrations (Texas Education Agency, 2010). Since 2008, each student has received a vertical scale score as well (Texas Education Agency, 2010). Vertical scale scores allow a direct comparison of student test scores across grade levels within a subject (Texas Education Agency, 2010). With a vertical scale, a student's scale score in one grade can be compared to the student's scale score in another grade as long as the scores are in the same language and subject (Texas Education Agency, 2010). The changes in the student's vertical scale scores show the academic progress the student has made over time (Texas Education Agency, 2010).

Standard setting is the process of relating levels of test performance directly to what students are expected to learn as expressed in the statewide curriculum by establishing cut scores that define performance categories like "Met Standard" and "Commended Performance" (Texas Education Agency, 2010, p.56). Through the standard-setting process, cut scores (or the number of questions a student must answer correctly) are determined to reflect the level of performance a student must demonstrate to match the performance level descriptors for each TAKS test (Texas Education Agency, 2010). The vertical scale score for Met Standard and Commended Performance is a different number for each grade and subject (Texas Education Agency, 2010). For both

TAKS reading and mathematics, these numbers increase from grade to grade (Texas Education Agency, 2010). In 2010, the vertical scale score needed to meet the standard on the TAKS seventh grade reading assessment was 670 (Texas Education Agency, 2010). “The vertical scale scores can be computed through a linear transformation of the underlying Rasch proficiency estimate” (Texas Education Agency, 2010, p. 57). “The linear transformation is as follows:  $VS_j = (j + LC_v) * A1 + A2$  where  $VS_j$  is the vertical scale score for student  $j$ ,  $j$  is the Rasch partial credit model proficiency level estimate for student  $j$ ,  $LC_v$  refers to the vertical scale linking constant, and  $A1$  and  $A2$  refer to the vertical scale transformation constants” (Texas Education Agency, 2010, p. 58).

During the 2009–2010 school year, reliability estimates for TAKS assessments were conducted through internal consistency, classical standard error of measurement, conditional standard error of measurement, and classification accuracy (Texas Education Agency, 2010). For the 2009–2010 school year, most internal consistency reliabilities are in the high 0.80s to low 0.90s range, with reliabilities for TAKS assessments ranging from 0.85 to 0.90 (Texas Education Agency, 2010). “As a general rule, reliability coefficients from 0.70 to 0.79 are considered adequate, 0.80 to 0.89 are considered good, and above 0.90 are considered excellent” (Texas Education Agency, 2010, p. 89).

Internal consistency estimates across grades and subjects were found to be of a similarly high level, with no noticeable increases or decreases across subjects or grades (Texas Education Agency, 2010). For the different student groups, estimates were found to be similar (Texas Education Agency, 2010). For the 2009–2010 school year, subjects’ standard error of measurement (SEM) values were approximately between two to three raw score points across grades (Texas Education Agency, 2010). For the 2009–2010



school year, conditional standard error of measurement (CSEM) values were approximately twenty to twenty-seven scale score points in the middle of most score ranges for the vertical scale scores (Texas Education Agency, 2010). Classification accuracy rates for TAKS (2009–2010 school year) range from 77.7% to 93.6% (Texas Education Agency, 2010).

Texas collects validity evidence annually to support the various uses of TAKS scores (Texas Education Agency, 2010). Texas follows national standards of best practice to continue to build its body of validity evidence for the TAKS tests (Texas Education Agency, 2010). Validity evidence supporting TAKS test content comes from two sources: the established test development process followed in developing the TAKS assessments and the documentation of expert judgments about the relationship between parts of the TAKS test and the test construct (Texas Education Agency, 2010). Since 2005, Pearson has conducted the grade correlation study annually to compare the pass/fail rates of Texas students on the TAKS tests with their passing credit/not passing credit rates in their past related courses (Texas Education Agency, 2010). The most recent study, conducted in 2009-2010, showed that 82% of students who pass the TAKS test also passed their related courses (Texas Education Agency, 2010). Seven percent of students passed the TAKS test but did not pass their related course; 9% of students passed their related course but did not pass the TAKS tests; and 3% of students failed to pass the TAKS test or their related courses (Texas Education Agency, 2010). Each year, the Texas Education Agency publishes a Technical Digest which describes in detail the validity and reliability associated with that year's TAKS test.

### **Procedure and Time Frame**

This study used a quasi-experimental non-equivalent control group design (or matched control group design). In the fall of 2011, archival TAKS data from *ABC* Independent School District and three other Texas school districts was obtained. Gender, ethnicity, socio-economic status and achievement data for two academic years (2009-2011) were collected and analyzed for each student in both the treatment and control groups. Additionally, special education and limited English proficient (LEP) data was obtained for student groups in both the treatment and control groups. The 2009 and 2010 7<sup>th</sup> Grade Reading TAKS scores were obtained, as well as the 2010 and 2011 8<sup>th</sup> Grade Reading TAKS scores for all four districts.

For the 2010-2011 school year, *ABC* ISD students not meeting the passing standard on the 2010 7<sup>th</sup> grade TAKS Reading test were enrolled in the READ 180 program for the 2010-2011 school year. Assessment data for the READ 180 participants was reviewed. Participants who had available pre-test and post-test data in the archival data sets were identified as the treatment group. Using the 2010 7<sup>th</sup> Grade TAKS reading results from three other Texas school districts, a matched control group was created, matching individual students on pre-test scores (2010 7<sup>th</sup> Grade TAKS Reading), race/ethnicity and SES status. For example, if a white, economically disadvantaged student with a pretest raw score of 17 were enrolled in READ 180, then the control group would also have a white, economically disadvantaged student with a pretest raw score of 17. The goal of this process was to minimize differences between the treatment and control groups. Data from the 2011 8<sup>th</sup> grade Reading TAKS test was analyzed for both the treatment group and the control group to address the research questions of this study.

For the 2009-2010 school year, *ABC* ISD students not meeting the passing standard on the 2009 7<sup>th</sup> grade TAKS Reading test were enrolled in the READ 180 program for the 2009-2010 school year. Assessment data for the READ 180 participants was reviewed. Participants who had available pre-test and post-test data in the archival data sets were identified as the treatment group. Using the 2009 7<sup>th</sup> Grade TAKS reading results from three other Texas school districts, a matched control group was created, matching individual students on pre-test scores (2009 7<sup>th</sup> Grade TAKS Reading), race/ethnicity and SES status. For example, if a white, economically disadvantaged student with a pretest raw score of 17 were enrolled in READ 180, then the control group would also have a white, economically disadvantaged student with a pretest raw score of 17. The goal of this process was to minimize differences between the treatment and control groups. Data from the 2010 8<sup>th</sup> grade Reading TAKS test was analyzed for both the treatment group and the control group to address the research questions of this study.

### **Data Analysis**

Participation in the READ 180 program, and its effect on student achievement, is the primary variable. This study also looked at the variables of student race/ethnicity and student socio-economic status (SES) to determine if READ 180 produced higher student achievement for Hispanic, African American or White students, as well as if READ 180 produced higher student achievement for high or low SES students.

Descriptive statistical analyses were performed. The standard deviation, frequency and mean for each variable were calculated. A matched pairs design was used to eliminate mean differences between the pre-test scores of the treatment and control groups. Gain scores for reading achievement were calculated by subtracting the pre-test

scores from the post-tests scores. The normality, skewness and kurtosis of the gain scores were examined to confirm a normal distribution. A t-test was applied to the gain scores (post-test/pre-test) to examine group means for reading achievement. T-tests on gains scores were also used to determine if statistically significant differences existed between the treatment and control groups on other dependent variables of interest. The use of gain scores is valid for pre-test/post-test designs seeking to measure change over time (Dimitrov & Rumrill, 2003). Gain scores can be used with high reliability in most cases (Dimitrov & Rumrill, 2003). Only in rare cases when pre-test scores and post-test scores have equal variances and equal reliability are gain scores unreliable (Dimitrov & Rumrill, 2003). Additionally, a logistic regression was calculated to determine the probability that a student would meet the passing standard on the posttest given the variables of intervention program, pretest score, ethnicity and socio-economic status. For each analysis, a significance level of .05 was established for determining statistical significance.

The research questions were the same for both the study of the 2009-2010 data and the study of the 2010-2011 data. The data analyses for both sets of data, while conducted independently, were conducted in the same fashion.

The collected archival data related to the primary research question (*Does the READ 180 program have a statistically significant effect ( $p < .05$ ) on the reading achievement of eighth grade students when compared to similar students who do not participate in the READ 180 program?*) was analyzed using a t-test on gain scores. The dependent variable for this analysis was reading achievement. The independent variable for this data analysis was participation in the READ 180 reading intervention program.

An analysis using a logistic regression was also conducted. For this analysis, the dependent variable whether or not the student met the passing standard on the posttest. The independent or predictor variables were participation in the READ 180 program, ethnicity, socio-economic status and pretest score.

The collected archival data for the second research question (*Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Economically Disadvantaged eighth grade students who participate in the READ 180 program when compared to similar Economically Disadvantaged students who did not participate in the READ 180 program?*) was analyzed using a t-test on gain scores. The dependent variable for this analysis was reading achievement. The independent variable for this data analysis was participation in the READ 180 reading intervention program. The moderator variable was student socio-economic status. An analysis using a logistic regression was also conducted. For this analysis, the dependent variable whether or not the student met the passing standard on the posttest. The independent or predictor variables were participation in the READ 180 program, ethnicity, socio-economic status and pretest score.

The collected archival data for the third research question (*Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Hispanic eighth grade students who participate in the READ 180 program when compared to similar Hispanic students who did not participate in the READ 180 program?*) was analyzed using an t-test on gain scores. The dependent variable for this analysis was reading achievement. The independent variable for this data analysis was participation in the READ 180 reading intervention program. The moderator variable was student ethnicity. An analysis

using a logistic regression was also conducted. For this analysis, the dependent variable whether or not the student met the passing standard on the posttest. The independent or predictor variables were participation in the READ 180 program, ethnicity, socio-economic status and pretest score.

The collected archival data for the fourth research question (*Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for African American eighth grade students who participate in the READ 180 program when compared to similar African American students who did not participate in the READ 180 program?*) was analyzed using a t-test on gain scores. The dependent variable for this analysis was reading achievement. The independent variable for this data analysis was participation in the READ 180 reading intervention program. The moderator variable was student ethnicity. An analysis using a logistic regression was also conducted. For this analysis, the dependent variable whether or not the student met the passing standard on the posttest. The independent or predictor variables were participation in the READ 180 program, ethnicity, socio-economic status and pretest score.

To address the fifth research question (*Will the effect size calculated for the READ 180 program's effect on student reading achievement in this study be lower than effect sizes calculated for READ 180 in other studies which used large limited English proficient (LEP) student populations?*), the effect size of READ 180's impact on student reading achievement for this study was calculated using the same method as the Slavin group's synthesis research study. This effect size was compared to other effect sizes recorded for READ 180 in the Slavin group's synthesis research.

### **Scope and Limitations**

The design of this study was a quasi-experimental non-equivalent control group design. The use of this design eliminates threats to internal validity caused by history, maturation, instrumentation or attrition. Archival data was used for this study. Given this method of selection, some threats to internal validity exist. As the treatment and control groups were not randomly assigned, a differential selection threat, or a threat of initial differences in the two groups, exists. Efforts were made to match students in the treatment group with students in the control group in order to minimize the effects of this threat. Students were matched based on pre-test score, ethnicity and economic status. This means that if Billy, a white, economically disadvantaged student with a score of 14 on his seventh grade Reading TAKS is in the treatment group, then another white student economically disadvantaged student with a raw score of 14 on his seventh grade Reading TAKS is in the control group. Student achievement data from the Texas Assessment of Knowledge and Skills, or TAKS test, was used to measure reading achievement. The students' scores on the prior year's test were used as pre-test data. Thus, the possibility of a testing effect exists as well. In order to minimize the effect of this threat, the pre-test data and post-test data were purposefully selected from two different administrations of the TAKS test that were administered with a significant amount of time in between; one calendar year. Additionally, the TAKS test was specifically selected because students in Texas are required to take this exam each year. It could be argued that any testing bias that existed could be mitigated by the fact that most of these students had already taken a TAKS test each year for at least the past half dozen years.

Threats to external validity affect the extent to which the results of this study can be generalized. The selection of eighth grade students in the *ABC* Independent School District for the treatment group limits the generalizations that can be made from the results of this study. These results are more applicable to eighth grade students in the state of Texas that reside in school districts with similar demographics to *ABC* I.S.D. The difference in class sizes between the treatment group and the control group is also a concern. The READ 180 program calls for class sizes of no more than eighteen students in order to be implemented with fidelity. The class sizes for the control group classes were closer to twenty-five students on the average. Finally, while every effort was made by *ABC* I.S.D. to ensure and maintain the fidelity of the READ 180 program, some differences in implementation may have existed. These factors should all be taken into account when generalizations are made using the final results of this study.



## CHAPTER IV: ANALYSIS OF DATA AND RESULTS

In this chapter, the findings of the study are presented. The purpose of this study was to analyze the impact of the READ 180 program on a group of eighth grade students in *ABC* Independent School District and to compare the achievement of these students who participated in the READ 180 program to the achievement of their peers who participated in traditional reading intervention programs. This study employed a quasi-experimental non-equivalent control group (matched pairs) design. The study was conducted twice; once with a group of eighth grade students in the 2009-2010 school year and again with a separate group of eighth grade students in the 2010-2011 school year. The results for each year are reported independently, beginning with the results for the 2009-2010 school year.

### **Results for 2009-2010 School Year**

This study, conducted in the 2009-2010 school year, consisted of 204 respondents, of which 54% were male and 46% were female. The majority of respondents were non-white (69.6%) and Economically Disadvantaged (59.8%). Only 8% of the respondents were Limited English Proficient (LEP). There were two groups under study. The first group received the READ 180 reading intervention program, while the second group, the control, received only traditional reading interventions. The descriptive statistics for both groups are listed in table 1.

Table 1

*Descriptive Statistics on Demographic Variables for READ 180 for 2009-2010*

|                                    | Experimental Groups       |                          |                  |
|------------------------------------|---------------------------|--------------------------|------------------|
|                                    | READ 180 Group<br>(n=102) | Control Group<br>(n=102) | Total<br>(n=204) |
| GENDER                             |                           |                          |                  |
| Male                               | 52%                       | 56%                      | 54%              |
| Female                             | 48%                       | 44%                      | 46%              |
| ETHNICITY                          |                           |                          |                  |
| African American                   | 8.8%                      | 8.8%                     | 8.8%             |
| Hispanic                           | 60.8%                     | 60.8%                    | 60.8%            |
| White                              | 30.4%                     | 30.4%                    | 30.4%            |
| ECONOMICALLY<br>DISADVANTAGED      |                           |                          |                  |
| Yes                                | 59.8%                     | 59.8%                    | 59.8%            |
| No                                 | 40.2%                     | 40.2%                    | 40.2%            |
| TAKS READING TESTS                 |                           |                          |                  |
| Pre-Post Difference<br>– Mean (SD) | 73.20 (55.02)             | 52.93 (45.02)            | 63.06 (50.73)    |

The purpose of the research was to determine if a reading intervention program (READ 180) significantly contributed to the reading outcomes of low achieving eighth grade students. To evaluate the effectiveness of the program, pre-test and post-test assessments were conducted using the state standardized reading test, the TAKS. TAKS vertical scale scores were used when comparing pretest and posttest results and calculating gain scores. The independent variables for this analysis were the intervention group (those who participated in the reading intervention program and those who did not), ethnicity (African American, and Hispanic) and socio-economic status (those Economically Disadvantaged and those who are not). The null and alternative hypotheses are as follows:

H<sub>0</sub>1: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving students as measured by the TAKS vertical scale.

H<sub>a</sub>1: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving students as measured by the TAKS vertical scale.

H<sub>0</sub>2: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale.

H<sub>a</sub>2: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale.

H<sub>0</sub>3: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale.

H<sub>a</sub>3: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale.

H<sub>0</sub>4: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale.

H<sub>a</sub>4: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale.

Preliminary examinations of the control and experimental group histograms indicated that the pre-post test score differences were normally distributed. This was confirmed by an examination of skewness and kurtosis where all values were in the

acceptable range of  $\pm 2$  (De Carlo, 1997). Based on the results of the test of normality, independent sample t-tests were employed to test each of the research questions. See table 2, figure 1, and 2 below.

Table 2

*Skewness and Kurtosis Values for 2009-2010*

|                    | <i>N</i> | <i>Skewness</i> | <i>Skewness<br/>Standard<br/>Error</i> | <i>Kurtosis</i> | <i>Kurtosis<br/>Standard Error</i> |
|--------------------|----------|-----------------|--|-----------------|------------------------------------|
| Intervention Group | 102      | .198            | .239                                   | 1.667           | .474                               |
| Control Group      | 102      | .781            | .239                                   | .691            | .474                               |

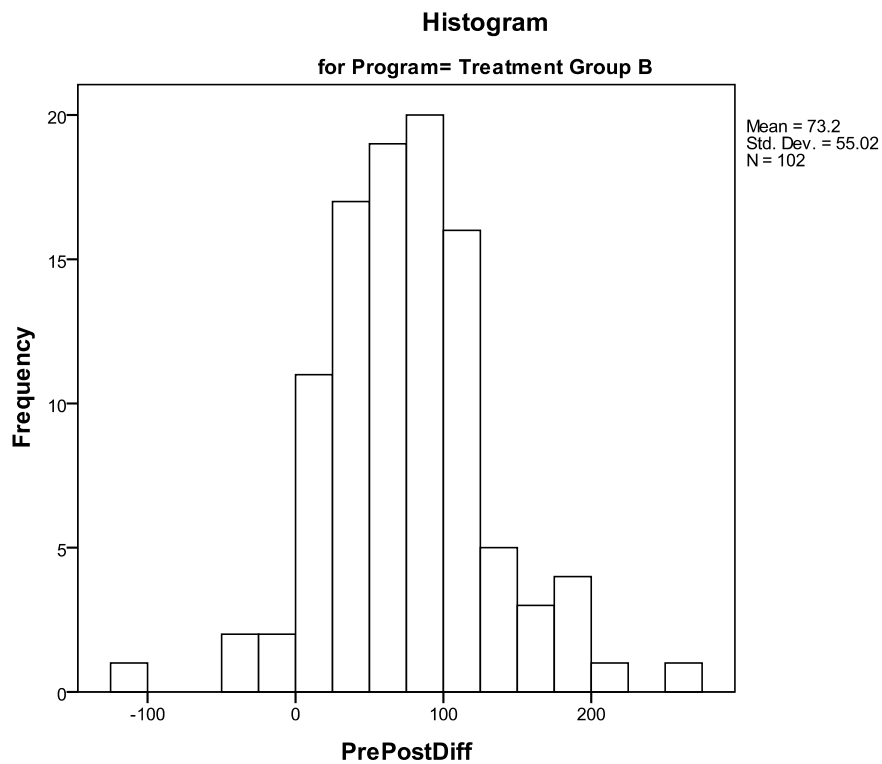


Figure 1: Histogram of Intervention group

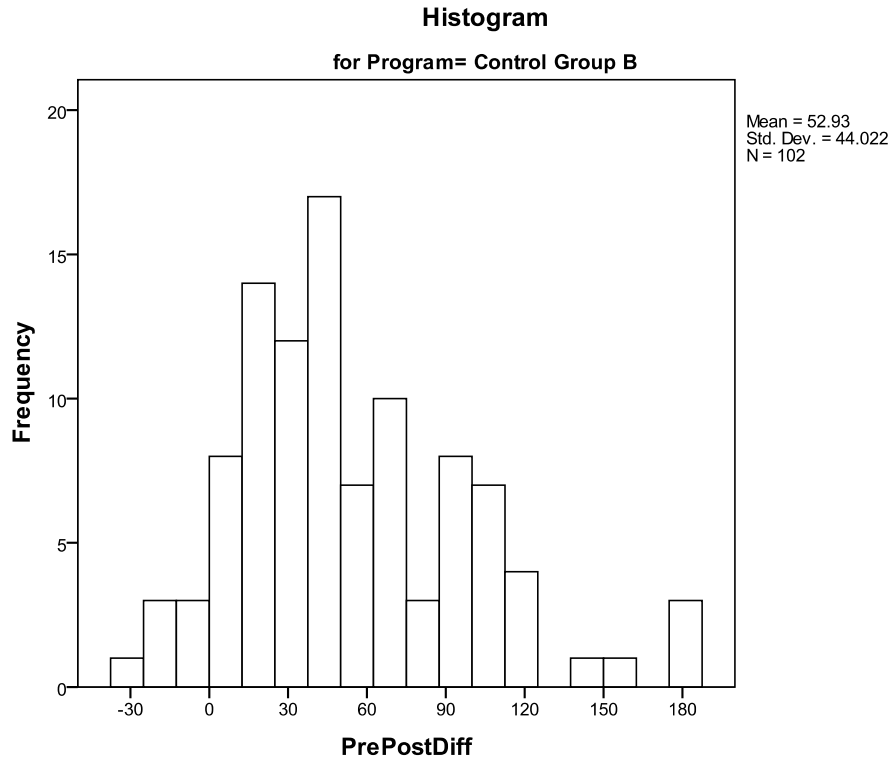


Figure 2: Histogram of Control group

When comparing the TAKS pre-post test difference scores, results of the independent samples t-test indicated that there was a significant difference in scores between the intervention group ( $M = 73.20$ ,  $SD = 55.02$ ) and the control group ( $M = 52.93$ ,  $SD = 44.02$ ),  $t(202) = 2.91$ ,  $p = .004$ . The Cohen's  $d$  effect size calculation was  $d = .41$ , indicating that the differences between the mean scores were small. Cohen's  $d$  is calculated as  $d = (M_1 - M_2) / \sigma$ . Based on these results, we reject the null hypothesis that the READ 180 intervention program has no significant impact on reading outcomes of low achieving students as measured by the TAKS vertical scale. See figures 3 and 4.

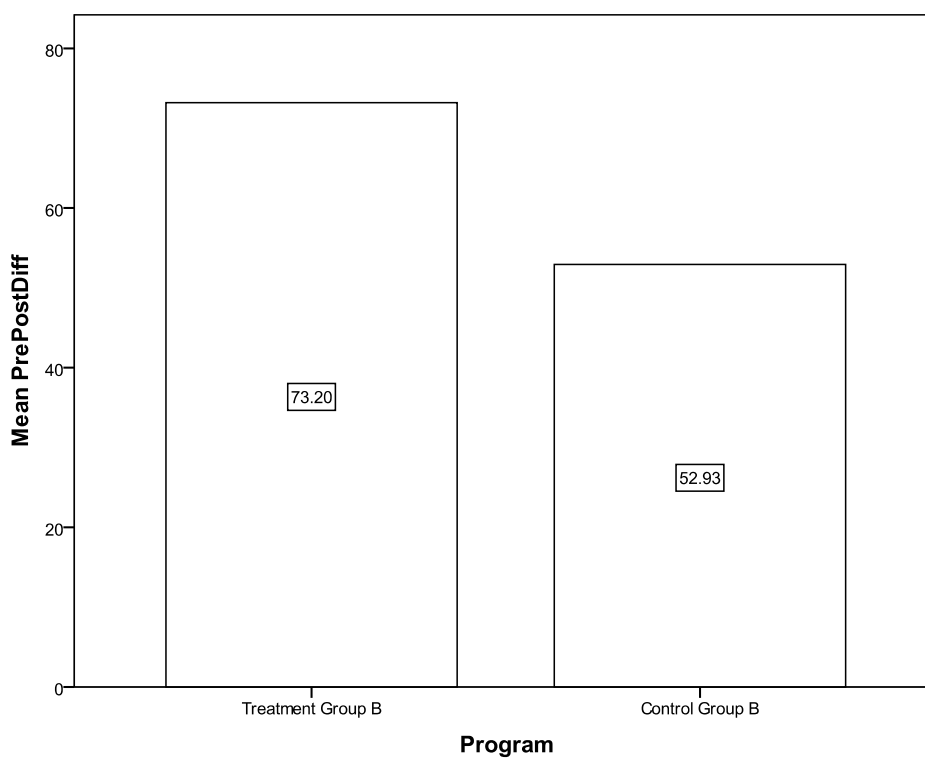


Figure 3: Mean scores comparisons of pre-post test differences scores

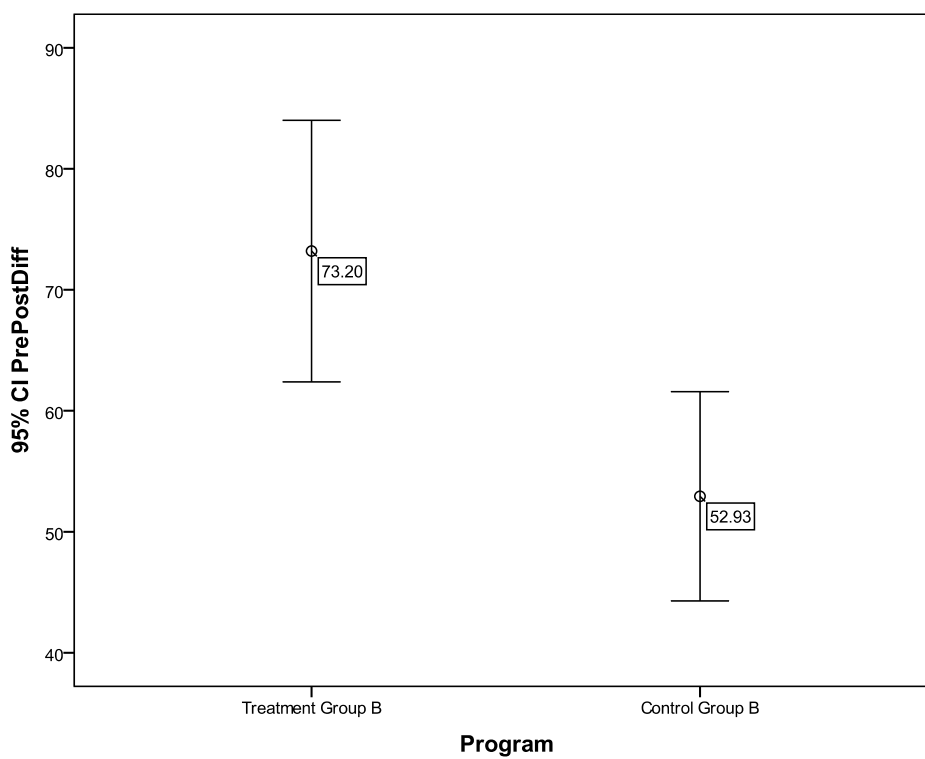
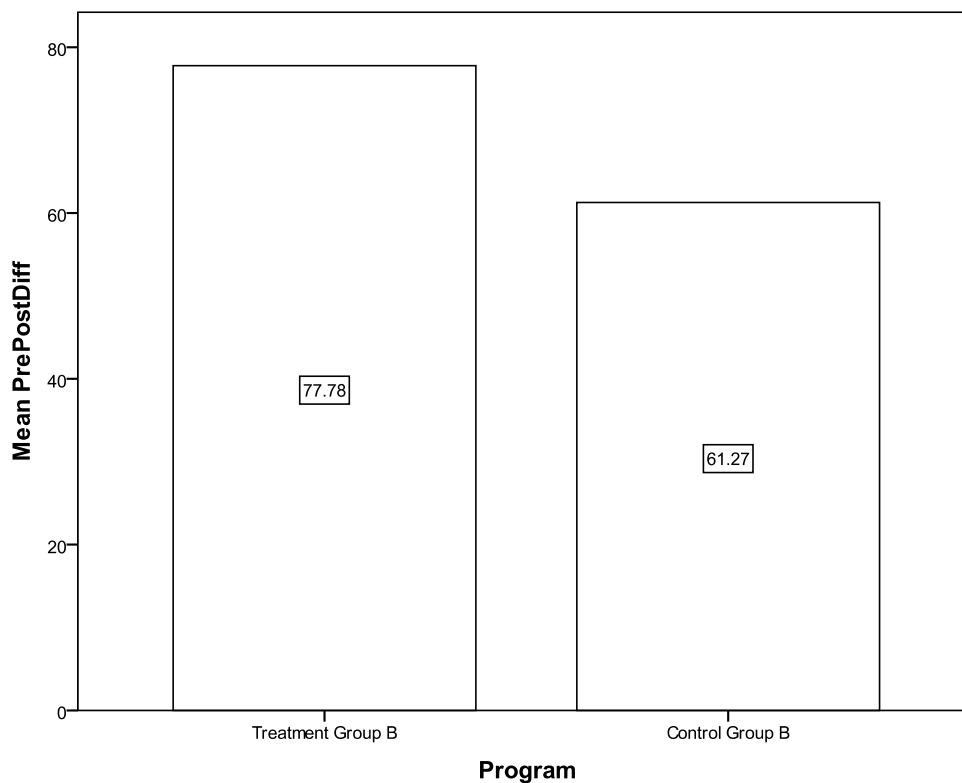
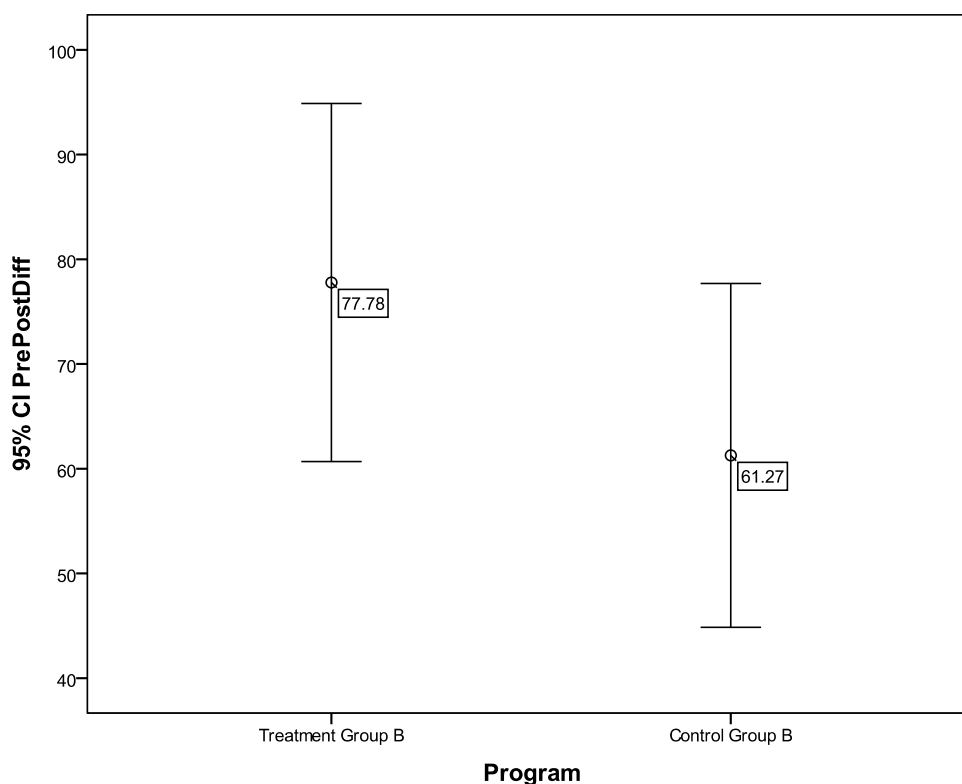


Figure 4: Error bars of pre/post-test mean differences among all respondents

Results of the comparison between the intervention ( $N = 61$ ,  $M = 77.78$ ,  $SD = 54.17$ ) and control ( $N = 61$ ,  $M = 61.27$ ,  $SD = 52.00$ ) groups among Economically Disadvantaged eighth graders indicated that there was no significant difference between the two groups,  $t(80) = 1.41$ ,  $p = .163$ . Results of Cohen's  $d$  indicated that the difference between the mean scores was small,  $d = .32$ . Given these results, we accept the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale. See figures 5 and 6.



*Figure 5: Mean scores comparisons of pre/post-test differences among the Economically Disadvantaged*



*Figure 6:* Error bars of pre/post-test mean differences among the Economically Disadvantaged

Comparisons between the intervention ( $N = 62$ ,  $M = 83.50$ ,  $SD = 55.08$ ) and control ( $N = 62$ ,  $M = 67.93$ ,  $SD = 46.86$ ) groups among Hispanics indicated that there were no significant differences in pre-post difference scores between the two groups,  $t(78) = 1.36$ ,  $p = .177$ ,  $d = .31$ . Effect size results indicated that the differences between the mean scores were small. The results of the independent samples t-test dictate that we accept the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale. See figures 7 and 8.



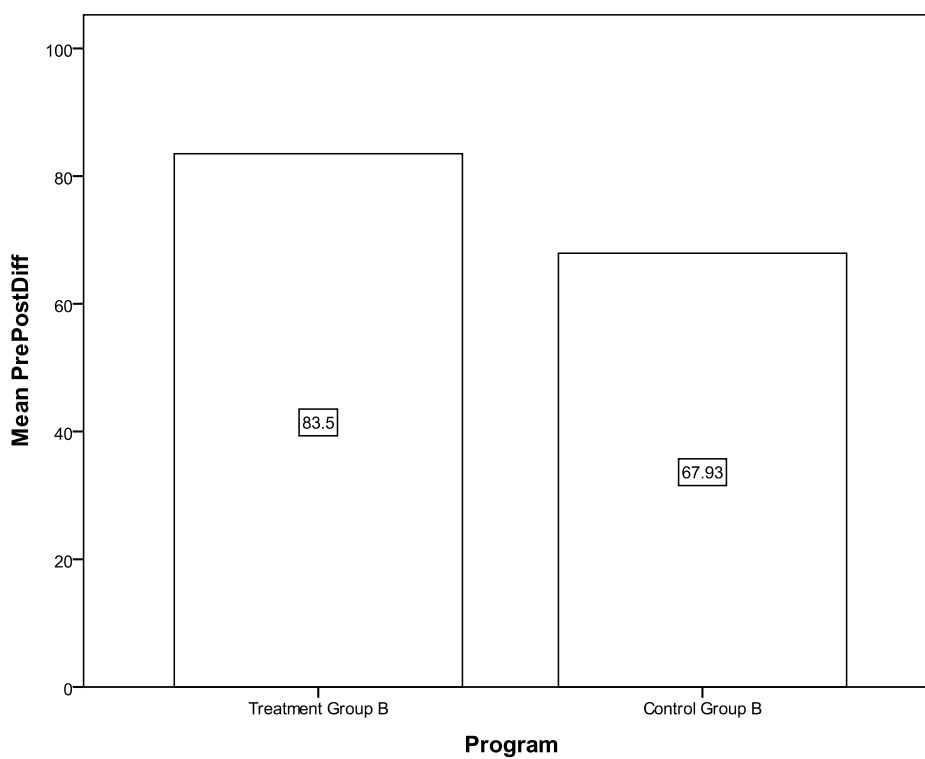


Figure 7: Mean scores comparisons of pre/post-test differences among Hispanics

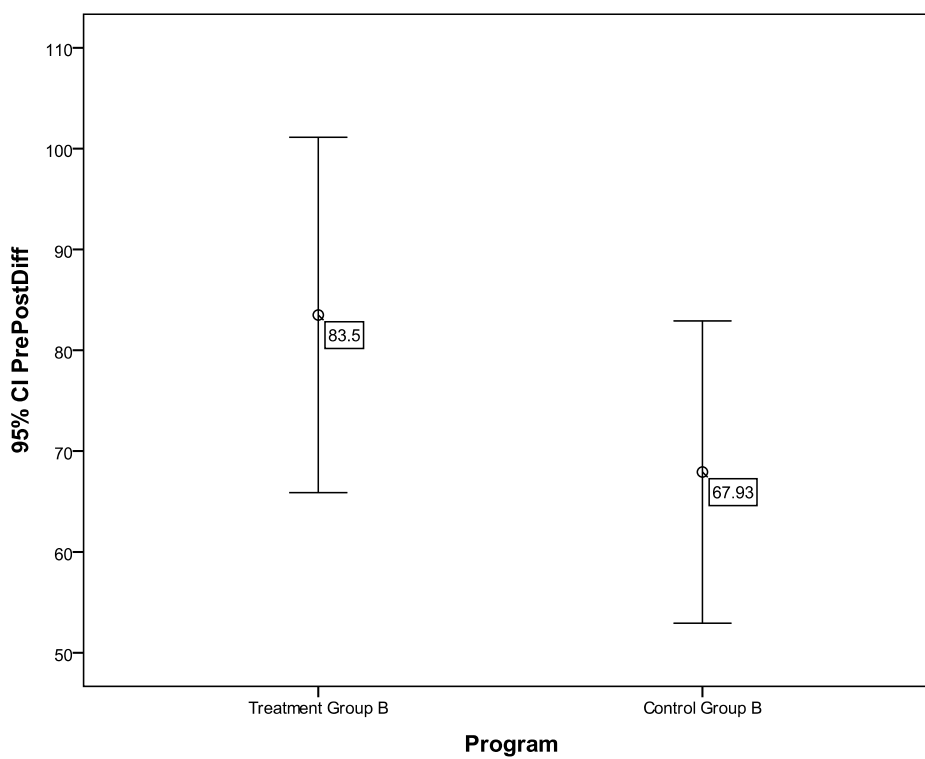
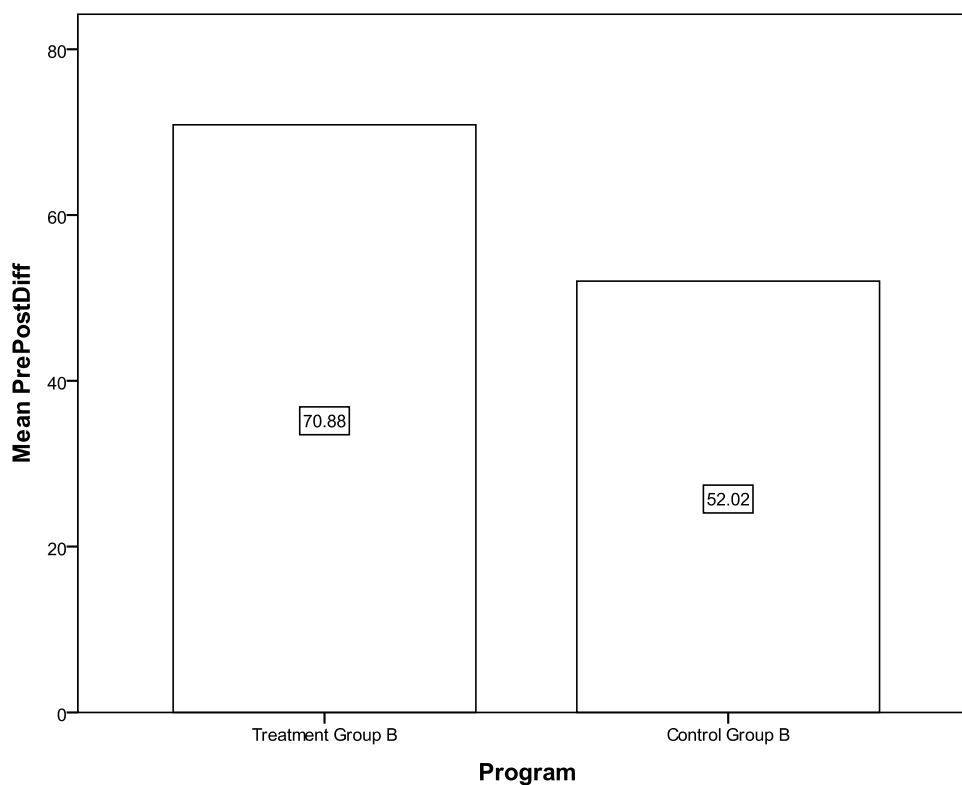
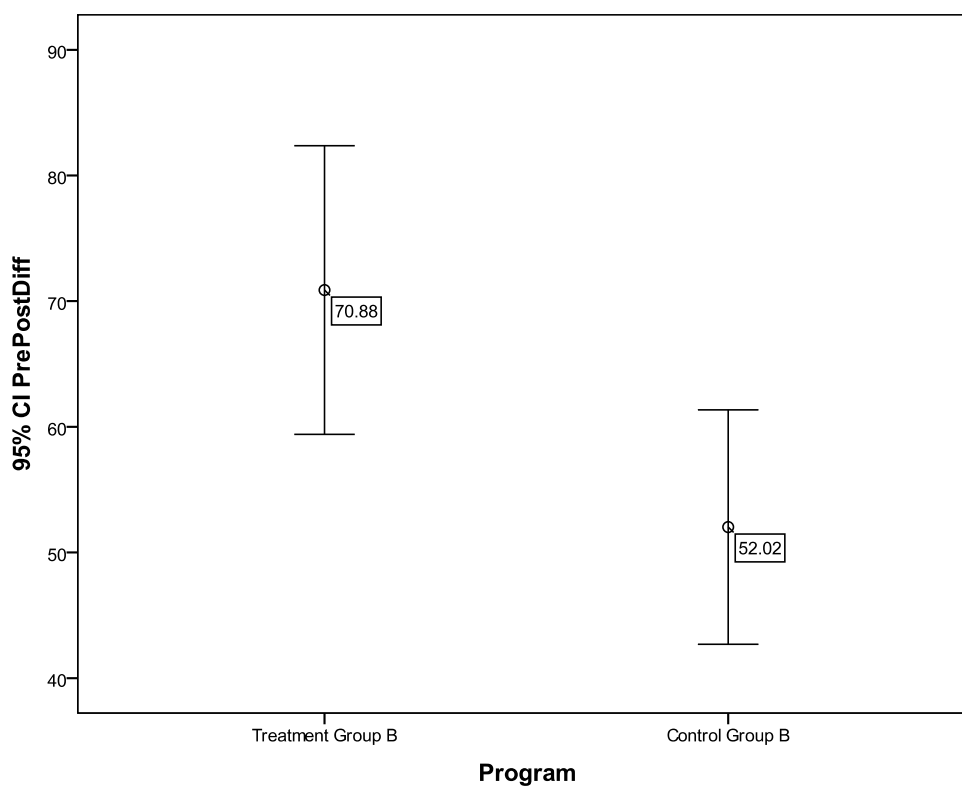


Figure 8: Error bars of pre/post-test mean differences among Hispanics

When considering African Americans, we see that the intervention group ( $N = 9$ ,  $M = 70.88$ ,  $SD = 55.78$ ) had significantly higher pre-post test difference scores than the control group ( $N = 9$ ,  $M = 52.02$ ,  $SD = 55.30$ ),  $t(184) = 2.53$ ,  $p = .012$ . Though the means were significantly different, the actual difference between the means, based on Cohen's effect size measure, was small,  $d = .37$ . Despite the small effect, we still reject the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale. See figures 9 and 10.



*Figure 9: Mean scores comparisons of pre/post-test differences among African Americans*



*Figure 10:* Error bars of pre/post-test mean differences among African Americans

The data for each independent sample t-test are listed in table 3. The effect size for each variable is included in the table. The effect size for all respondents was 0.41. The effect size for Economically Disadvantaged students was 0.32. The effect size for Hispanic students was 0.31. The effect size for African American students was 0.37.

Table 3

*Result of Independent Samples T-Test for 2009-2010*

|                            | Intervention Group |       | Control Group |       | df  | T    | p    | Cohen's d |
|----------------------------|--------------------|-------|---------------|-------|-----|------|------|-----------|
|                            | M                  | SD    | M             | SD    |     |      |      |           |
| All Respondents            | 73.20              | 55.02 | 52.93         | 44.02 | 202 | 2.91 | .004 | .41       |
| Economically Disadvantaged | 77.78              | 54.17 | 61.27         | 52.00 | 80  | 1.41 | .163 | .32       |
| Hispanic                   | 83.50              | 55.08 | 67.93         | 46.86 | 78  | 1.36 | .177 | .31       |
| African American           | 70.88              | 55.78 | 52.02         | 45.30 | 184 | 2.53 | .012 | .37       |

A logistic regression analysis was conducted on the 2009-2010 data set as well. For this analysis, the dependent variable was whether or not the student met the passing standard on the 2010 eighth grade Reading TAKS. The passing standard for the 2010 eighth grade Reading TAKS is a vertical scale score of 700. So students with a vertical scale score of 700 or higher were considered to have “Met Standard” and students with scores below 700 were consider to not have met the standard. Several independent or predictor variables were used in this analysis. One independent variable was the reading intervention program; whether or not the student was enrolled in READ 180 or a more traditional reading intervention program. Other independent variables included the ethnicity categories of African American, Hispanic and White. Socio-economic status was also an independent variable for this analysis. The student raw score on the pretest (seventh grade 2009 Reading TAKS) was an independent variable as well. Table 4

provides a list of categorical variables and their frequencies. Table 5 provides information on the amount of variation in the dependent variable that is explained by the regression model. In this case, 19.4 percent to 25.9 percent of the variability is explained by the model.

Table 4

*Logistic Regression Categorical Variables 2009-2010*

|                                |             | Frequency |
|--------------------------------|-------------|-----------|
| White                          | no          | 142       |
|                                | yes         | 62        |
| Not Economically Disadvantaged | no          | 122       |
|                                | yes         | 82        |
| African American               | no          | 186       |
|                                | yes         | 18        |
| Hispanic                       | no          | 80        |
|                                | yes         | 124       |
| Program                        | Traditional | 102       |
|                                | READ 180    | 102       |

Table 5

*Regression Model Summary 2009-2010*

| -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|-------------------|----------------------|---------------------|
| 237.849           | 0.194                | 0.259               |

The Constant only Model for this analysis correctly classified 53.4 percent of the cases. This demonstrates how well the model performed before the addition of any independent variables. Adding the independent variables in Full Model did produce a significantly better prediction than the Constant Only model. This is demonstrated by the results of the Hosmer and Lemeshow Test which yielded a  $p$  value of 0.589 for which  $p>0.05$ . The results for the Full Model are summarized in table 6.

Table 6

*Logistic Regression Analysis 2009-2010 Cohort*

| Predictor                      | $\beta$ | $SE \beta$ | Wald's<br>$\chi^2$ | $df$ | $p$  | $e^\beta$ | 95% C.I. for $e^\beta$ |       |
|--------------------------------|---------|------------|--------------------|------|------|-----------|------------------------|-------|
|                                |         |            |                    |      |      |           | Lower                  | Upper |
| READ 180 Program               | 1.004   | .318       | 9.964              | 1    | .002 | 2.728     | 1.463                  | 5.088 |
| Not Economically Disadvantaged | -.060   | .355       | .029               | 1    | .865 | .941      | .470                   | 1.887 |
| African American               | .401    | .623       | .415               | 1    | .519 | 1.494     | .441                   | 5.064 |
| Hispanic                       | -.523   | .386       | 1.835              | 1    | .176 | .593      | .278                   | 1.264 |
| Pretest Raw Score              | .206    | .042       | 23.577             | 1    | .001 | 1.229     | 1.131                  | 1.335 |
| Constant                       | -6.432  | 1.344      | 22.921             | 1    | .000 | .002      |                        |       |

Two independent variables yielded  $p$  values where  $p<0.05$ , demonstrating that the contribution that each of these variables made to the model was significant. These variables were READ 180 program, with  $p=0.002$  and Pretest Raw Score, with  $p=.001$ . The odds ratio,  $e^\beta$ , is a change in the odds resulting from a unit change in a predictor, or independent variable. The value  $e^\beta=1.2$  for the predictor Pretest Raw Score shows that for every one question answered correctly on the pretest, a student is 1.2 times more likely to meet the passing standard on the posttest. The odds ratio of 2.7 for the READ

180 Program predictor shows that a student who participated in the READ 180 program is 2.7 times more likely to meet the passing standard on the posttest than a student who did not participate in the READ 180 program. The odds ratio of 1.5 for the African American predictor shows that a student who is identified as African American is 1.5 times more likely to meet the passing standard on the posttest than a student who is not identified as African American. The odds ratio for the Not Economically Disadvantaged predictor is a value less than one. This demonstrates that a student who is not economically disadvantaged is less likely to meet the passing standard on the posttest than a student who is economically disadvantaged. The odds ratio for the Hispanic predictor is a value less than one. This demonstrates that a student who is Hispanic is less likely to meet the passing standard on the posttest than a student who is not Hispanic.

### **Results for 2010-2011 School Year**

This study, conducted in the 2010-2011 school year, consisted of 230 respondents, of which 55% were male and 45% were female. The majority of respondents were Hispanic (67.0%) and Economically Disadvantaged (74.8.8%). There were two groups under study. The intervention group received the READ 180 reading intervention program, while the control group received a more traditional reading intervention program. The descriptive statistics for both groups are listed in table 7.

Table 7

*Descriptive Statistics on Demographic Variables for READ 180 for 2010-2011*

|                                    | Experimental Groups               |                          |                  |
|------------------------------------|-----------------------------------|--------------------------|------------------|
|                                    | READ 180 Program Group<br>(n=115) | Control Group<br>(n=115) | Total<br>(n=230) |
| GENDER                             |                                   |                          |                  |
| Male                               | 55%                               | 56%                      | 55%              |
| Female                             | 45%                               | 44%                      | 45%              |
| ETHNICITY                          |                                   |                          |                  |
| African American                   | 14.8%                             | 14.8%                    | 14.8%            |
| Hispanic                           | 67.0%                             | 67.0%                    | 67.0%            |
| White                              | 18.3%                             | 18.3%                    | 18.3%            |
| ECONOMICALLY<br>DISADVANTAGED      |                                   |                          |                  |
| Yes                                | 74.8%                             | 74.8%                    | 74.8%            |
| No                                 | 25.2%                             | 25.2%                    | 25.2%            |
| TAKS TESTS                         |                                   |                          |                  |
| Pre-Post Difference<br>– Mean (SD) | 64.75 (55.06)                     | 44.63 (45.15)            | 54.69 (51.24)    |

The purpose of the research was to determine if a reading intervention program (READ 180) significantly contributed to the reading outcomes of low achieving eighth grade students. To evaluate the effectiveness of the program, pre and post test assessments were conducted using the state standardized reading test, the TAKS vertical scale. TAKS vertical scale scores were used when comparing pretest and posttest results and calculating gain scores. The independent variables for this analysis were the intervention group (those who participated in the reading intervention program and those who did not), ethnicity (African American, and Hispanic) and socio-economic status (those Economically Disadvantaged). The analysis performed on the 2010-2011 cohort replicates the analysis done with 2009-2010 cohort explained earlier in this chapter. The null and alternative hypotheses are as follows:



H<sub>0</sub>1: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving students as measured by the TAKS vertical scale.

H<sub>a</sub>1: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving students as measured by the TAKS vertical scale.

H<sub>0</sub>2: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale.

H<sub>a</sub>2: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale.

H<sub>0</sub>3: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale.

H<sub>a</sub>3: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale.

H<sub>0</sub>4: The READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale.

H<sub>a</sub>4: The READ 180 intervention program does significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale.

Preliminary examinations of the control and experimental group histograms indicated that the pre-post test score differences were normally distributed. This was confirmed by the kurtosis and skewness where all values were in the acceptable range of

$\pm 2$  (De Carlo, 1997). Based on the results of the test of normality, independent sample t-tests were employed to test each of the research questions. See table 8 and figures 11 and 12 below.

Table 8

*Skewness and Kurtosis Values for 2010-2011*

|                    | <i>N</i> | <i>Skewness</i> | <i>Skewness<br/>Standard<br/>Error</i> | <i>Kurtosis</i> | <i>Kurtosis<br/>Standard Error</i> |
|--------------------|----------|-----------------|--|-----------------|------------------------------------|
| Intervention Group | 115      | .495            | .226                                   | .952            | .447                               |
| Control Group      | 115      | .577            | .226                                   | 1.283           | .447                               |

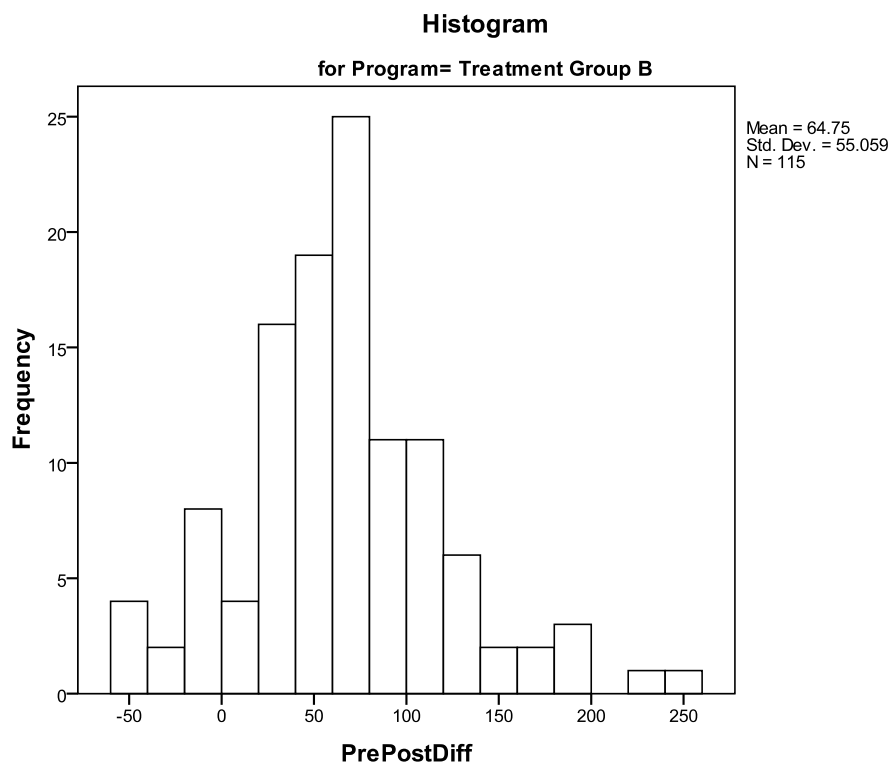


Figure 11: Histogram of Intervention group

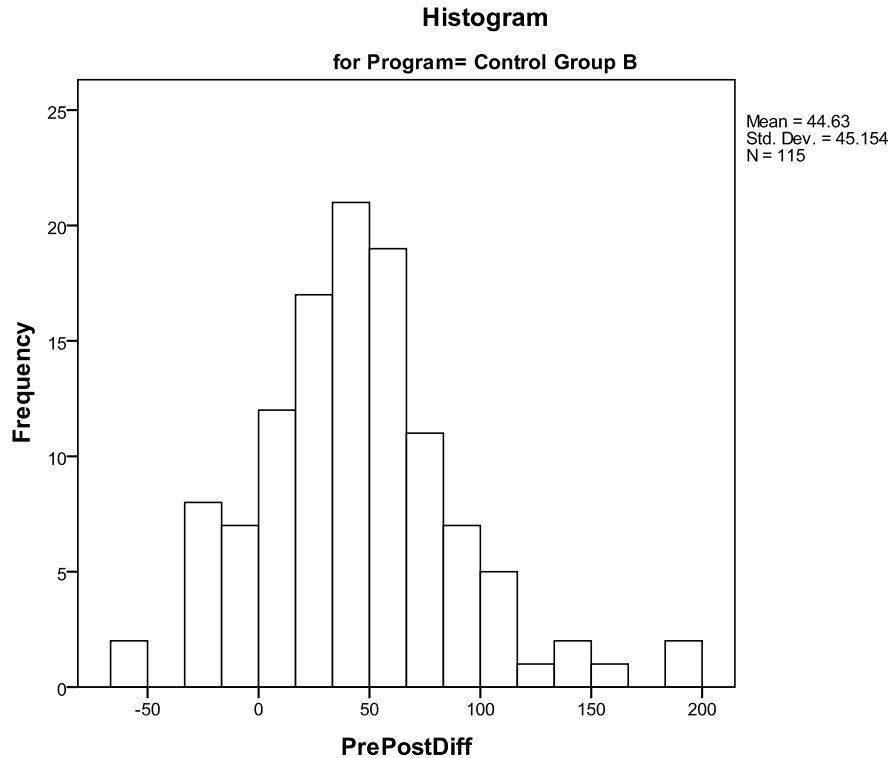


Figure 12: Histogram of Control group

Results of the comparison between the intervention ( $M = 64.75$ ,  $SD = 55.06$ ) and control ( $M = 44.63$ ,  $SD = 45.15$ ) groups among eighth graders indicated that there was a significant difference between the two groups,  $t(228) = 3.03$ ,  $p = .003$ , where the intervention group made significantly greater improvements between the pre and post tests than the control group. Results of Cohen's  $d$  indicated that the difference between the mean scores was small,  $d = .40$ . Cohen's  $d$  is calculated as  $d = (M_1 - M_2) / \sigma$ . Given these results, we reject the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving eighth grade students as measured by the TAKS vertical scale. See figures 13 and 14.

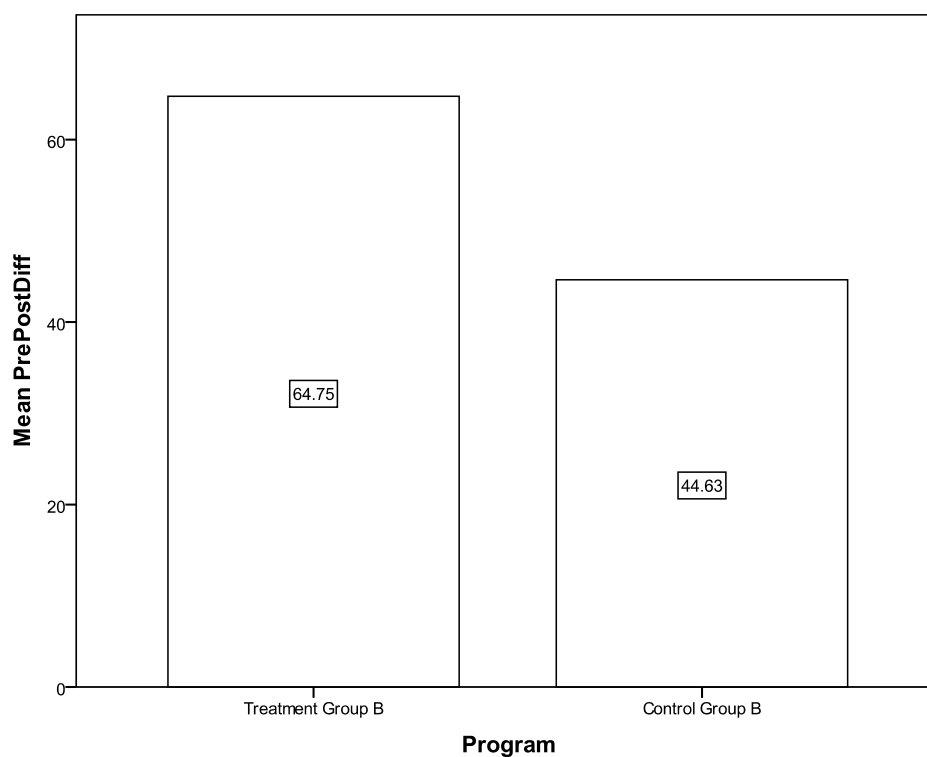


Figure 13: Mean scores comparisons of pre/post-test differences scores

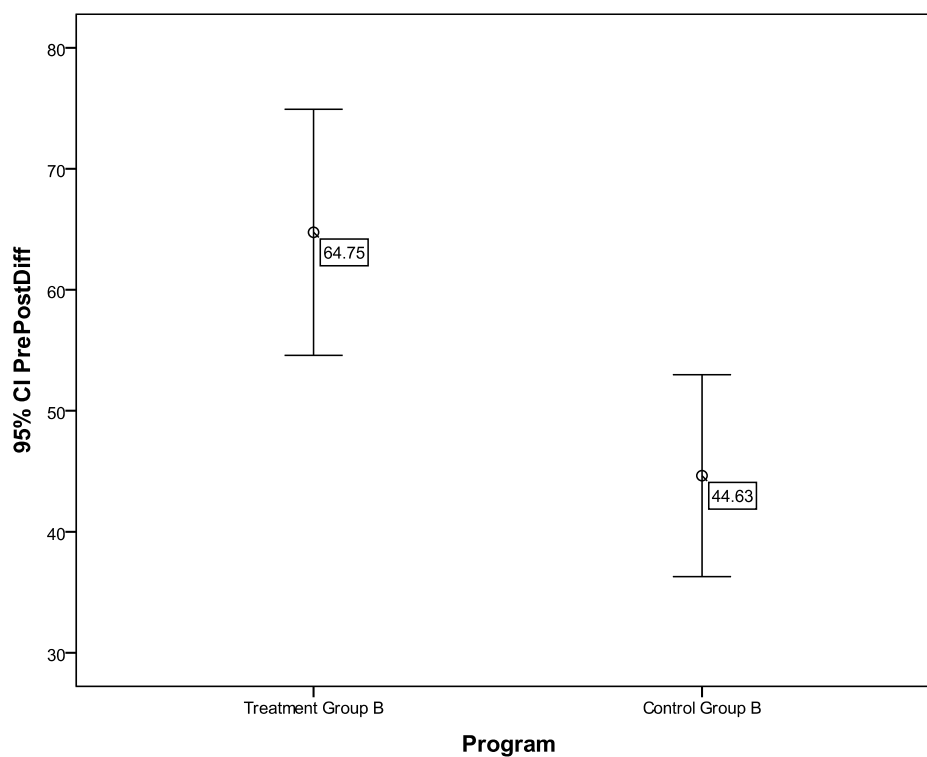
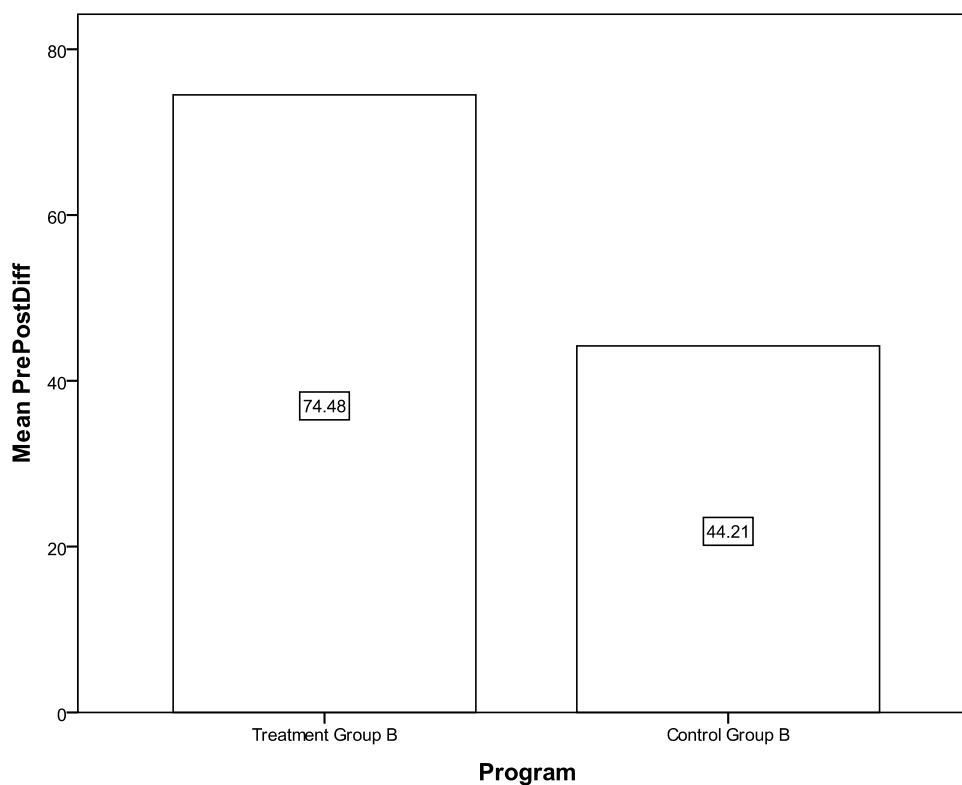
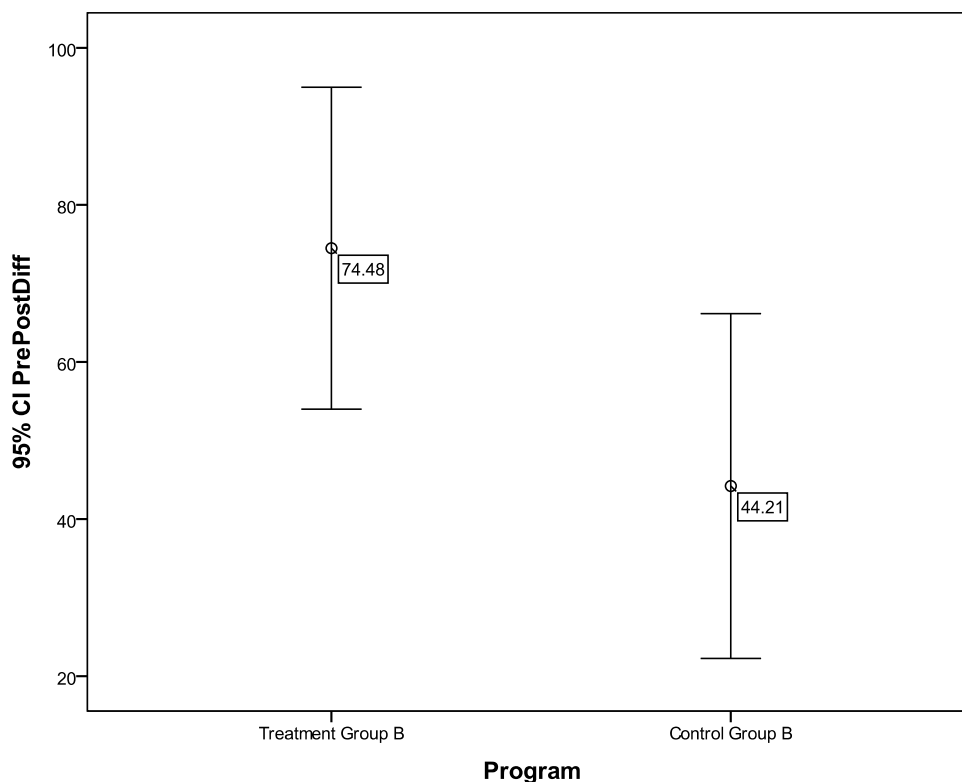


Figure 14: Error bars of pre/post-test mean differences among all respondents

Comparisons between the intervention ( $N = 86$ ,  $M = 74.48$ ,  $SD = 53.88$ ) and control ( $N = 86$ ,  $M = 44.21$ ,  $SD = 57.72$ ) groups among Economically Disadvantaged students indicated that there was a significant differences in pre/post difference scores between the two groups,  $t(56) = 2.07$ ,  $p = .044$ ,  $d = .55$ . Effect size results indicated that the differences between the mean scores were moderate in size. The results of the independent samples t-test dictate that we reject the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving Economically Disadvantaged students as measured by the TAKS vertical scale. See figures 15 and 16.



*Figure 15:* Mean scores comparisons of pre/post-test differences among the Economically Disadvantaged



*Figure 16:* Error bars of pre/post-test mean differences among the Economically Disadvantaged

When comparing the TAKS pre/post-test difference scores among Hispanic eighth graders, results of the independent samples t-test indicated that there was a significant difference in scores between the intervention group ( $N = 77$ ,  $M = 65.24$ ,  $SD = 58.07$ ) and the control group ( $N = 77$ ,  $M = 38.29$ ,  $SD = 45.37$ ),  $t(74) = 2.25$ ,  $p = .027$ . The Cohen's  $d$  effect size calculation was  $d = .52$ , indicating that the difference between the mean scores was moderate in size. Based on these results, we accept the null hypothesis that the READ 180 intervention program has a significant impact on reading outcomes of low achieving Hispanic students as measured by the TAKS vertical scale. See figures 17 and 18.

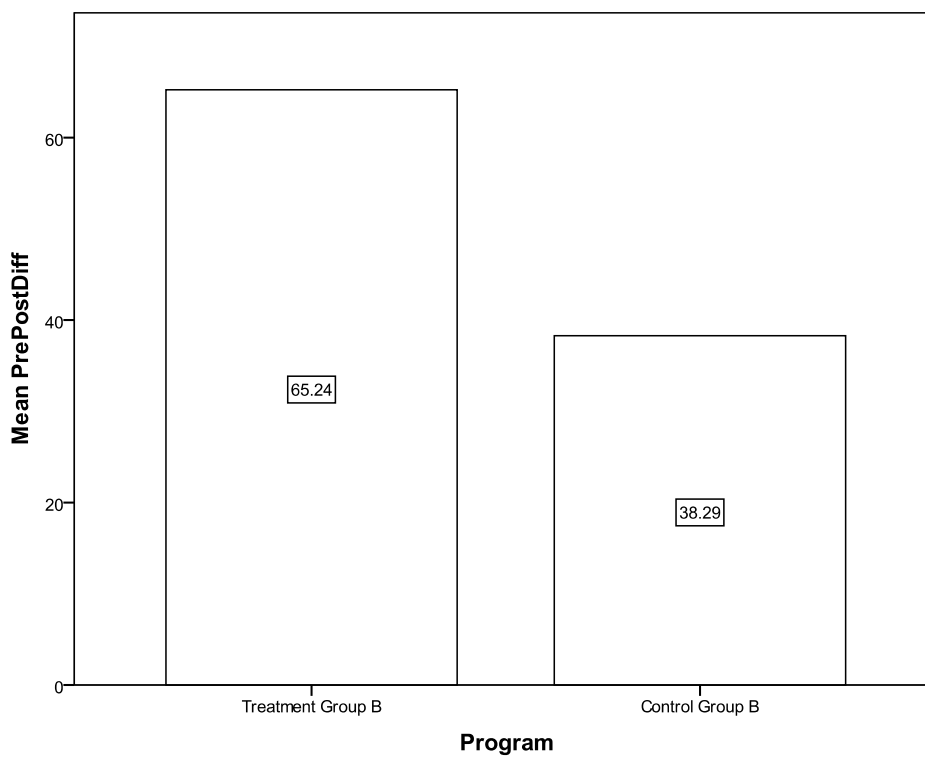


Figure 17: Mean scores comparisons of pre/post-test differences among Hispanics

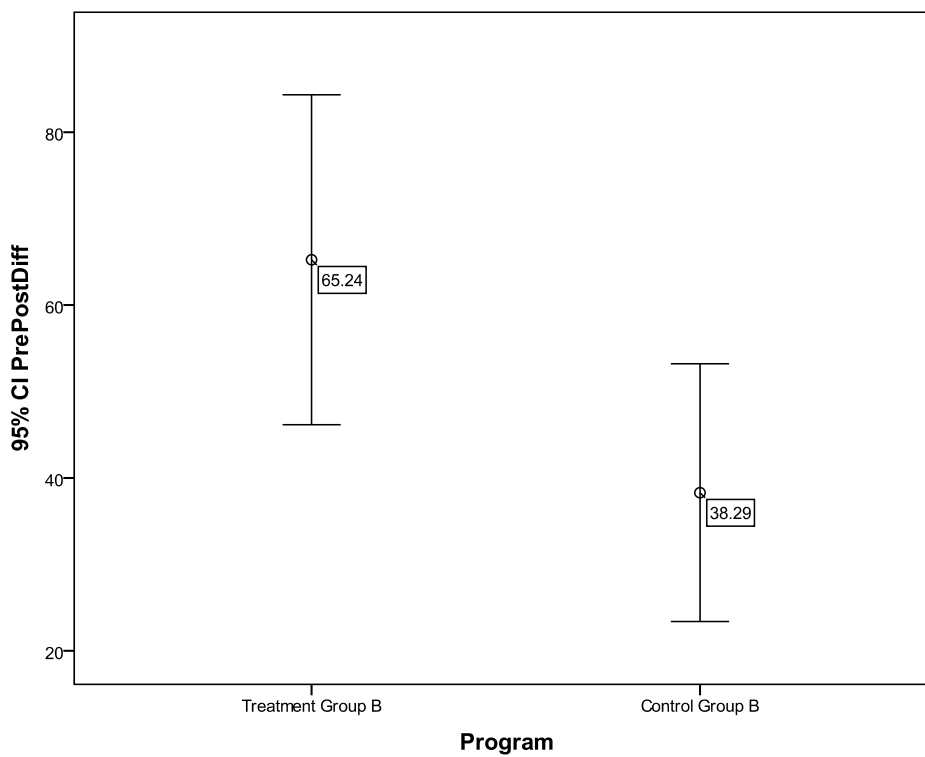
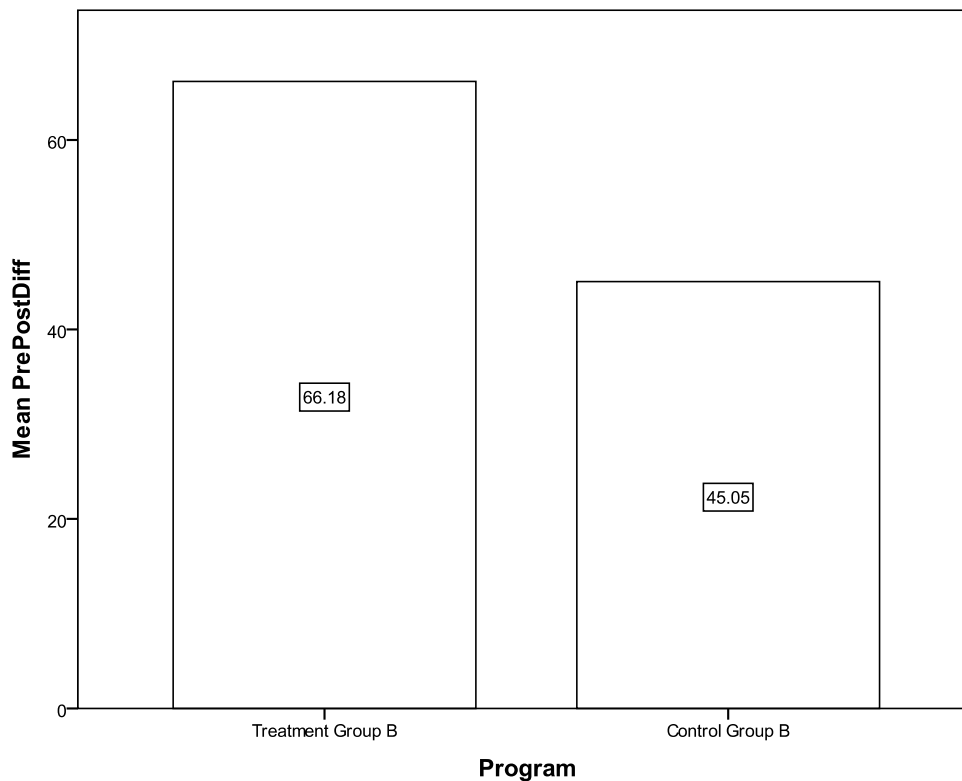


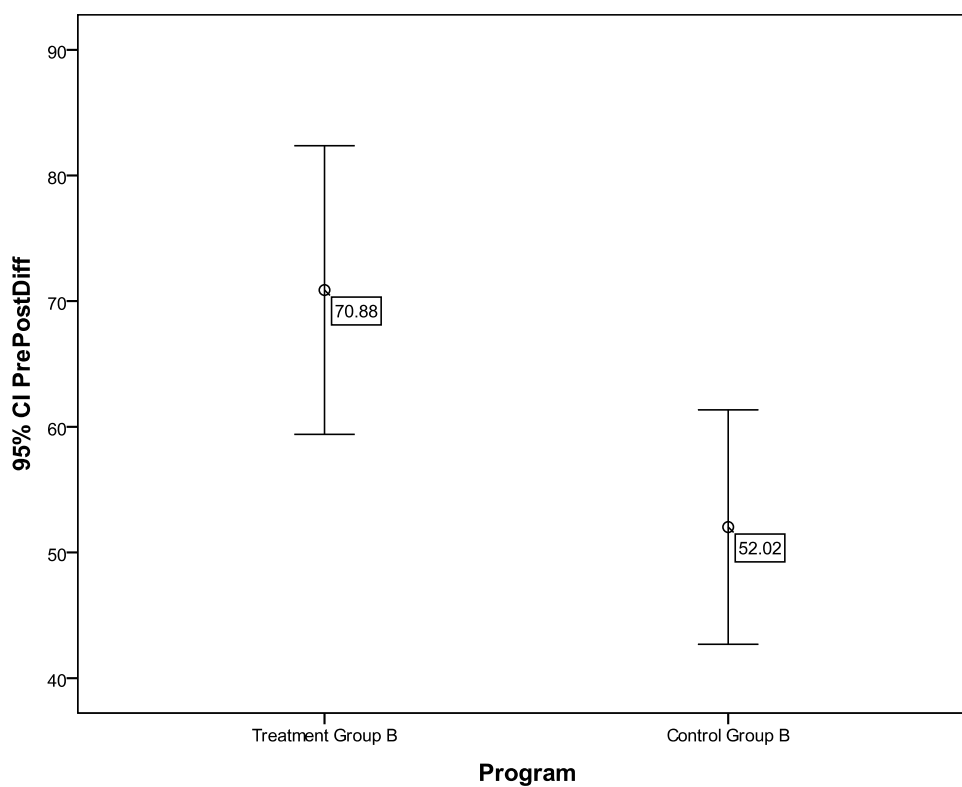
Figure 18: Error bars of pre/post-test mean differences among Hispanics

Among African Americans, we see that the intervention group ( $N = 17$ ,  $M = 66.18$ ,  $SD = 55.35$ ) had significantly higher pre/post-test difference scores than the control group ( $N = 17$ ,  $M = 45.05$ ,  $SD = 45.14$ ),  $t(194) = 2.87$ ,  $p = .005$ . Though the means were significantly different, the actual difference between the means, based on Cohen's effect size measure, was small,  $d = .41$ . The results of the independent samples t-test indicate that we reject the null hypothesis that the READ 180 intervention program does not significantly contribute to the reading outcomes of low achieving African American students as measured by the TAKS vertical scale. See figures 19 and 20.



*Figure 19: Mean scores comparisons of pre/post-test differences among African Americans*





*Figure 20: Error bars of pre/post-test mean differences among African Americans*

The data for each independent sample t-test are listed in table 9. The effect size for each variable is included in the table. The effect size for all respondents was 0.40. The effect size for Economically Disadvantaged students was 0.55. The effect size for Hispanic students was 0.52. The effect size for African American students was 0.41.

Table 9

*Result of Independent Samples T-Test for 2010-2011*

|                            | Intervention Group |       | Control Group |       | df  | t    | p    | Cohen's d |
|----------------------------|--------------------|-------|---------------|-------|-----|------|------|-----------|
|                            | M                  | SD    | M             | SD    |     |      |      |           |
| All Respondents            | 64.75              | 55.06 | 44.63         | 45.15 | 228 | 3.03 | .003 | .40       |
| Economically Disadvantaged | 74.28              | 53.88 | 44.21         | 57.72 | 56  | 2.07 | .044 | .55       |
| Hispanic                   | 65.24              | 55.07 | 38.29         | 45.37 | 74  | 2.25 | .027 | .52       |
| African American           | 66.18              | 57.35 | 45.05         | 45.14 | 194 | 2.87 | .005 | .41       |

A logistic regression analysis was conducted on the 2010-2011 data set as well. For this analysis, the dependent variable was whether or not the student met the passing standard on the 2011 eighth grade Reading TAKS. The passing standard for the 2011 eighth grade Reading TAKS is a vertical scale score of 700. So students with a vertical scale score of 700 or higher were considered to have “Met Standard” and students with scores below 700 were consider to not have met the standard. Several independent or predictor variables were used in this analysis. One independent variable was the reading intervention program; whether or not the student was enrolled in READ 180 or a more traditional reading intervention program. Other independent variables included the ethnicity categories of African American, Hispanic and White. Socio-economic status was also an independent variable for this analysis. The student raw score on the pretest (seventh grade 2010 Reading TAKS) was an independent variable as well. Table 10

provides a list of categorical variables and their frequencies. Table 11 provides information on the amount of variation in the dependent variable that is explained by the regression model. In this case, 12.9 percent to 17.2 percent of the variability is explained by the model.

Table 10

*Logistic Regression Categorical Variables 2010-2011*

|                                |             | Frequency |
|--------------------------------|-------------|-----------|
| White                          | no          | 188       |
|                                | yes         | 42        |
| Not Economically Disadvantaged | no          | 172       |
|                                | yes         | 58        |
| African American               | no          | 196       |
|                                | yes         | 34        |
| Hispanic                       | no          | 76        |
|                                | yes         | 154       |
| Program                        | Traditional | 115       |
|                                | READ 180    | 115       |

Table 11

*Regression Model Summary 2010-2011*

| -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|-------------------|----------------------|---------------------|
| 286.070           | .129                 | .172                |

The Constant only Model for this analysis correctly classified 53.5 percent of the cases. This demonstrates how well the model performed before the addition of any independent variables. Adding the independent variables in Full Model did not produce a significantly better prediction than the Constant Only model. This is demonstrated by the results of the Hosmer and Lemeshow Test which yielded a  $p$  value of 0.045 for which  $p < 0.05$ . The results for the Full Model are summarized in table 12.

Table 12

*Logistic Regression Analysis 2010-2011 Cohort*

| Predictor                      | $\beta$ | $SE \beta$ | Wald's<br>$\chi^2$ | $df$ | $p$  | $e^\beta$ | 95% C.I. for $e^\beta$ |       |
|--------------------------------|---------|------------|--------------------|------|------|-----------|------------------------|-------|
|                                |         |            |                    |      |      |           | Lower                  | Upper |
| READ 180 Program               | .281    | .284       | .979               | 1    | .323 | 1.324     | .759                   | 2.309 |
| Not Economically Disadvantaged | .274    | .350       | .614               | 1    | .433 | 1.315     | .663                   | 2.611 |
| African American               | .381    | .504       | .573               | 1    | .449 | 1.464     | .546                   | 3.930 |
| Hispanic                       | .097    | .393       | .061               | 1    | .805 | 1.102     | .510                   | 2.382 |
| Pretest Raw Score              | .169    | .036       | 22.315             | 1    | .001 | 1.184     | 1.104                  | 1.270 |
| Constant                       | -4.909  | 1.121      | 19.194             | 1    | .000 | .007      |                        |       |

One independent variable yielded a  $p$  value where  $p < 0.05$ , demonstrating that the contribution that this variable made to the model was significant. This variable was the Pretest Raw Score, with  $p = .001$ . The odds ratio,  $e^\beta$ , is a change in the odds resulting from a unit change in a predictor, or independent variable. The value  $e^\beta = 1.2$  for the predictor Pretest Raw Score shows that for every one question answered correctly on the pretest, a student is 1.2 times more likely to meet the passing standard on the posttest. The odds ratio of 1.3 for the READ Program predictor shows that a student who participated in the

READ 180 program is 1.3 times more likely to meet the passing standard on the posttest than a student who did not participate in the READ 180 program. The odds ratio of 1.5 for the African American predictor shows that a student who is identified as African American is 1.5 times more likely to meet the passing standard on the posttest than a student who is not identified as African American. The odds ratio for the Not Economically Disadvantaged predictor of 1.3 shows that a student who is identified as Not Economically Disadvantaged is 1.3 times more likely to meet the passing standard on the posttest than a student who is economically disadvantaged. The odds ratio of 1.1 for the Hispanic predictor shows that a student who is identified as Hispanic is 1.5 times more likely to meet the passing standard on the posttest than a student who is not identified as Hispanic.

### **Summary**

For the 2009-2010 data set of this study, t-tests showed there were significant differences between only two groups. First, across all respondents, the intervention group ( $M = 73.20$ ,  $SD = 55.02$ ) had significantly higher mean differences in pre/post-test differences scores than the control group ( $M = 52.93$ ,  $SD = 44.02$ ),  $t(202) = 2.91$ ,  $p = .004$ , Cohen's  $d = .41$ . The only other group that saw significant differences between the intervention and control groups was African Americans. In this instance, the intervention group ( $M = 70.88$ ,  $SD = 55.78$ ) had significantly higher pre/post-test difference scores than the control group ( $M = 52.02$ ,  $SD = 55.30$ ),  $t(184) = 2.53$ ,  $p = .012$ , Cohen's  $d = .37$ . Logistic regression analysis showed that a student who participated in READ 180 was 2.7 times more likely to meet the passing standard on the posttest than a student who did not participate in READ 180. In the analysis of the 2010-2011 data set, t-tests showed there

were significant differences between all groups tested. Logistic regression analysis showed that a student who participated in READ 180 was 1.3 times more likely to meet the passing standard on the posttest than a student who did not participate in READ 180.

## CHAPTER V: SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to evaluate the effect of the reading intervention program READ 180 on the reading achievement of struggling intermediate school readers in grade eight at a Texas independent school district in order to determine the value of the reading intervention program. The intent was to provide a model for instructional leaders to follow when closely examining an existing instructional program to determine its effectiveness. This chapter presents a concise summary of the research findings along with implications of the findings for instructional leaders. Recommendations pertaining to future research are also discussed.

### **Summary of Findings**

This study looked at two years of data. The reading achievement of 204 eighth grade students over the 2009-2010 school year were compared using student gain scores from 2009 to 2010 on the reading Texas Assessment of Knowledge and Skills (TAKS). A logistic regression was also calculated to determine the probability that a student would meet the passing standard on the posttest given the variables of intervention program, pretest score, ethnicity and socio-economic status. The reading achievement of 230 eighth grade students over the 2010-2011 school year were compared using the student gains scores from 2010 to 2011 on the reading TAKS. A logistic regression was also calculated to determine the probability that a student would meet the passing standard on the posttest given the variables of intervention program, pretest score, ethnicity and socio-economic status. These two cohort groups were studied independently, and their data analysis and results were reported separately. The data analysis focused on five research questions. Variables of interest were participation in the READ 180 program,

ethnicity and socio-economic status. A summary of the analysis results are provided for each research question.

### **Research Question 1**

Does the READ 180 program have a statistically significant effect ( $p < .05$ ) on the reading achievement of eighth grade students when compared to similar students who do not participate in the READ 180 program?

For the study conducted over the 2009-2010 school year, the results shown on Table 1 and Table 3 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade students who received the READ 180 program when compared to the eighth grade students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group students in the 2009-2010 cohort year demonstrated reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 20.27 points when compared to the gains of the control group. The averages show an increase in reading achievement scores of  $M=73.20$  for the READ 180 group and an increase in reading achievement scores of  $M=52.93$  for the control group. Results of the logistic regression showed that a student who participated in the READ 180 program was 2.7 times more likely to meet the passing standard on the 2010 eighth grade Reading TAKS.

For the study conducted over the 2010-2011 school year, the results shown on Table 7 and Table 9 show that the READ 180 reading intervention did have a significant



effect on the reading achievement scores of the eighth grade students who received the READ 180 program when compared to the eighth grade students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group students in the 2010-2011 cohort year demonstrated reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 20.12 points when compared to the gains of the control group. The averages show an increase in reading achievement scores of  $M=64.75$  for the READ 180 group and an increase in reading achievement scores of  $M=44.63$  for the control group. Results of the logistic regression showed that a student who participated in the READ 180 program was 1.3 times more likely to meet the passing standard on the 2011 eighth grade Reading TAKS.

## **Research Question 2**

Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Economically Disadvantaged eighth grade students who participate in the READ 180 program when compared to similar Economically Disadvantaged students who did not participate in the READ 180 program?

For the study conducted over the 2009-2010 school year, the results shown on Table 3 indicate that the READ 180 reading intervention had no significant effect on the reading achievement scores of the eighth grade Economically Disadvantaged students who received the READ 180 program when compared to the eighth grade Economically Disadvantaged students who received a more traditional reading intervention program.

The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group Economically Disadvantaged students in the 2009-2010 cohort year demonstrated reading achievement gains on the TAKS. Both groups demonstrated gains. The gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 16.51 points when compared to the gains of the control group. However, this difference in average gain scores was not high enough to be statistically significant.

For the study conducted over the 2010-2011 school year, the results shown on Table 9 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade Economically Disadvantaged students who received the READ 180 program when compared to the eighth grade Economically Disadvantaged students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group Economically Disadvantaged students in the 2010-2011 cohort year demonstrated reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 30.27 points when compared to the gains of the control group. The averages show an increase in reading achievement scores of  $M=74.48$  for the READ 180 group and an increase in reading achievement scores of  $M=44.21$  for the control group. Effect size results indicated that the differences between the mean scores of Economically Disadvantaged students in the READ 180 group and the mean scores of Economically Disadvantaged students in the control group were moderate in size.

**Research Question 3**

Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for Hispanic eighth grade students who participate in the READ 180 program when compared to similar Hispanic students who did not participate in the READ 180 program?

For the study conducted over the 2009-2010 school year, the results shown on Table 3 indicate that the READ 180 reading intervention had no significant effect on the reading achievement scores of the eighth grade Hispanic students who received the READ 180 program when compared to the eighth grade Hispanic students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group Hispanic students in the 2009-2010 cohort year demonstrated reading achievement gains on the TAKS. Both groups demonstrated gains. The gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 15.57 points when compared to the gains of the control group. However, this difference in average gain scores was not high enough to be statistically significant.

For the study conducted over the 2010-2011 school year, the results shown on Table 9 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade Hispanic students who received the READ 180 program when compared to the eighth grade Hispanic students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group Hispanic students in the 2010-2011 cohort year demonstrated

reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 26.95 points when compared to the gains of the control group. The averages show an increase in reading achievement scores of  $M=65.24$  for the READ 180 group and an increase in reading achievement scores of  $M=38.29$  for the control group. Effect size results indicated that the differences between the mean scores of Hispanic students in the READ 180 group and the mean scores of Hispanic students in the control group were moderate in size.

#### **Research Question 4**

Is there a statistically significant difference ( $p < .05$ ) in reading achievement scores for African American eighth grade students who participate in the READ 180 program when compared to similar African American students who did not participate in the READ 180 program?

For the study conducted over the 2009-2010 school year, the results shown on Table 3 indicate that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade African American students who received the READ 180 program when compared to the eighth grade African American students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group African American students in the 2009-2010 cohort year demonstrated reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 18.86 points when compared to the gains

of the control group. The averages show an increase in reading achievement scores of  $M=70.88$  for the READ 180 group and an increase in reading achievement scores of  $M=52.02$  for the control group. Effect size results indicated that the differences between the mean scores of African American students in the READ 180 group and the mean scores of African American students in the control group were small in size. It is also important to note the small number of African American students in both the treatment and control group. Each group contained only nine African American students.

For the study conducted over the 2010-2011 school year, the results shown on Table 9 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade African American students who received the READ 180 program when compared to the eighth grade African American students who received a more traditional reading intervention program. The findings, based on gain scores calculated from pre-test and post-test reading achievement data, indicated that both the treatment and control group African American students in the 2010-2011 cohort year demonstrated reading achievement gains on the TAKS. Although both groups demonstrated gains, the gain scores in reading achievement for the READ 180 eighth graders were higher by an average of 21.13 points when compared to the gains of the control group. The averages show an increase in reading achievement scores of  $M=66.18$  for the READ 180 group and an increase in reading achievement scores of  $M=45.05$  for the control group. Effect size results indicated that the differences between the mean scores of African American students in the READ 180 group and the mean scores of African American students in the control group were small in size. It is also important to

note the small number of African American students in both the treatment and control group. Each group contained only seventeen African American students.

### **Research Question 5**

Will the effect size calculated for the READ 180 program's effect on student reading achievement in this study be lower than effect sizes calculated for READ 180 in other studies which used large limited English proficient (LEP) student populations?

For the study conducted over the 2009-2010 school year, the results shown on Table 3 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade students who received the READ 180 program when compared to the eighth grade students who received a more traditional reading intervention program. Effect size results indicated that the differences between the mean scores of students in the READ 180 group and the mean scores of students in the control group were small in size with a Cohen's  $d$  effect size of  $d=.41$ .

For the study conducted over the 2010-2011 school year, the results shown on Table 9 show that the READ 180 reading intervention did have a significant effect on the reading achievement scores of the eighth grade students who received the READ 180 program when compared to the eighth grade students who received a more traditional reading intervention program. Effect size results indicated that the differences between the mean scores of students in the READ 180 group and the mean scores of students in the control group were small in size with a Cohen's  $d$  effect size of  $d=.40$ .

The effect size results for both the 2009-2010 cohort study and the 2010-2011 cohort study were both above the average effect size of 0.24 found in the synthesis study done by Slavin's group (Slavin et al., 2008). Slavin's group looked at eight research

studies on the READ 180 program which were found to meet the group's nine criteria of well-designed research studies (Slavin et al, 2008). It should be noted here that this study of *ABC* Independent School District also meets all nine criteria. Of these eight studies from the Slavin group's synthesis research, only two gave information on the LEP status of the students in their sample (Slavin et al., 2008). The Papalewis study recorded an effect size of 0.68 with a sample comprised of 74% LEP students (Papalewis, 2004, Slavin et al., 2008). The Haslam, White & Klinge study recorded an effect size of 0.18 with a sample comprised of 90% LEP students (Haslam et al., 2006, Slavin et al., 2008). It should be noted that the Haslam group's study did discuss concerns related to the fidelity of the implementation of the READ 180 program and called for further research related to the relationship of increased fidelity and increased student achievement (Haslam et al., 2006). The effect size results for both the 2009-2010 cohort group and the 2010-2011 cohort group in this study of *ABC* Independent School District are lower than the effect size results recorded in the Papalewis study and higher than the effect size results recorded in the Haslam group's study.

### **Comparison of Independent Variables**

The t-test analysis on gain scores compared the treatment group mean gain scores to the control group mean gain scores on one independent variable at a time. For instance, Economically Disadvantaged students in READ 180 were compared to Economically Disadvantaged students in a traditional reading intervention program. The logistic regression analysis provides a relative importance of each independent variable when compared to the others. For the 2009-2010 cohort, students who participated in READ 180 were 2.7 times more likely than students who did not participate in READ

180 to meet the passing standard on the posttest. Non-Economically Disadvantaged students were less likely than Economically disadvantaged students to meet the passing standard on the posttest. African American students were 1.5 times more likely than non-African American students to meet the passing standard on the posttest. Hispanic students were less likely than non-Hispanic students to meet the passing standard on the posttest. This data shows that for this cohort, the reading intervention program was the independent variable of those listed above that had the greatest effect on student outcomes, followed by the African American ethnicity variable. For each additional question that a student in this cohort answered correctly on the pretest, the student was 1.2 times more likely to meet the passing standard. Due to its cumulative impact, this makes the student's pretest score the independent variable that most effected student reading achievement outcomes. This is intuitive. The higher a student scores on the reading pretest, the more likely he or she is to meet the passing standard on the reading posttest.

For the 2010-2011 cohort, students who participated in READ 180 were 1.3 times more likely than students who did not participate in READ 180 to meet the passing standard on the posttest. Non-Economically Disadvantaged students were 1.3 times more likely than Economically Disadvantaged students to meet the passing standard on the posttest. African American students were 1.5 times more likely than non-African American students to meet the passing standard on the posttest. Hispanic students were 1.1 times more likely than non-Hispanic students to meet the passing standard on the posttest. This data shows that for this cohort, the African American ethnicity was the independent variable of those listed above that had the greatest effect on student



outcomes, followed by the reading intervention program variable. To put this in another way, for the 2010-2011 cohort, being African American was more important than being in READ 180 for determining if a student would meet the passing standard on the posttest. For each additional question that a student in this cohort answered correctly on the pretest, the student was 1.2 times more likely to meet the passing standard. Due to its cumulative impact, this makes the student's pretest score the independent variable that most effected student reading achievement outcomes.

### **Conclusions**

Based on the results of this study, the READ 180 program was found to have a small, but significant effect on the reading achievement of the eighth grade students. However, though the effect was found to be statistically significant, this does not guarantee that the READ 180 program will result in great achievement gains. In this study, students in the READ 180 program recorded average gain scores of about 20 points higher than students in the control group. This only translates into an improved raw score of about two to three questions. To put this in another way, the students in the READ 180 program correctly answered, on average, about 2 to 3 questions more than the students not in READ 180. Looking at the number of students who met the passing standard also sheds some light on the overall effectiveness of the READ 180 program. For the 2010-2011 cohort, 65 out of 115 students in the READ 180 group met the passing standard. The number of students in the traditional reading intervention that met the passing standard was 58 out of 115. This shows that for the 2010-2011 cohort, the READ 180 program had only 7 more students meet the passing standard than the traditional reading intervention program did.

The logistic regression for the 2010-2011 cohort group demonstrated that being in READ 180 had no greater effect on reading achievement than being identified as African American and about the same effect as being identified as non-economically disadvantaged. In Texas, where this study was conducted, schools and districts received rating labels, such as Academically Acceptable, Recognized, or Exemplary. These ratings labels can have a big impact on local real estate markets and the community's impression of the school or the district's success. Due to the design of the state accountability system, the labels are often determined by how well a campus or district's smallest demographic subpopulation performs. The four districts sampled for this study all had small African American student populations relative to their overall size. Thus in order to improve their campus and district ratings, these districts would all have been highly incentivized to focus their time energy and resources on their African American student population. This focus could explain why being identified as African American had a greater impact than being enrolled in READ 180 for the 2010-2011 cohort group. This provides evidence that the focus, goals and resources that an instructional leader commits toward a student group can have a greater impact on student achievement than any one intervention program. School leaders should take careful note of these results and the small effect size found for the READ 180 program and they should adjust their expectations accordingly.

The results of this study show that READ 180 is not effective at reducing achievement gaps. The results of the 2010-2011 cohort group seem to suggest that Economically Disadvantaged students, African American students and Hispanic students using READ 180 all experienced significant reading achievement gains. This suggests

that READ 180 is effective at closing reading achievement gaps for these subpopulations. However, the results of the 2009-2010 cohort group do not support this conclusion. The 2009-2010 cohort group recorded no significant difference in reading achievement gains for Economically Disadvantaged students or for Hispanic students who received the READ 180 program when compared with similar students who received a more traditional reading intervention program. In addition, the effect size of the READ 180 program's impact on reading achievement was 0.32 and 0.31 for Economically Disadvantaged students and Hispanic students respectively. These effect sizes are lower than the 0.41 effect size found for the entire group, which included their white peers. The 2009-2010 cohort group did record significant reading achievement gains for the African American students that participated in the READ 180 program when compared to similar students who received more traditional reading interventions. However, the 0.37 effect size recorded for the READ 180 program's impact on the reading achievement of African American students was also lower than the 0.41 effect size recorded for the entire group. This data shows that there is conflicting evidence on the READ 180 program's ability to reduce achievement gaps between subpopulations of student groups. Based on this conflict, it can not be concluded that READ 180 is effective at reducing achievement gaps.

The implication here is to proceed with care and caution when targeting individual student groups for improved reading achievement gains. Of all of the available reading intervention programs for eighth grade students listed in the What Works Clearinghouse, READ 180 ranks the highest. However, it is still only listed as having only potentially positive effects. There is no silver bullet for addressing student

achievement gaps. The complex nature of student achievement gaps are best summarized in a study on READ 180, done by Interactive Inc., which states that student “diversity requires flexibility and individualization” which will inevitably “slow and complicate implementation” of reading intervention programs such as READ 180 (Interactive Inc., 2002, p.17).

### **Limitations**

Some limitations do exist with this study. The study looked at eighth grade students enrolled in *ABC* Independent School District’s READ 180 program and compared them to eighth grade students in more traditional reading intervention programs in other Texas school districts. As such, while the results can speak to effectiveness of the READ 180 program in a variety of settings, the results of the study are most accurately generalized to other eighth grade students in the state of Texas and will be most useful to instructional leaders focusing on reading achievement for intermediate school students. Additionally, while attempts were made to ensure the fidelity of the implementation of the READ 180 program (through such devices as common staff training, common teacher certification and frequent administrative walk-throughs), *ABC* Independent School District’s READ 180 program encompassed several eighth grade classrooms and teachers. This would inevitably cause some variances in the fidelity of program implementation between teachers and classrooms.

Perhaps the most significant limitation was the variance in teacher style and ability. While the matched control group design made great efforts to equalize the students in the treatment and control groups, the design of this study did not allow for a matching of teachers based on ability or experience. While *ABC* ISD is located close to a

major metropolitan area, it is located far enough away from the big city to function as an insular community. As a result, teacher retention in *ABC* ISD is relatively high. This means that the district's teachers tend to be older and more experienced. The three other Texas school districts from which the control group students were selected are located closer to the large city and may experience higher teacher turnover rates as a result. This possibility of inequity in teacher experience and ability could account for the modest achievement gains found for the READ 180 program. To put this in another way, the students in the READ 180 group may have recorded higher gains in reading achievement because they may have simply had better teachers.

Another limitation for this study was the differences in the traditional reading interventions offered by the three districts of the control group students. While the control group students all participated in more traditional reading intervention programs which contained similar elements (smaller classes, more instructional time, face-to-face direct instruction), these students were selected from several schools across three different school districts and these traditional reading intervention programs were not all identical. Additionally, this study looked at student achievement gains over only one academic year. The reading achievement gains experienced by students in one academic year may differ from reading achievement gains experienced by students participating in the READ 180 program for multiple years. The small sample size of this study was another limitation. Although the sample size for the treatment and control groups used in this study were similar to those used in other studies included in the Slavin group's meta-analysis, studies with substantially larger sample sizes may yield different student achievement gains.

### **Implications for Instructional Leadership**

Today's district and school leaders are challenged with the task of implementing promising reform efforts and with demonstrating improved academic performance for each student in their school (Gentilucci & Muto, 2007). The accountability mandate created by NCLB makes it necessary for district and school leaders focus their energies on raising student achievement (Gentilucci & Muto, 2007). Though campus principals must take on many leadership responsibilities, their main role is to ensure quality teaching and learning that results in enhanced student achievement (O'Donnell & White, 2005). When it comes to selecting and monitoring an instructional program, the activities and choices of school leaders are paramount as campus principals are the foundation for instructional leadership at the campus level (Sergiovanni, 1998).

The 2001 No Child Left Behind Act was aimed at bringing all students up to grade level in reading ability and at eliminating achievement gaps between sub-populations of students groups. The government intended to achieve this goal in part by identifying research based programs that demonstrated success in improving reading achievement and distributing knowledge of these programs to schools and districts. The demonstrated failure of the No Child Left Behind Act to achieve its goals is caused by the flaw in its premise; that research-based programs could solve the literacy crisis or close achievement gaps. What every tested instructional leader knows is that it's the people, not the programs that deliver quality teaching and learning. Any instructional program is only as good as the teacher who delivers it. There is no one instructional program that will replace or amount to the value of a good, quality teacher.

Instructional programs are still important to quality teaching and learning in that they provide support for quality teachers. This research highlights several key items for the discerning instructional leader to keep in mind when researching instructional programs or conducting action research. Instructional leaders need to take a close look at the effect size recorded by a program and not just the statistical significance. Statistical significance can be misleading and program vendors often rely too heavily on this measure. Questions regarding the sample size, and the type of statistical analysis applied are important. Ask to see the data, and not just the results. When conducting action research, it is important to look at the data in multiple ways. In this study, two cohorts of students were examined using two levels of statistical analysis; a t-test analysis and a logistic regression. Had the study only looked at one cohort, using one statistical test, the result would have been a much more narrow view of the data and the impact of the READ 180 intervention may have been overstated.

Instructional leaders should always keep their own students and their own population in mind when researching instructional programs. The best research is the action research conducted on your own students, because these results will most directly translate to your population. When examining the research of others for an instructional program, it is important to get as much information about the sample as possible. What are the student demographics? What percentage of the students are economically disadvantaged? Is there a large number of special needs students in the sample? Most importantly, does the make-up of the students in this sample closely resemble the students at your school or district?

Instructional leaders need to also be aware of the distinction between “effective” and “cost-effective.” Given the recent four billion dollar reduction to public education funding in the state of Texas, it is imperative that Texas school leaders consider not only the benefit of an instructional program but also its cost when selecting an appropriate instructional program for schools. The current status of the U.S. economy and similar recent reductions to public education in other states extend this imperative to school leaders across the nation. *ABC* Independent School District spends a significant amount of money annually on implementing READ 180 district wide. There are personnel costs associated with implementing the extra minutes of instruction, training costs, start-up costs for materials, annual costs for replacing consumable materials and an annual service and support fee. In 2010-2011, *ABC* ISD paid out over a hundred thousands dollars to implement the READ 180 program to students in the eighth grade. The result was average gain of two to three questions on the end of year test and an extra seven students meeting the passing standard. That amounts to about \$14,286 per student for the seven extra students that met the passing standard on the end of year test. Today’s discerning instructional leader should carefully consider the particular needs of his or her campus or district and weigh the modest student achievement gains for READ 180 found in this and other studies against the cost of implementing the program in their district or school.

Instructional programs are often sold by outside vendors and require recurring annual costs. Instructional leaders should always be cognizant of the fact that a monetary investment in the teachers at their school or district is an investment that is retained as long as that teacher remains in the school or in the district. A quality teacher will have the greatest impact on a student’s learning. As such, the best investment and instructional



leader can make is an investment in his or her teachers. Instructional programs are important for supporting quality teaching, but discerning instructional leaders should not spend excessive amounts of money on instructional programs if it results in neglecting investing in their teachers. Part of the READ 180 program involves staff development in for secondary teachers in teaching student to read. Teaching reading is a staple for elementary school teacher preparatory programs, but it is often neglected or altogether left out of the preparation for secondary teachers. The modest reading achievement gains from READ 180 found in this study could simple be a result of this teaching training in reading instruction. If *ABC* ISD made a similar investment in all of its secondary teachers, it may experience a much larger improvement in reading achievement gains.

Instructional leaders should carefully examine the whole program and each of its elements when researching instructional programs. The READ 180 program contains several research based components to improving student achievement in reading, such as reducing the student to teacher ratio in reading classes, increasing instructional time in reading, providing small group instruction and providing computer assisted instruction. Instructional leaders with more limited financial resources should note that it is possible to implement a reading intervention program that contains many of these elements (such as a smaller teacher to student ratio or increased instructional time in reading) without paying a some of the costs of the READ 180 program (for materials, licensing and service support). It is also worth noting that the traditional reading intervention programs researched in this study did yield an average improvement in student reading achievement.

Effective school leaders need to understand which school changes are most likely to improve student achievement and to close the achievement gaps between these student groups and their peers (Waters et al., 2004). Instructional leaders should rely on their knowledge of individual students and their needs rather than a pre-designed curriculum or program to address achievement gaps. As stated earlier, this study also provides evidence that a clear focus by the instructional leader on a particular student group may have a greater impact on student achievement than any one intervention program. More than anything, this study highlights the need for instructional leaders to carefully consider all of the available research (and to conduct their own if necessary) and the needs of all students before implementing a reading intervention program.

Finally, instructional leaders need to understand that the best way to improve student achievement is to provide quality teachers who provide quality learning experiences for students. Good teaching is complicated. It involves multiple elements such as classroom management, curriculum knowledge, knowledge of instructional strategies, ability to implement formative assessment, ability to identify student needs, ability to relate to students, and ability to incorporate technology. An instructional program is important only for its ability to support quality teaching. In order to improve student achievement, school leaders should “know strong instruction when they see it, know how to encourage it when they do not and know how to set conditions for continuous academic learning among their teaching staff” (Stein & Spillane, 2005, p.44).

### **Recommendations for Further Research**

The intent of this study was to provide a model for instructional leaders to follow when closely examining an existing instructional program to determine its true effectiveness. Further research should focus on the impact of instructional leadership in implementing reading intervention programs, a more in-depth study of the individual components of the READ 180 program and its utility for supporting quality teachers.

The following are specific recommendations for further research:

1. More research is needed on the individual components of the READ 180 program and their contribution to its overall effectiveness. The READ 180 encompasses a variety of instructional elements such as smaller class sizes, differentiated instruction, small group instruction, computer assisted instruction, extended instructional time and a prescribed curriculum. Some of these instructional elements are more costly than others. In today's climate of tight budgets and economic distress, it would be useful for today's instructional leaders to know if the reading achievement gains demonstrated by the READ 180 program could be achieved with a combination of only some of the program's elements.
2. More research is needed on the impact of instructional leadership has on improving reading achievement. How much of the success demonstrate by READ 180 can be attributed to positive campus culture, a clear focus, quality of staff development, fidelity of implementation, teacher attitudes, student attitudes or other elements of program implementation that are impacted by instructional

leadership? How can instructional programs be implemented in a way that consistently supports quality teaching?

3. More research needs to be done on the effect that teacher ability and experience has on the implementation of a reading intervention program such as READ 180.
4. This study and others present conflicting evidence on the READ 180 program's effectiveness at closing the achievement gap between African American students and their peers. Further research needs to be conducted on effective ways to close student achievement gaps.

## References

- ACT. (2006). *Reading between the lines: What the ACT reveals about college readiness in reading*. Retrieved from [http://www.act.org/research/policymakers/pdf/reading\\_report.pdf](http://www.act.org/research/policymakers/pdf/reading_report.pdf)
- ACT. (2010a). *The condition of college and career readiness 2010*. Retrieved from <http://www.act.org/research/policymakers/cccr10/pdf/ConditionofCollegeandCareerReadiness2010.pdf>
- ACT (2010b). *Mind the gaps: How college readiness narrows achievement gaps in college success*. Retrieved from <http://www.act.org/research/policymakers/pdf/MindTheGaps.pdf>
- Alliance for Excellent Education. (2008). *From no child left behind to every child a graduate*. Retrieved from [http://www.all4ed.org/publication\\_material/reports/ECAG](http://www.all4ed.org/publication_material/reports/ECAG)
- Archer, A.L., Gleason, M.M., & Vachon, V.L. (2003). Decoding and fluency: Foundation for struggling older readers. *Learning Disability Quarterly*, 26, 89-101.
- Barton, P.E. (2003). Reading and literacy in America. *ETS Policy Notes*, 11(2), 1-11.
- Biancarosa, G., & Snow, C. (2004). *Reading next: A vision for action and research in middle and high school literacy*. A report to Carnegie Corporation of New York. Washington, DC: Alliance for Excellent Education.
- Biancarosa, G. (2005). After third grade. *Educational Leadership*, 63(2), 16-22.

- Boyle, J. R. (1996). The effects of a cognitive mapping strategy on the literal and inferential comprehension of students with mild disabilities. *Learning Disability Quarterly, 19*, 86-98.
- Brown, A.L., Palincsar, A.S., & Purcell, L. (1986). Poor readers: Teach, don't label. In U. Neisser (ed.), *The school achievement of minority children: New perspectives* (pp.105-143). Hillsdale, NJ: Erlbaum.
- Brown, I.S., & Felton, R.H. (1990). Effects of instruction on beginning reading skills in children at risk for reading disability. *Reading and Writing: An Interdisciplinary Journal, 2*, 223-241.
- Caggiano, J.A. (2007). *Addressing the learning needs of struggling adolescent readers: The impact of a reading intervention program on students in a middle school setting*. Unpublished doctoral dissertation, The College of William and Mary, Williamsburg, VA.
- Center for Workforce Preparation. (2002). *Higher skills, bottom-line results: A chamber guide to improving workplace literacy*. Washington, DC: U.S. Chamber of Commerce.
- Chall, J.S. (1996). American reading achievement: Should we worry? *Research in the Teaching of English, 30*(3), 303-310.
- Chall, J. S., & Jacobs, V.A. (2003). Poor children's fourth-grade slump. *American Educator, 27*(1). Retrieved from <http://www.aft.org/newspubs/periodicals/ae/spring2003/hirschsbcClassic.cfm>
- Cunningham, A.E., & Stanovich, K.E. (1998). What reading does for the mind. *American Educator, 22*(Spring/Summer), 8-15.

- Deane, P. (2004). Literacy, redefined. *Library Journal*, 129(14), 49.
- DeCarlo, L.T. (1997). On the meaning and use of kurtosis. *Psychological Methods*, 2(3), 292-307.
- DiCecco, V.M., & Gleason, M.M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities*, 34, 306-321.
- Dimitrov, D.M., & Rumrill, P.D. (2003). Pretest-posttest designs and measurement of change. *Work*, 20, 159-165.
- Donmoyer, R., & Wagstaff, M. (1990). Principals can be effective managers and instructional leaders. *NASSP Bulletin*, 74(525), 20-29.
- Dudley, A.M. (2005). Rethinking reading fluency for struggling adolescent readers. *Beyond Behavior*, 16-22.
- Edmonds, M.S., Vaughn, S., Wexler, J., Reutebuch, C.K., Cable, A., & Tackett, K.K. (2009). A synthesis of reading interventions and effects of reading outcomes for older struggling readers. *Review of Educational Research*, 79, 262-300.
- Edmonds, R. (1979). Effective schools for the urban poor, *Educational Leadership*, 37, 15-24.
- Elbaum, B., Vaughn, S., Hughes, M.T., & Moody, S.W. (1999). Grouping practices and reading outcomes for students with disabilities. *Exceptional Children*, 65, 399-415.
- Foorman, B.R., & Torgessen, J. K. (2001). Critical elements of classroom and small-group instruction promote reading success in all children. *Learning Disabilities Research & Practice*, 16(4), 203-212.

- Gentilucci, J. L., & Muto, C.C. (2007). Principals' influence on academic achievement: The student perspective. *NASSP Bulletin*, 91(3), 219-236.
- Goleman, D., Boyatzis, R., & McKee, A. (2002). *Primal Leadership*. Boston, MA: Harvard Business School Press.
- Greenleaf, C. L., & Hinchman, K. (2009). Reimagining our inexperienced adolescent readers: From struggling, striving, marginalized, and reluctant to thriving. *Journal of Adolescent & Adult Literacy*, 53(1), 4-13.
- Hallinger, P. (2003). Leading educational change: Reflections on the practice of instructional and transformational leadership. *Cambridge Journal of Education*, 33(3), 329-349.
- Hallinger, P. (2005). Instructional leadership and the school principal: A passing fancy that refuses to fade away. *Leadership and Policy in Schools*, 4, 221-239.
- Hallinger, P., & Heck, R.H. (1998). Exploring the principal's contribution to school effectiveness: 1980-1995. *School Effectiveness and School Improvement*, 9(2), 157-191.
- Haslam, M.B., White, R.N., & Klinge, A. (2006, May). *Improving student literacy: READ 180 in the Austin Independent School District 2004-05*. Washington, DC: Policy Studies Associates.
- Hatcher, P., Hulme, C., & Ellis, A.W. (1994). Ameliorating early reading failure by integrating the teaching of reading and phonological skills: The phonological linkage hypothesis. *Child Development*, 65, 41-57.



- Homan, S.P., Klesius, J.P., & Hite, C. (1993). Effects of repeated readings and nonrepetitive strategies on students' fluency and comprehension. *Journal of Educational Research, 87*, 94-99.
- Interactive, Inc. (2002, January). *Final report: Study of READ 180 in the Council of Great City Schools*. New York: Author.
- Iversen, S., & Tunmer, W.E. (1993). Phonological processing skills and the reading recovery program. *Journal of Educational Psychology, 85*, 112-126.
- Johnson, E.R. (2009). *Academic language! Academic literacy!: A guide for K-12 educators*. United States of America: Corwin.
- Kaestle, C. F., & Stedman, L.C. (1986). *An investigation of crude literacy, reading performance, and functional literacy in the United States, 1880 to 1980* (Research Report No. 86-2). Retrieved from <http://www.eric.ed.gov/PDFS/ED320101.pdf>
- Kamil, M.L., Borman, G.D., Dole, J., Kral, C.C., Salinger, T., & Torgessen, J. (2008). *Improving adolescent literacy: Effective classroom and intervention practices: A practice guide* (NCEE#2008-2027). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Educational Sciences, U.S. Department of Education.
- Kitson, L. (2011). Tween here and there, transitioning from the early years to the middle years: Exploring continuities and discontinuities in a multiliterate environment. *Literacy Learning: The Middle Years, 19*(1), 9-17.
- Klingner, J.K., Vaughn, S., & Boardman, A. (2007). *Teaching reading comprehension to students with learning difficulties: What works for special-needs learners*. New York: Guilford.

- Lederer, J.M. (2000). Reciprocal teaching of social studies in inclusive elementary classrooms. *Journal of Learning Disabilities, 33*, 91-106.
- Leithwood, K. (1994). Leadership for school restructuring. *Educational Administration Quarterly, 30*(4), 498-518.
- Leithwood, K. (2001). School leadership in the context of accountability policies. *International Journal of Leadership in Education, 4*, 217-235.
- Leithwood, K. (2008). Should educational leadership focus on best practices or next practices? *Journal for Educational Change, 9*, 71-75.
- Leithwood, K., Day, C., Sammons, P., Harris, A., & Hopkins, D. (2006). Successful school leadership what it is and how it influences pupil learning (research Report No. RR800). Retrieved from <http://www.nationalcollege.org.uk/docinfo?id=17409&filename=successful-school-leadership-full-report.pdf>
- Leithwood, K., Harris, A., & Hopkins, D. (2008). Seven strong claims about successful school leadership. *School Leadership and Management, 28*(1), 27-42.
- Leithwood, K., & Montgomery, D. (1982). The role of the elementary principal in program improvement. *Review of Educational Research, 52*(3), 309-339.
- Louis, K.S., Dretzke, B., & Wahlstrom, K. (2010). How does leadership affect student achievement? Results from a national US survey. *School effectiveness and School Improvement, 21*(3), 315-336.

- Mancilla-Martinez, J., Kieffer, M.J., Biancarosa, G., Christodoulou, J.A., & Snow, C.E. (2011). Investigating English reading comprehension growth in adolescent language minority learners: Some insights from the simple view. *Reading & Writing, 24*, 339-354.
- Manset-Williamson, G., & Nelson, J.M. (2005). Balanced, strategic reading instruction for upper-elementary and middle school students with reading disabilities: A comparative study of two approaches. *Learning Disability Quarterly, 28*, 59-74.
- Marzano, R., Waters, T., & McNulty, B. (2005). *School leadership that works*. Alexandria, VA: Association for Supervision of Curriculum and Development.
- Mason, L.H. (2004). Explicit self-regulated strategy development versus reciprocal questioning: Effects on expository reading comprehension among struggling readers. *Journal of Educational Psychology, 96*, 283-296.
- Mercer, C.D., Campbell, K.U., Miller, M.D., Mercer, K.D., & Lane, H.B. (2000). Effects of a reading fluency intervention for middle schoolers with specific learning disabilities. *Learning Disabilities Research & Practice, 15*(4), 179-189.
- Mikulecky, L. (1986). *The status of literacy in our society*. Paper presented at the National Reading Conference, Austin, TX. Retrieved from <http://www.eric.ed.gov/PDFS/ED281182.pdf>
- Mims, C., Lowther, D. Strahl, J.D., & Nunnery, J. (2006). *Little Rock School District READ 180 evaluation: Technical report*. Memphis, TN: The University of Memphis, Center for Research in Educational Policy.

- Miranda, A., Villaescusa, M.I., & Vidal-Abarca, E. (1997). Is attribution retraining necessary? Use of self-regulation procedures for enhancing the reading comprehension strategies of children with learning disabilities. *Journal of Learning Disabilities, 30*, 503-512.
- Murphy, J. (1988). Methodological, measurement, and conceptual problems in the study of instructional leadership. *Educational Evaluation and Policy Analysis, 10*(2), 117-139.
- Myers, M. (1986). The present literacy crisis and the public interest. *Viewpoints, 120*. Retrieved from <http://www.eric.ed.gov/PDFS/ED288183.pdf>
- Nagy, W.E., & Anderson, R.C. (1984). How many words are there in printed English? *Reading Research Quarterly, 19*(3), 304-330.
- National Association of Manufacturers. (2009). *HRP-01: Education and the Workforce*. Retrieved from <http://www.nam.org/Issues/Official-Policy-Positions/Human-Resources-Policy/HRP-01-Education-and-the-Workforce.aspx>
- National Center for Educational Statistics. (2003). *Literacy in Everyday Life: Results from the 2003 National Assessment of Adult Literacy*. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007480>
- National Center for Educational Statistics. (2009a). *Digest of Education Statistics 2009*. Retrieved from <http://nces.ed.gov/programs/digest/d09>
- National Center for Educational Statistics. (2009b). *The nation's report card: Reading 2009*. Retrieved from <http://nces.ed.gov/nationsreportcard/pubs/main2009/2010458.asp>

- National Center for Educational Statistics. (2009c). *The nation's report card 2009: State snapshot report for Texas*. Retrieved from <http://nces.ed.gov/nationsreportcard/pdf/stt2009/2010460TX8.pdf>
- National Reading Panel (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: U.S. Government Printing Office.
- Nave, J. (2007). *An assessment of READ 180 regarding its association with the academic achievement of at-risk students in Sevier County Schools*. Unpublished doctoral dissertation, East Tennessee State University, Johnson City, TN.
- No Child Left Behind Act of 2001, 20 U.S.C. 70 § 6301 *et seq.*
- O'Donnell, R.J., & White, G.P. (2005). Within the accountability era: Principals' instructional leadership behaviors and student achievement. *NASSP Bulletin*, 89(645), 56-71.
- Oka, E., & Paris, S. (1986). Patterns of motivation and reading skills in underachieving children. In S. Ceci (Ed.), *Handbook of cognitive, social, and neuropsychological aspects of learning disabilities* (Vol. 2). Hillsdale, NJ: Erlbaum.
- Osborn, J., Lehr, F., & Hiebert, E.H. (2003). *A focus on fluency*. Honolulu, HI: Pacific Resources for Education and Learning.
- Papalewis, R. (2004). Struggling middle school readers: Successful, accelerating intervention. *Reading Improvement*, 41(1), 24-37.
- Rashotte, C.A., & Torgessen, J.K. (1985). Repeated reading and reading fluency in learning disabled children. *Reading Research Quarterly*, 20, 180-188.

- Roberts, G., Torgessen, J.K., Boardman, A., & Scammacca, N. (2008). Evidence-based strategies for reading instruction of older students with learning disabilities. *Learning Disabilities Research & Practice, 23*(2), 63-69.
- Scammacca, N., Roberts, G., Vaughn, S., Edmonds, M., Wexler, J., Reutebuch, C.K., et al. (2007). *Reading interventions for adolescent struggling readers: A meta-analysis with implications for practice*. Portsmouth, NH: RMC Research Corporation, Center on Instruction.
- Scholastic (2008). *Compendium of READ 180 research*. Retrieved from [http://teacher.scholastic.com/products/read180/research/pdfs/R180\\_Research\\_compendium.pdf](http://teacher.scholastic.com/products/read180/research/pdfs/R180_Research_compendium.pdf)
- Scholastic (2009). *System 44 and READ 180: Research-based literacy instruction for English language learners*. Retrieved from <http://read180.scholastic.com/reading-intervention-program/research/filter/#/page:9/sort:date/direction:desc/>
- Sergiovanni, T.J. (1998). Leadership as pedagogy, capital development, and school effectiveness. *International Journal of Leadership in Education, 1*(1), 37-46.
- Slavin, R.E., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best-evidence synthesis. *Reading Research Quarterly, 43*(3), 290-322.
- Sheppard, B. (1996). Exploring the transformational nature of instructional leadership. *The Alberta Journal of Educational Research, 42*(4), 325-344.
- Simpson, R.L., LaCava, P.G., & Graner, P.S. (2004). The No Child Left Behind Act: Challenges and implications for educators. *Intervention in School and Clinic, 40*(2), 67-75.

- Stein, M.K., & Nelson, B.S. (2003). Leadership content knowledge. *Educational Evaluation and Policy Analysis*, 25, 423-448.
- Stein, M., & Spillane, J. (2005). What can researchers on educational leadership learn from research on teaching: Building a bridge. In W. Firestone & C. Riehl (Eds.), *A new agenda for research in educational leadership* (pp. 28-45). New York: Teachers College Press.
- Takala, M. (2006). The effects of reciprocal teaching on reading comprehension in mainstream and special (SLI) education. *Scandinavian Journal of Educational Research*, 50, 559-576.
- Texas Education Agency (2010). *Technical digest for the academic year 2009-2010*. Retrieved from <http://www.tea.state.tx.us/student.assessment/techdigest/>
- The Education Trust (1999). *Dispelling the myth: High poverty schools exceeding expectations*. Washington, DC: The Education Trust.
- Tindal, G., Hasbrouck, J., & Jones, C. (2005). *Oral reading fluency: 90 years of measurement* (Technical Report No. 33, Behavioral Research and Teaching). Eugene, OR: University of Oregon.
- Torgessen, J.K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice*, 15, 55-64.
- Torgessen, J. K. (2002). The prevention of reading difficulties. *Journal of School Psychology*, 40(1), 7-26.

- Torgessen, J.K., Wagner, R.K., Rashotte, C.A., Rose, E., Lindamood, P., Conway, T., & Garvin, C. (1999). Preventing reading failure in young children with phonological processing disabilities: Group and individual responses to instruction. *Journal of Educational Psychology, 91*, 579-593.
- U.S. Department of Education. (2002). *Executive summary report: The No Child Left Behind Act of 2001*. Retrieved from <http://www2.ed.gov/nclb/overview/intro/execsumm.pdf>
- Vitale, D., & Schmeiser, C.B. (2006). What the ACT reveals about reading readiness. *Community College Journal, 76*(6), 20-23.
- Wanzek, J., Wexler, J., Vaughn, S., & Ciullo, S. (2010). Reading interventions for struggling readers in the upper elementary grades: a synthesis of 20 years or research. *Reading & Writing 23*, 889-912.
- Waters, J.T., Marzano, R.J., & McNulty, B. (2004). Leadership that sparks learning. *Educational Leadership, 61*(7), 48-51.
- West, M., Ainscow, M., & Stanford, J. (2005). Sustaining improvement in schools in challenging circumstances: A study of successful practice. *School Leadership and Management, 25*(1), 77-93.
- White, R.N., Haslam, M.B., & Hewes, G.M. (2006). *Improving student literacy in the Phoenix Union High School district 2003-04 and 2004-05*. (Final Report). Washington, DC: Policy Studies Associates.
- Wise, B. (2009). Adolescent literacy: The *cornerstone* of student success. *Journal of Adolescent & Adult Literacy, 52*(5), 369-375.



- Woods, D.E. (2007). *An investigation of the effects of a middle school reading intervention on school dropout rates*. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- Xin, J.F., & Rieth, H. (2001). Video assisted vocabulary instruction for elementary school students with learning disabilities. *Information Technology in Childhood Education Annual*, 12, 87-103.

## APPENDIX A

### HUMAN SUBJECTS APPLICATION

**Office Use Only:** CPHS Application Number \_\_\_\_\_

Type of Review: ☐ Exempt ☐ Expedited ☐ Full Category #\_\_\_\_\_ Committee #\_\_\_\_\_

**UNIVERSITY OF HOUSTON  
COMMITTEES FOR THE PROTECTION OF HUMAN SUBJECTS  
APPLICATION TO CONDUCT RESEARCH USING HUMAN SUBJECTS  
(must be typed)**

**PART A: COVER PAGE**

Project Title (identical to proposal or thesis/dissertation):

Instructional Leadership: Using a Research Approach to Evaluate the Impact of a  
Reading Intervention Program

Principal Investigator (check one): ☐ Faculty ☐ Staff ☒ Student

Name: ☐ Dr. ☐ Ms. ☒ Mr. John M. O'Hare \_\_\_\_\_

Phone #: 713-705-4739 \_\_\_\_\_ Fax #: \_\_\_\_\_

Department/College: College of Education \_\_\_\_\_

E-mail Address: jmhare@gmail.com \_\_\_\_\_ UH Mail

Code: \_\_\_\_\_

Faculty Sponsor (required for all student investigators)

Name: Dr. Steve Busch &amp; Dr. Angus MacNeil \_\_\_\_\_

Phone #: 713-502-5823 \_\_\_\_\_ Fax #: \_\_\_\_\_

Department/College: College of Education \_\_\_\_\_

E-mail Address: sbusch@uh.edu \_\_\_\_\_ UH Mail Code: \_\_\_\_\_

List all key personnel (defined as individuals who contribute to the scientific development or execution of the project). Include their educational level, their role on the project (i.e., co-investigator, project manager, research assistant), and their institutional affiliation.

| Name<br>Affiliation        | Educational Level | Role                   | Institutional |
|----------------------------|-------------------|------------------------|---------------|
| John M. O'Hare<br>B.I.S.D. | M.S. Education    | Principal Investigator |               |

This project is (check all that are appropriate):

|   |   |
|---|---|
| <input checked="" type="checkbox"/> Unfunded Research | <input type="checkbox"/> Candidacy/Professional Paper     |
| <input type="checkbox"/> Funded Research              | <input type="checkbox"/> Master's Thesis                  |
| <input type="checkbox"/> Senior Honor's Thesis        | <input checked="" type="checkbox"/> Doctoral Dissertation |
| <input type="checkbox"/> Pilot Study                  | <input type="checkbox"/> Independent Study                |
| <input type="checkbox"/> Multi-Phase Study            | <input type="checkbox"/> Other (specify,                  |
| _____)  |   |
| <input type="checkbox"/> Longitudinal Study           |   |

If this application supports a proposal for funding, indicate the name of the agency/organization/foundation: \_\_\_\_\_  
(One copy of the proposal must be included with this application.)

I think this qualifies for the following type of review:

- ☒ Exempt Category # 4 (submit original only)
- ☐ Expedited Category # \_\_\_\_\_ (submit original plus 2 copies)
- ☐ Full Review (submit original plus 10 copies for Committee 1 and original plus 5 for Committee 2)

*Note: Committee 2 includes all departments in the College of Liberal Arts and Social Sciences. Committee 1 reviews all others.*

## **PART B: RESEARCH PROJECT REVIEW SUMMARY**

- 1. State the specific research hypotheses or questions to be addressed in this study.**

### Research Hypotheses

- H1: The use of the READ 180 program will result in statistically significant gains in reading achievement of eighth grade students when compared to similar students who did not participate in the READ 180 program.
- H2: The use of the READ 180 program will result in statistically significant gains in reading achievement for identified economically disadvantaged eighth grade students when compared to similar economically disadvantaged eighth grade students who did not participate in the program.
- H3: The reading achievement gains experienced by identified economically disadvantaged eighth grade students who participated in the READ 180 program will be significantly higher than the achievement gains experienced by their non-economically disadvantaged peers who participated in the READ 180 program.
- H4: The effect size calculated for the READ 180 program's effect on student reading achievement in this study will be lower than effect sizes calculated for READ 180 in other studies which used large limited English proficient (LEP) student populations.

**2. What is the importance/significance of the knowledge that may result?**

**Significance of the Study**

There is a need for a collection of effective research based programs that educators in Texas and other states can select from to provide quality accelerated reading instruction to the targeted groups of students that require such assistance. While some research has been done on Scholastic's READ 180 program, the usefulness of a great portion of this research comes into question when the studies undergo closer examination. Several of the studies were conducted or commissioned by Scholastic and can not be considered impartial. Many of the research studies conducted did not use an experimental design or a quasi experimental design with a control group. Studies that do include control groups often select student populations that are predominately made up of special needs students, limited English proficient students, students of low socio-economic status or students predominantly from one ethnic/racial subpopulation. It is difficult to generalize some of these results to a more homogeneous student population. Additionally, reading achievement gains from READ 180 documented for special needs students or limited English proficient students may be significantly higher or lower than the gains that could be experienced from READ 180 by a more homogenous population. After excluding the studies which concentrate on special or select student populations and the studies that did not utilize control groups, very little research on the READ180 program remains. This demonstrates the need for more research on the READ 180 program that uses and research design involving control groups and focuses on a more homogenous sample of students. Only with this research will educators in the state of Texas and other similar states feel confident that the research results will generalize to the majority of the state's student population.

**3. Proposed Start Date** (may not precede approval date): November 2011\_\_\_\_\_ OR

☒ Upon CPHS Approval

**4. Subject Population** (check all that are appropriate)

- |   |  |
|---|--|
| <input type="checkbox"/> Adults   | <input type="checkbox"/> Elderly (65yrs and above) |
| <input type="checkbox"/> Cognitively or Psychologically Impaired                      | <input type="checkbox"/> Prisoners or Parolees     |
| <input checked="" type="checkbox"/> Children or minors (<18 in Texas and most states) | <input type="checkbox"/> Institutional Residents   |
| <input type="checkbox"/> Non-English speaking Students                                | <input type="checkbox"/> UH Faculty, Staff, or     |

a. Expected maximum number of participants 300\_\_\_\_\_

**b. Age of proposed subject(s) (check all that apply):**

- ☐ Infants (2yrs and under)
- ☐ Children (3yrs–10yrs)
- ☒ Adolescents (11yrs-14yrs)
- ☒ Adolescents (15yrs-17yrs)
- ☐ Adults (18yrs-64yrs)
- ☐ Elderly Adults (65yrs and above)

**c. Inclusion/Exclusion:**

Describe criteria for inclusion and exclusion of subjects in this study. Include justification, how it will be determined, and by whom.

**Inclusion Criteria:**

The study will include archival data for all *ABC* I.S.D. 8<sup>th</sup> grade students, for the school year 2010-2011, who did not meet the passing standard on the 2010 7<sup>th</sup> grade Reading TAKS test. The study will also include a matched sample of 8<sup>th</sup> grade students from three other Texas school districts. Using archival data, these students will be matched on pretest scores, ethnicity, gender and economic status.

The study will include archival data for all *ABC* I.S.D. 8<sup>th</sup> grade students, for the school year 2009-2010, who did not meet the passing standard on the 2009 7<sup>th</sup> grade Reading TAKS test. The study will also include a matched sample of 8<sup>th</sup> grade students from three other Texas school districts. Using archival data, these students will be matched on pretest scores, ethnicity, gender and economic status.

The study will include archival data for all *ABC* I.S.D. 8<sup>th</sup> grade students, for the school year 2008-2009, who did not meet the passing standard on the 2008 7<sup>th</sup> grade Reading TAKS test. The study will also include a matched sample of 8<sup>th</sup> grade students from three other Texas school districts. Using archival data, these students will be matched on pretest scores, ethnicity, gender and economic status.

## Exclusion Criteria:

Students for which both pretest and posttest data are not available will be excluded.

## Justification:

All ABC I.S.D. students who fail to meet the passing standard on the 7<sup>th</sup> grade Reading TAKS test are placed into the READ 180 program in their 8<sup>th</sup> grade year. This study intends to look at the effect of the READ 180 program on student achievement. Since all ABC I.S.D. students who do not meet the passing standard on their 7<sup>th</sup> grade Reading TAKS are placed into READ 180 in their 8<sup>th</sup> grade year, it is necessary to use student data from other Texas school districts to create a well-matched control group for the study.

## Determination:

The goal will be to determine the reading achievement gains made by specific student groups.

**d.** If this study proposes to *include* children, this inclusion must meet one of the following criterion for risk/benefit assessment according to the federal regulations ([45 CFR 46, subpart D](#)). Check the appropriate box:

☒ (404) Minimal Risk

☐ (405) Greater than minimal risk, but holds prospect of direct benefit to subjects

☐ (406) Greater than minimal risk, no prospect of direct benefits to subjects, but likely to yield generalizable knowledge about the subject's disorder or condition.

Explain the justification for the selected category:

The study uses archival data only. This data was collected by the school districts in the course of their regular business and the students would have been exposed to the state TAKS testing process regardless of this study. Individual student names in the archival data will be replaced with random identification numbers. No one except the primary research investigator will have access to individual student data. Every effort will be made to ensure the security of student data.



**5. If the research involves any of the following, check all that are appropriate:**

- |  |  |
|--|--|
| <input type="checkbox"/> Interview                                   | <input type="checkbox"/> Clinical Studies          |
| <input type="checkbox"/> Survey/Questionnaire                        | <input type="checkbox"/> Behavioral Observation    |
| <input checked="" type="checkbox"/> Study of Existing Data Specimens | <input type="checkbox"/> Study of Human Biological |
| <input type="checkbox"/> Deception                                   | <input type="checkbox"/> Waiver of Consent         |
| <input type="checkbox"/> Venipuncture                                | <input type="checkbox"/> Other (specify) _____     |
| <input checked="" type="checkbox"/> Data Analyses Only               |  |

**6. Location(s) of Research Activities:**

- ☐ UH campus                      ☒ Other (specify) *ABC I.S.D.* \_\_\_\_\_

Note: A letter of approval from sites other than the University of Houston must be included with the application. If it is not available, please explain:

**7. Informed Consent of Subjects:** Your study protocol must clearly address one of the following areas:

☐ **Informed Consent.** Signed informed consent is the default. A model consent is available on the CPHS website and should be used as a basis for developing your informed consent document. If applicable, the proposed consent must be included with the application. (<http://www.research.uh.edu/PCC/CPHS/Informed.html>)  
ATTACH COPY OF PROPOSED CONSENT DOCUMENT

☒ **Cover Letter.** You may request a waiver of documented informed consent with Appendix A – Request for Waiver of Documentation of Consent. ATTACH COPY OF PROPOSED COVER LETTER AND APPENDIX A.

☐ **No Informed Consent.** You may request a waiver of informed consent with Appendix B – Request for Waiver/Modification of Informed Consent. If applicable, a copy of the modified consent document is required. ATTACH APPENDIX B.

**NOTE: Studies including deception must qualify for waiver of consent.** A modified version of a consent document to be used in deceptive research studies as well as a debriefing form must be included with the application.

## PART C: RESEARCH PROTOCOL

- 8. Describe the research study design.** (Describe the research methods to be employed and the variables to be studied. Include a description of the data collection techniques and/or the statistical methods to be employed.)

Participation in the READ 180 program, and its effect on student achievement, is the primary variable. I also intend to look at the variables of student race/ethnicity and student SES status to determine if READ 180 produces higher student achievement for African American, Hispanic or White students as well as if READ 180 produces higher student achievement for high or low SES students. Descriptive statistical analysis will be performed using the Statistical Package for the Social Sciences (SPSS) software. I will calculate the standard deviation, frequency and mean for each variable. A t-test will be used to find mean differences between the pretest scores of the treatment and control groups and to determine if any statistically significant difference exists. The result of this test will determine how well matched the treatment and control groups are with respect to pretests scores. This will allow quantifiable examination of initial differences between the treatment and control groups. A mixed design analysis of variance, or ANOVA, will be used to examine group means for reading achievement. Factorial ANOVAs will be used to determine if statistically significant differences exist between the treatment and control groups on other dependent variables of interest. For each analysis, a significance level of .05 will be established for determining statistical significance. Additionally, I will calculate the effect size of READ 180's impact in my study and compare this effect size with the effect sizes recorded for READ 180 in Slavin's synthesis study.

- 9. Describe each task subjects will be asked to perform.**

The subjects will not be asked to perform any tasks. This study will collect archival data from state TAKS tests already taken by the students in the past. Some of the students selected for the study will have already participated in the READ 180 program.

- 10. Describe how potential subjects will be identified and recruited?** (Attach a script or outline of all information that will be provided to potential subjects. Include a copy of all written solicitation, recruitment ad, and/or outline for oral presentation.)

The study uses archival data only. Data will be selected based on the inclusion criteria previously described.

- 11. Describe the process for obtaining informed consent and/or assent. How will investigators ensure that each subject's participation will be voluntary (i.e., free of direct or implied coercion)?**

Non-applicable: This study uses archival data only.

- 12. Briefly describe each measurement instrument to be used in this study (e.g., questionnaires, surveys, tests, interview questions, observational procedures, or other instruments) AND attach to the application a copy of each (appropriately labeled and collated). If any are omitted, please explain.**

The posttest measurement instrument will be the Texas Assessment of Knowledge and Skills 8<sup>th</sup> grade Reading assessment for the years 2011, 2010 and 2009. The pretest measurement instrument will be the Texas Assessment of Knowledge and Skills 7<sup>th</sup> grade Reading assessment for the years 2010, 2009 and 2008.

- 13. Describe the setting and mode for administering any materials listed in question 12 (e.g., telephone, one-on-one, group). Include the duration, intervals of administration, and amount of time required for each survey/procedure. Also describe how you plan to maintain privacy and confidentiality during the administration.**

Non-applicable: This study uses archival data only.

- 14. Approximately how much time will be required of each subject? Provide both a total time commitment as well as a time commitment for each visit/session.**

Non-applicable: This study uses archival data only.

**15. Will subjects experience any possible risks involved with participation in this project?**

|  |                              |  |
|--|------------------------------|--|
| Risk of Physical Discomfort or Harm                        | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| Risk of Psychological Harm (including stress/discomfort)   | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| Risk of Legal Actions                                      | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| Risk of Harm to Social Status (such as loss of friendship) | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| Risk of Harm to Employment Status                          | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |
| Other Risks  | <input type="checkbox"/> YES | <input checked="" type="checkbox"/> NO |

If yes to any of the above, please explain. Describe procedures, if any, to address risk (such as referrals to agency or other source).

**16. Does the research involve any of these possible risks or harms to subjects?**

Check all that apply.

- ☐ Use of a deceptive technique (attach debriefing)
- ☐ Use of incomplete or generalized information to the subject regarding the actual purpose of the study (attach debriefing)
- ☒ Use of private records (educational or medical records)
- ☐ Manipulation of psychological or social variables such as sensory deprivation, social isolation, psychological stresses (attach debriefing)
- ☐ Any probing for personal or sensitive information in surveys or interviews
- ☐ Presentation of materials which subjects might consider sensitive, offensive, threatening or degrading
- ☐ Possible invasion of privacy of subject or family (may require additional consent)
- ☐ Other, specify: \_\_\_\_\_

**17. What benefits, if any, can the subject expect from their participation?**

This study uses archival data only. The subjects will not receive any direct benefit from the use of their data for this study.

**18. What inducements or rewards (e.g., financial compensation, extra credit, and other incentives), if any, will be offered to potential subjects for their participation?**

None.

## PART D. RESEARCH DATA

- 19. Will you record any direct identifiers, names, social security numbers, addresses, telephone numbers, patient or student ID numbers, etc.?**

☒ Yes

☐ No

If yes, explain why it is necessary to record findings using these identifiers? Describe the coding system you will use to protect against disclosure of these identifiers.

Randomly assigned student identification numbers will be assigned to assist in tracking student data throughout the data analysis process. Individual student data will not be reported in the final findings of the study. Only aggregate information about student groups will be reported in the final findings of the study.

- 20. Will you retain a link between study code numbers and direct identifiers after the data collection is complete?**

☒ Yes

☐ No

If yes, explain why this is necessary and state how long you will keep this link.

It is necessary to maintain the link between the randomly assigned student identification numbers and other student data identifiers such as ethnicity, gender, scores and economic status until the data analysis is complete. Once the data analysis is complete, it will no longer be necessary to maintain this link. Only aggregate information about student groups will be reported in the final findings.

- 21. Will anyone outside the research team have access to the links or identifiers?**

☐ Yes

☒ No

If yes, explain why and to whom.

- 22. Where, how long, and in what format (such as paper, digital or electronic media, video, audio or photographic) will data be kept?** In addition, describe what security provisions will be taken to protect these data (password protection, encryption, etc.). [Note: University of Houston's policy on data retention requires that research data be maintained for a minimum of 3 years after completion of the project. All research data collected during this project is subject to the University of Houston data retention policy found at [www.research.uh.edu/OCG/Guide/Post-Award\\_Section/Data\\_Retention.html](http://www.research.uh.edu/OCG/Guide/Post-Award_Section/Data_Retention.html)]

The data will be kept and stored electronically on a USB drive, with an additional data set kept on another USB drive as a back up copy. The data will be kept for 3 years after the date of completion of the study.

## PART E: CERTIFICATIONS

**PRINCIPAL and CO-INVESTIGATORS** – I hereby acknowledge and accept the responsibility for protecting the rights and welfare of all participating subjects in accordance with federal and institutional policies and procedures. Furthermore, I certify that:

- NO involvement of human subjects in this project will begin before written approval of the Committees for the Protection of Human Subjects has been received.
- Any additions or changes to this protocol will require the submission of a Request for Revision form and for the review and approval by the Committees for the Protection of Human Subjects prior to initiation.
- Written documentation of any unanticipated problems or injuries connected with an approved protocol must be provided to the Committees for the Protection of Human Subjects (713-743-9204) within 5 working days.
- All signed consent documents will be retained for at least 3 years past the completion of the research activity. (Note: Faculty sponsors are responsible for retaining signed consents for student projects.)
- The institution has provided me with a copy of the approved Institutional Assurance (either the electronic or manual form) and has provided access to the Belmont Report and the appropriate sections of the Public Law governing this Assurance, 45 CFR 46.

\_\_\_\_\_  
Signature of Principal Investigator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Co - Investigator

\_\_\_\_\_  
Date

**\*NOTE: Additional signature lines for Co-Investigators may be added as required.**

**FACULTY SPONSOR** (required for all students) – **I hereby acknowledge and accept the responsibility for supervision of this study to ensure the protection of the rights and welfare of all participating subjects in accordance with federal and institutional policies and procedures. After careful review of this application, I further certify:**

- The accuracy of the information stated in this application AND
- The scientific merit of the proposed project.

*(electronic approval and signatures obtained in the Fall of 2011 and available upon request through the University of Houston's Research Administration and Management Protocol system)*

\_\_\_\_\_  
Signature of Faculty Sponsor

\_\_\_\_\_  
Date

**DEPARTMENT CHAIR/DEAN** (not required if exemption is claimed) – **I hereby confirm the accuracy of the information stated in this application. I am familiar with and approve of the procedures that involve human subjects.**

*(electronic approval and signatures obtained in the Fall of 2011 and available upon request through the University of Houston's Research Administration and Management Protocol system)*

\_\_\_\_\_  
Signature of Chair/Dean

\_\_\_\_\_  
Department/College

\_\_\_\_\_  
Date

**CPHS Application**  
**Updated: 6/2010**



John M. O'Hare  
4205 Tawakon Dr.  
Pearland, TX 77584  
October 12, 2011

University of Houston Division of Research  
Committee for the Protection of Human Subjects  
4800 Calhoun Rd.  
Houston, TX 77004

Dear Committee Members:

I am a University of Houston doctoral candidate requesting a waiver of documentation of consent for my research study. The study uses archival data only. The data from *ABC* ISD and three other Texas school districts was obtained with permission from those respective districts. The data from one of the Texas school districts is publicly accessible data and was obtained from the district with an open records request. The data obtained from districts includes individual student TAKS test results, gender, ethnicity, and economically disadvantaged status. Individual student names in the *ABC* ISD archival data will be replaced with random identification numbers throughout the data analysis process. Individual student names in the archival data from the other districts was replaced with random identification numbers before those districts provided me with the data. Individual student data will not be reported in the final findings of the study. Only aggregate information about student groups will be reported in the final findings of the study. This data was collected by the school districts in the course of their regular business and the students would have been exposed to the state TAKS testing process regardless of this study. No one except the primary research investigator will have access to individual student data. Every effort will be made to ensure the security of student data. Due to the information provided above, the information provided in my application to conduct research using human subjects and the information provided in appendix A of my application, I request that the committee grant my request to waive documentation of consent for my study.

Sincerely,

John M. O'Hare

## **REQUEST FOR WAIVER OF DOCUMENTATION OF CONSENT**

Informed consent shall be documented by the use of a written consent form approved by the Institutional Review Board (IRB) and signed by the subject or the subject's legally authorized representative. (45 CFR 46.117)

Documentation of consent may be waived if either of the following conditions is true of the proposed research activity. An explanation must be provided.

☐ The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject must be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern;

OR

☒ The research presents no more than minimal risk of harm to subjects AND involves no procedures for which written consent is normally required outside of the research context.

### **Explanation:**

The study uses archival data only. The posttest measurement instrument will be the Texas Assessment of Knowledge and Skills 8th grade Reading assessment for the years 2011, 2010 and 2009. The pretest measurement instrument will be the Texas Assessment of Knowledge and Skills 7th grade Reading assessment for the years 2010, 2009 and 2008. This data was collected by the school districts in the course of their regular business and the students would have been exposed to the state TAKS testing process regardless of this study. Individual student names in the archival data will be replaced with random identification numbers. No one except the primary research investigator will have access to individual student data. Only aggregate data for student groups will be reported in the studies findings. Every effort will be made to ensure the security of student data.

NOTE: A cover letter, with the appropriate elements of consent, must be included.

