5-2013

The Impact of Evidence-Based Practices on the Oral Reading Fluency of Low-Socioeconomic-Status Elementary Students

Thomas B. McCracken
Indiana University of Pennsylvania

THE IMPACT OF EVIDENCE-BASED PRACTICES ON THE ORAL READING FLUENCY OF LOW-SOCIOECONOMIC-STATUS ELEMENTARY STUDENTS

A Dissertation

Submitted to the School of Graduate Studies and Research

in Partial Fulfillment of the

Requirements for the Degree

Doctor of Education

Thomas B. McCracken

Indiana University of Pennsylvania

May 2013

Indiana University of Pennsylvania
School of Graduate Studies and Research
Department of Educational and School Psychology

We hereby approve the dissertation of

Thomas B. McCracken

Candidate for the degree of Doctor of Education

March 25, 2013 — Signature on File
Joseph F. Kovaleski, D.Ed., NCSP
Professor of Educational and
School Psychology, Advisor

March 25, 2013 — Signature on File
Lynanne Black, Ph.D.
Associate Professor of Educational and
School Psychology

March 25, 2013 — Signature on File
Timothy J. Runge, Ph.D., NCSP
Assistant Professor of Educational and
School Psychology

March 25, 2013 — Signature on File
Scott H. Moats, Ph.D.
Provost/Vice President of Academic Affairs
Crown College

ACCEPTED

Signature on File
Timothy P. Mack, Ph.D.
Dean
School of Graduate Studies and Research

Title: The Impact of Evidence-Based Practices on the Oral Reading Fluency of Low-Socioeconomic-Status Elementary Students

Author: Thomas B. McCracken

Dissertation Chair: Dr. Joseph F. Kovaleski

Dissertation Committee Members: Dr. Lynanne Black
Dr. Timothy J. Runge
Dr. Scott H. Moats

A student's economic status can have a significant impact on reading achievement. Students classified as low-socioeconomic-status (low-SES) have been traditionally at risk for reading failure. With the passage of No Child Left Behind (NCLB) schools are required to use strategies and practices that have evidence supporting their effectiveness in promoting student achievement. NCLB has also created a focus on the implementation of the Response to Intervention (RtI) delivery model. The RtI delivery model is a three-tiered model that provides evidence-based interventions to students at varying levels of need.

The impact of evidence-based practices found within the RtI delivery model on the DIBELS oral reading fluency scores of low-SES students in first, second, and third grade was examined in this study. A repeated measures factorial ANOVA was used to determine if there was a significant difference between RtI and non-RtI schools.

The results of this study indicated a significant difference in the magnitude of effect in first grade and second grade for low-SES students in schools using the RtI delivery model compared to those not using the RtI delivery model but there was not a significant difference in the third grade oral reading fluency scores between the RtI schools and non-RtI schools. Given these findings schools should implement the critical evidence-based practices found within the RtI delivery model. These critical practices

include a multi-tiered system to support students who display academic difficulties in reading, time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction, and a formal mechanism to ensure that core reading instruction is being delivered in the way it was intended.

This study focused solely on the DIBELS oral reading fluency scores of low-SES students during the 2009-2010 school year. Future research should examine the long-term effectiveness of providing evidence-based practices in reading for low-SES students. Future research should also focus on the achievement gap that exists between low-SES students and their peers who are not low-SES to see if the gap is closing through the implementation of evidence-based practices found within the RtI delivery model.

ACKNOWLEDGEMENTS

I would first like to thank the Lord who has given me the opportunity to pursue my degree. May this degree be used for the Lord's service. I would also like to thank my wife, Fawn, who provided me with encouragement and support throughout the process. I would also like to thank my daughters, Kaitlyn and Tessa, who provided me with time to work quietly on my dissertation. Thank you to Kami VanHal who occupied Tessa many hours in the library. Thank you to my parents for encouraging me in my educational pursuits over the years. I would also like to thank Joe and Dorothy McCracken for their support.

My dissertation committee, consisting of Dr. Kovaleski, Dr. Black, Dr. Moats, and Dr. Runge, was invaluable during this process providing me with the necessary guidance to succeed. I would especially like to thank the Chair of my committee, Dr. Kovaleski, for his patience, diligence, and guidance. A special thanks to Dr. Moats who made the trip from Minnesota to Pennsylvania for my defense.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

STATEMENT OF THE PROBLEM AND RESEARCH QUESTIONS

Background

Students considered to be educationally at risk have been one of the focuses of educational reform for decades. One piece of legislation that has had significant impact on the education of at-risk students is the No Child Left Behind Act (NCLB), enacted January 8, 2002 by President George W. Bush. According to McMasters (2011) NCLB seeks to address the achievement gap that exists between low-SES students and their peers who are not low-SES. One of the provisions of NCLB that address this concern is the mandate that all children be able to read on grade level proficiently by the end of their third grade year. Following the report published by the National Reading Panel in 2000, children should now be expected to perform at or above grade level in five areas of reading: phonemic awareness, phonics, fluency, vocabulary, and comprehension (National Reading Panel, 2000). To increase the level of accountability for district performance each state has been required to develop a set of criterion-referenced tests to measure the amount of progress made by students served by the public school system. Individual districts must be able to show that students are making Adequate Yearly Progress (AYP) which is determined by the individual states and approved by the federal government. District administrators have become intensely aware of their students' performance on the mandated testing as Title I funding is directly tied in with the ability of the districts to meet AYP (DeVries, 2004).

One of the tenets of NCLB is to ensure that all children have a fair, equal, and significant opportunity to receive a high-quality education. To ensure that all students are

receiving a high-quality education, the NCLB Act of 2001 and Individuals with Disabilities Education Improvement Act (IDEIA) of 2004 include language that requires districts to use evidence-based practices in the classroom. Early literature emphasized the use of brainstorming as the acceptable method of selecting intervention strategies to assist students who were struggling academically (Chalfant, Pysh, & Moultrie, 1979). This process involved a team coming up with as many possible intervention strategies as possible and then offering the classroom teacher several to choose from for implementation. While offering a wide variety of strategies there was not any research evidence that the strategies would be effective in providing the student with the needed support. Now teachers must employ practices that have supporting evidence that they are effective in promoting student achievement. According to Kretlo and Blatz (2011), for a practice to be considered evidence-based, the type of research conducted on the practice must be quantitative showing that the effects of the intervention are measurable. There must be a clear cause-and-effect relationship between the instructional practice and improved outcomes for the students. A second element of evidence-based practice that is closely related to the cause-and-effect relationship is the magnitude of studies. The magnitude refers to the number of research studies that show a strong positive cause-and-effect relationship between the intervention and improved academic outcomes. NCLB encourages teachers to implement curricula that have demonstrated measurable outcomes and a large magnitude of effect.

With the passage of the IDEIA (Public Law 108-446) attention has focused on the implementation of the Response to Intervention (RtI) model of service delivery for education. The implementation of RtI has provided the opportunity for students at risk for

reading failure to receive intervention strategies that have been shown through research to be effective (Torgesen, 2009). The *Reading First* initiative, part of NCLB gave public school systems flexibility in their funding options allowing them to invest in evidence-based reading programs to use within the RtI model. RtI is a three-tiered model that includes the use of universal screenings, evidence-based interventions, and progress monitoring (Batsche et al., 2005). Tier 1 involves the implementation of evidence-based, scientifically researched core reading programs for all students in the general education classroom setting. The intended purpose of the core reading program is the delivery of high quality instructional programs that have established outcomes (Hoover & Love, 2011). Universal screenings are conducted to provide the data necessary for identifying students who may be at risk for reading failure (Ikeda, Neesen, & Witt, 2008). Benchmark assessments, such as the Dynamic Indicators of Basic Early Literacy Skills (Good & Kaminski, 2002) (DIBELS), are administered as ongoing progress monitoring of students ability to achieve pre-established benchmarks.

Students who are identified as being at risk for reading failure then receive Tier 2 interventions. Tier 2 students are provided with more intensive evidence-based interventions. These interventions are aligned with state standards and provided to the students in a small group setting (Fuchs & Fuchs, 2005). During Tier 2 interventions, which includes instruction being provided in the core reading program, progress monitoring conducted on each student increases from three times per year to once every six to eight weeks. When students are found to be performing below the expected benchmarks in Tier 2 they are then provided with Tier 3 interventions. In addition to the instruction being provided in the core reading program, students receiving Tier 3

interventions are provided with longer amounts of daily intensive evidence-based interventions for 10 to 20 weeks with progress monitoring increasing to a minimum of once per week. Research continues to show the effectiveness of using evidence-based practices within the RtI model in raising the achievement level for students who are considered to be at risk for reading failure (Bursuck et al., 2004).

With the economic constraints that most school administrators find themselves facing, it becomes essential to implement only new strategies that produce positive results as related to achievement. Additionally, with the window of opportunity being small for struggling readers to gain the necessary skills, effective strategies must be implemented early in a child's educational career (Menzies, Mahdari, & Lewis, 2008). Fortunately a large body of research, supporting the effectiveness of RtI in reading for struggling readers, exists (Archer, Gleason, & Vachon, 2003; Bursuck & Blanks, 2010; Ritchery, 2011). With the implementation of the RtI model schools have begun to implement the use of evidence-based interventions and strategies within the entire school curriculum. Research has shown school-wide implementation to be effective in increasing the reading achievement levels not only for those students who are considered at risk for reading failure, but also for those students who have proficient levels of reading achievement (Blachman et al., 2004; Greenwood, Tapia, Abbot, & Walton, 2003).

With the increase of accountability for poor student performance on measures of AYP some educators and administrators have, unfortunately, attempted to shift the focus from the educational practices to the individual students. Some educators believe that it is an injustice to expect that all children can meet equal standards (Kornhaber & Orfield,

2001; Thomas & Bainbridge, 2001). One argument frequently made by opponents of NCLB is that the uniform standards that all children are required to meet assume that all children are equal. The argument is that children in the United States do not have equal ability to learn and achieve based upon factors out of their control, such as poverty and the quality of their local education system. Some educators report that poor teaching is not the primary cause of unsatisfactory student performance when educating poor children. They state the underlying factors such as family poverty and inadequate school funding are the major reasons why many students start off behind their peers and never catch up (Guisbond & Neill, 2004). This argument develops the ideology that in order for educators to assist at-risk students in achieving academically, educators must first address the greater social problems that place children at risk as a result of poverty (Houston, 2007). The counter-argument is that all children, including children from low-SES families, can make gains in achievement and close the achievement gap that currently exists between middle-class students and those of low Socio-Economic Status (Washington State Board of Education, 2010). Research studies on closing of the achievement gap for economically disadvantaged students since the implementation of NCLB have shown positive results. Student achievement trends at the state-aggregate level have shown that, during the time period when grade-level testing has been implemented in reading, most states have made significant gains in the student achievement of economically disadvantaged students (Blank, 2011). Since this study examined achievement trends at the state-aggregate level, the gains evidenced for low-SES students are not necessarily attributable to RtI implementation.

Reading ability has long been identified as an indicator of future academic success for students. There is agreement among educators that early identification and treatment is the most effective procedure in the prevention of reading difficulties in students. Research confirms that children who are identified as having reading difficulties in first grade are more likely to remain poor readers in fourth grade (Menzies et al., 2008). The timing for successful reading intervention for students at risk for reading difficulty is essential. Historically, core reading programs used in the elementary grades offer grade-specific instructional programs that include teacher guides, teaching materials, student workbooks, and student readers and have not been successful in increasing student levels of reading achievement for students considered at risk for reading failure (Hoffman et al., 1998). The use of evidence-based practices in reading, within the RtI model, has been shown to be an effective method in raising the reading achievement levels of at-risk students. Torgesen (2009) reported that in a three year study of 318 Florida *Reading First* schools, with a socioeconomically diverse population of 72% of students receiving free or reduced lunches, a significant reduction in the number of students being identified with specific learning disabilities in reading was found. The result of using evidence-based reading instruction was an 81% reduction in the number of kindergarten students being identified with a specific learning disability in reading from year one to year three. Similar results were also found for students in grades first, second, and third. The high rate of response to evidence-based reading instruction indicates that evidence-based interventions are most effective in the primary grades and are also effective among diverse school populations such as at-risk students and low-SES students.

According to Bursuck and Blanks (2010) one of the key skill areas that teachers should target for instruction using evidence-based practices in reading instruction is reading fluency. Oral reading fluency is defined as a student's ability to read a text with accuracy, speed, and proper expression and is a critical skill for reading comprehension (Therrien, Gormly, & Kubin, 2006). Research conducted by Shinn, Good, Knutson, Tilly, and Collins (1992) has shown that oral reading fluency fits theoretical models of reading well and can be considered as a valid measure of general reading achievement. One valid measure for determining student levels of oral reading fluency is the Dynamic Indicators of Basic Early Literacy Skills Oral Reading Fluency (DORF) which is a standardized, individually administered test of accuracy and fluency with connected text (Good & Kaminski, 2002; Paleologos & Brabham, 2011). Using DORF scores, oral reading fluency can be assessed and measured in children to determine if they are making adequate achievement gains in reading. While oral reading fluency does not measure all elements of reading, it is the strongest predictor of overall reading at the early elementary grades. In later grades oral reading fluency becomes less predictive of overall reading skills while other skills increase in their concurrent validity to reading.

Statement of the Problem

Although many studies have investigated the risks and benefits of the NCLB policy, few have conducted research centering on the impact of the NCLB policy on reading achievement in students considered at risk for reading failure due to the impact of being low-SES students. Even fewer studies have focused on the reading achievement gains in this group of students at the elementary level.

The relationship between student achievement patterns and their socio-economic status has been well documented by researchers (Allington, 1995; Allington, 2001; Manzo, 2003). Students who enter kindergarten with risk factors, such as low-SES, start out behind their peers that have no risk-factors and will make smaller achievement gains in reading through the third grade (Gunning, 2006). This particular group of students has become problematic for school districts attempting to meet their AYP. The 2005 National Report Card (National Center for Educational Statistics, 2006) reveals how significant this problem has become with low-SES students in that only 46% of the nation's low-income fourth grade students could read at or above a basic level compared to 76% of the average and high income students.

Research must address the concern (Houston, 2007; Kornhaber & Orfield, 2001) that low-SES students simply cannot be expected to meet required AYP. Research has shown the effectiveness of using RtI practices in reading to raise the reading achievement for elementary students (Archer, Bursuck, & Blanks, 2010; Archer et al., 2003; Greenwood et al., 2003; Ritchery, 2011). There is a need for further research to determine the effectiveness of implementing RtI practices on the reading achievement levels of low-SES students. Does the use of evidence-based practices in the RtI delivery model in reading result in reading achievement gains for low-SES students?

The DORF scores of low-SES elementary students (as measured by their participation in the free and reduced lunch program) in schools that are currently using the RtI delivery model were examined in this study. These DORF scores were compared to the DORF scores of low-SES elementary students in schools not implementing the RtI delivery model in reading. The goal of this study was to determine if low-SES students

have significantly different DORF scores in reading when evidence-based practices are used in an RtI model in the reading programs compared to the DORF scores of low-SES students who are not exposed to the RtI model in reading programs.

Research Questions and Hypotheses

The following research questions and hypotheses were examined by this study:

1. Is there a significant difference in the DIBELS Oral Reading Fluency scores for low-SES students in schools implementing the RtI delivery model compared to the DIBELS Oral Reading Fluency scores for low-SES students in schools that have not implemented the RtI delivery model? It was hypothesized that there would be a significant difference in the DIBELS Oral Reading Fluency scores for low-SES students in schools implementing the RtI delivery model compared to the DIBELS Oral Reading Fluency scores for low-SES students in schools that have not implemented the RtI delivery model.

Based on past research studies, the use of evidence-based practices within an RtI framework would be expected to lead to significantly stronger improvements in reading achievement levels of low-SES students in first through third grades over gains made by low-SES students from schools not implementing RtI model practices (Blachman et al., 2004; Greenwood et al., 2003).

2. When comparing the first testing administration and last testing administration DIBELS Oral Reading Fluency scores, does the magnitude of effect differ in first, second, and third grades for low-SES students in schools using the RtI delivery model and those not using the RtI delivery model? It was

hypothesized that the magnitude of effect would differ in first, second, and third grades with the largest effect size witnessed in first grade for low-SES students in schools using the RtI delivery model.

Dion, Morgan, Fuchs, and Fuchs (2004) argued for the implementation of skills instruction in reading earlier in a child's educational career rather than later. They state "developing the core skills quickly is so important that children who enter first or second grade without them are often considered at risk both for continued reading failure and for many undesirable long-range outcomes" (p. 165). Most students enter elementary school having lower levels of educational influence and instruction in reading. Given that the initial exposure to reading instruction is the greatest in earlier grades, students may see the most gains in reading achievement at the beginning of their educational career. It has been indicated by research that first graders demonstrate higher gains in reading achievement than second and third graders (Connor, Jakobsons, Crowe, & Meadows, 2009; Foorman, Petscher, Lefsky, & Toste, 2010). In this research study, it was anticipated that there would be a greater magnitude of effect found in first grade oral reading fluency scores in comparison to the magnitude of effect found in second and third grade.

Problem Significance

Currently a large disparity exists between the achievement levels in reading between low-SES students and their peers who are not low-SES (Foorman et al., 2010). Although many studies have examined the levels of success of different reading interventions, relatively few have examined the effectiveness of RtI on reading achievement in low-SES elementary students. In light of the current NCLB mandate,

research is needed to show the effectiveness of evidence-based practices found within the RtI delivery model on reading achievement for low-SES students. If it is found that low-SES students are capable of making achievement gains comparable to their peers who are not low-SES, then educators should take the necessary steps to implement the RtI model to provide low-SES students with an education that promotes achievement gains in reading.

With the limited resources available to districts today it is essential that the implementation of new strategies be targeted where they will be most effective. One of the pressing questions that must be addressed by district administrators is at what grade level is the implementation of evidence-based practices in reading most effective (Dion, Brodeur, Gosselin, Campeau, & Fuchs, 2010). The findings of this study will help answer when implementation of evidence-based practices found within the RtI delivery model in reading should begin in a student's education.

Definitions

Adequate Yearly Progress (AYP): A measurement of student progress defined by the government that allows the U.S. Department of Education to determine how every school and district in the nation is academically performing.

Criterion-referenced test: "A test that has been designed to determine whether individuals have reached some pre-established level or standard of performance, usually in some academic or skill area" (Sattler, 2001, p. 6).

Curriculum-based measurement: A set of standardized and validated short duration tests that are used by special education and general education teachers for the

purpose of evaluating the effects of their instructional programs" (Shinn, 2002, pp. 671-697).

Dynamic Indicators of Basic Early Literacy Skills (DIBELS): A researched-based assessment tool used in the progress monitoring of students in reading. The assessment tool uses a standardized set of procedures and measures to evaluate student development of basic and early literacy skills (Good & Kaminski, 2002).

Evidence-based practices: Educational practices that have meet rigorous examination of research and have been shown to produce positive outcomes. The two main factors in determining evidence-based practices are the type of research, the systematic way researchers apply a specific intervention and measure its effectiveness, and the magnitude of research, the number of studies that show a positive cause-and-effect relationship between the intervention and outcome (Kretlow & Blatz, 2011).

Free and Reduced Lunch Program: A federally implemented program providing free school lunches or lunches at a reduced price for those families meeting the qualifying criteria as established annually by the Secretary of Agriculture. The free lunch guidelines are at or below 130% of the Federal poverty guidelines and the reduced lunch guidelines are between 130% and at or below 185% of the Federal poverty guidelines (United States Department of Agriculture, 2011). The number of students participating in the free and reduced lunch program is a measure frequently used to identify the relative prevalence of poverty in a school district (Land & Legters, 2002)

Individuals With Disabilities Act: A federal law that administrates how states and public agencies provide early intervention services and special education services to children with disabilities (Kreisman & John, 2010).

No Child Left Behind Act of 2001 (NCLB): A federal law signed on January 8, 2002, that reauthorized a number of federal programs aimed at improving the performance of U.S primary and secondary school by increasing accountability. NCLB is the current reauthorization of the Elementary and Secondary Education Act (ESEA).

Oral Reading Fluency: The ability of a student to quickly decode a text from individual letters to sounds and then to words. The fluent reader is able to automatically read quickly, effortlessly, and with meaningful expression (Rasinski, 2003). Student inability in appropriately performing and combining any of these important reading skills can lead to difficulties throughout the entire reading process.

Response to Intervention (RtI): A multi-tier model of service delivery that utilizes universal screenings of all students. The model both identifies students who are in need of academic interventions and provides a delivery system for the implementation of the interventions. RtI also emphasizes the use of progress monitoring for use in making data-based instructional decisions for students within each tier of the model (Kovaleski, 2007).

Assumptions

This research study was conducted under the following assumptions. First, only assessments that were conducted in accordance with the test standardization practices set forth by DIBELS were considered. The assessments were carried out by appropriately trained and experienced administrators. Second, all data were systematically gathered and coded by qualified and trained personnel so as to ensure confidentiality, the anonymity of the participants and to ensure accuracy. Third, all students were in good health and had put forth adequate effort when the instrument was used. Fourth, the use of evidence-based practices was correctly and consistently being implemented in all three

schools reporting to be using the RtI model in reading. Fifth, the individual who completed the Survey of School Services for At-Risk Students (Gleason, 2012), a check for fidelity survey, is knowledgeable of the evidence-based practices implemented during the 2009-2010 school year.

Limitations

There are several factors that may have impacted the internal validity and limited the study results. One factor that may have affected the validity was unequal sample sizes within the groups. The participating schools varied in size and had differing low-SES student populations based on the geographical location and local economy where each district resides. Variance in the timing of each test administration between groups may have also affected the internal validity. Since the data were archival DORF scores from the 2009-2010 school year, it was not possible to control for this factor. Unequal implementation of the evidence-based practices found within the RtI delivery model in reading may have also impacted the effect of the delivery model factor. The check for fidelity survey verified the consistent implementation of evidence-based practices found within the RtI model. Since the individual completing the check for fidelity survey was recalling information from previous years, this may have slightly impacted the accuracy of the information. The length of time the school districts had implemented RtI practices in reading may have varied by district. This was also assessed in the treatment fidelity survey. The length of time each individual student was categorized as low-SES was unknown and the impact of low-SES factors on reading achievement for each student may have varied. Each threat to validity was controlled when possible thereby increasing the validity of the overall results.

The generalizability of this study to other populations is limited by several factors. Only rural school districts from Pennsylvania were included in the study. The findings of the study may not apply to other geographical locations. Another delimitating factor is that the study only examined the impact of evidence-based practices found in the RtI delivery model on low-SES students. It did not explore the impact of the RtI delivery model on students who are not classified as low-SES.

Participation in the study was delimited to first, second, and third grade students. The findings of this study cannot be generalized to students above third grade. The sample in the study only included students from six different school districts, three RtI and three non-RtI schools. Since students from only six elementary schools were examined the results of the study cannot be generalized for all elementary schools utilizing evidence-based practices found in the RtI delivery model.

Summary

Given the higher standards of achievement required by NCLB, the impact of RtI on reading achievement levels of low-SES students needs to be examined. In this study, the oral reading fluency scores of low-SES students in grades first, second, and third were examined to determine whether there was a significant difference in the DIBELS Oral Reading Fluency scores for low-SES students who have used evidence-based practices found in the RtI delivery model in reading. The impact of implementing the RtI delivery model was discussed. The results of this study will help determine when evidence-based practices found within the RtI delivery model should be introduced in the curriculum to obtain the greatest gains in oral reading fluency scores. The use of evidence-based practices within the RtI delivery model in reading is one factor that can possibly increase

the level of reading achievement for low-SES students and help them meet the required AYP.

CHAPTER 2

REVIEW OF LITERATURE

Background

The No Child Left Behind Act (NCLB), signed on January 8, 2002 by President George W. Bush, has placed higher expectations on all of the nation's schools. One of the mandates of NCLB is the *Reading First* initiative which provides federal funding to Title I schools that use evidence-based reading instruction. One of the expectations of *Reading First* is that children become proficient readers by the end of third grade. NCLB also increased the level of district accountability for student achievement in reading. NCLB mandated that all students in grades three through grade eight be assessed yearly in reading to demonstrate that the district's students are making adequate yearly progress (AYP) toward meeting the state developed performance standards. Districts have become challenged in meeting AYP due to the poor reading performance of certain disaggregated student groups. One particular group of students that has historically performed poorly is the low-SES student group. However, in spite of the problems that low-SES students have displayed on statewide tests, current research has shown that, when instructed with evidence-based practices in reading, economically disadvantaged students can make gains in reading achievement (Greenwood et al., 2003).

NCLB also seeks earlier identification of students considered at risk for reading failure. Reading ability is a predictor of future academic success. Assessing a student's reading skills early and frequently provides educators with the necessary data that can be used to target students who are falling behind their peers. Students who are identified as being at risk for reading failure can then be targeted for early intervention strategies in

reading. Curriculum-based Measurements (CBM), such as the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency (DORF), have not only been found to be good instruments to identify students at risk for reading failure, but also in predicting student outcomes on end of the year state assessments (McGlinchey & Hixson, 2004). One recent area of interest among researchers, administrators and teachers is oral reading fluency. Oral reading fluency has been found to be a strong predictor of future reading achievement. By identifying in advance those students who are at risk of poor performance in both reading achievement and state testing, district administrators and educators can implement effective strategies for early reading remediation.

No Child Left Behind

NCLB (2002) prompted many states to develop and refine state assessment programs to measure AYP in reading from one grade to the next. President Bush called on states to ensure that all students could read at grade level proficiency by the end of third grade, resulting in gatekeeper status for that and other grade levels. One way to document student growth is to administer criterion-referenced tests at the same point during each school year. State education agencies developed criterion-referenced tests with each state having their own standards, benchmarks, and competencies. This provision of NCLB was given further weight by tying the documentation of AYP to the awarding of Title I funding (DeVries, 2004). Title I of NCLB sought to address the social problem of disadvantaged students. In the policy, disadvantaged was defined as students who are minority, in poverty, limited in English proficiency, migratory, with disabilities, neglected, delinquent, in need of reading assistance, and/or attend high-poverty schools.

NCLB aimed "to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education" (Title I, 2004, sec. 1001, para. 1).

The goal of NCLB Title I "is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic achievement standards and state academic assessments" (Title I, 2004, sec. 1001, para. 1). Of the 12 objectives provided in Title I (2004), the four objectives that are related to the focus of the current study are:

1. Ensuring that high-quality academic assessments, are aligned with challenging State academic standards so that students, teachers,

   parents and administrators can measure progress against common expectations for student academic achievement.
2. Closing the achievement gap between high- and low-performing children, especially the achievement gaps between minority and nonminority students, and between disadvantaged children and their more advantaged peers,
3. Holding schools, local educational agencies, and states accountable for improving the academic achievement of all students,
4. Improving and strengthening accountability, teaching, and learning by using state assessment systems designed to ensure that students are meeting challenging State academic achievement and content standards and increasing achievement overall, but especially for the disadvantaged. (Title 1, 2004, sec. 1001, para. 2-5)

District administrators have become increasingly concerned about student performance on the high-stakes assessments that are currently mandated by state and national policy. Negative results of not meeting AYP include retention of the students at designated gatekeeper grade levels, lowered accountability ratings for the school and the district, and possible state takeover of low-performing school districts whose test results do not improve over time. Past efforts to remediate students with reading difficulties have not been very successful. According to McDill and Natriello (1998), even though Title I is the largest compensatory education program in the history of American education, it has failed in the past to improve the reading achievement gains of the most disadvantaged student population. Title I funded numerous programs at the local level that varied greatly in their effectiveness. NCLB has provided a greater level of stability to the Title I program by establishing guidelines and requirements for school districts to follow. Studies support both NCLB and Title I's emphasis on both the need for and success of early intervention for students who are at risk for reading failure (Juel, 1988; Vadasy, Sanders, & Abbott, 2008). In addition to changes made in Title I, the *Reading First* initiative, part of NCLB, gave public school systems flexibility in their funding options enabling them to invest in evidence-based reading programs for their primary grades.

District investments in and implementation of evidence-based reading programs have produced the positive results projected by NCLB. According to Blank (2011) an analysis of student achievement trends using the 2005 and 2009 National Assessment of Educational Progress (NAEP) data shows positive results in increasing the reading achievement levels of economically disadvantaged students. Blank found that 27 states

made gains in the reading achievement levels of low-SES fourth grade students of more than five percentage points. Several states made gains of more than 10 points in reading at/above Basic level with their low-SES student groups. Through his trends analysis Blank also found that 10 states had closed the reading achievement gap for their low-SES students by more than three percentage points from 2005-2009.

Evidence-Based Practices in Reading

Due to federal laws such as NCLB (2002) and IDEIA (2004) most school administrators and teachers are familiar with the term evidence-based practice. Both NCLB and IDEIA require teachers to use evidence-based practices in the classroom setting. While most teachers are familiar with the concept of evidence-based practice, few may understand what it means. To provide an acceptable definition for educational practice, the Institute of Education Sciences (2007) and the Council for Exceptional Children (2008) developed guidelines for determining whether or not a practice is indeed evidence-based. The main conceptions in understanding the term evidence-based practice are type and magnitude of research (Odom et al., 2005). According to Kretlow and Blatz (2011), the type of research must be quantitative showing that the effects of the intervention are measurable. In addition, they report that the intervention must show a clear cause-and-effect relationship with improved outcomes. Kretlow and Blatz also reported that the second element of evidence-based practice is magnitude of studies. Magnitude refers to the number of research studies that show a strong, positive cause-and-effect relationship between the intervention being implemented and improved academic outcomes.

When discussing evidence-based practices in reading, the Florida Center for Reading Research (FCRR, 2004) has identified five essential components of reading instruction found in evidence-based practices. They conclude that explicit and systematic instruction must be provided in the following five areas: phonemic awareness, phonics, vocabulary development, fluency, and comprehension. Phonemic awareness is "the ability to hear, identify, and manipulate the individual sounds - phonemes - in spoken words" (FCRR, 2004, "Components of Effective Reading Programs" para. 2). Phonics is defined as "the understanding that there is a predictable relationship between phonemes - the sounds of spoken language- and graphemes - the letters and spellings that represent those sounds in written language. Readers use these relationships to recognize familiar words accurately and automatically as well as to decode unfamiliar words" (FCRR, 2004, "Components of Effective Reading Programs" para. 3). The third area, vocabulary development, is the "development of stored information about the meanings and pronunciation of words necessary for communication" (FCRR, 2004, "Components of Effective Reading Programs" para. 4). FCRR has identified four types of vocabulary: listening vocabulary, speaking vocabulary, reading vocabulary, and writing vocabulary. The fourth area identified by the FCRR is reading fluency which includes oral reading skills. "Fluency is the ability to read text accurately and quickly. It provides a bridge between word recognition and comprehension. Fluent readers recognize words and comprehend at the same time" (FCRR, 2004, "Components of Effective Reading Programs" para. 5). Fifth is reading comprehension strategies. These are strategies used "for understanding, remembering, and communicating with others about what has been read" (FCRR, 2004, "Components of Effective Reading Programs" para. 6).

Similar to Kretlow and Blatz (2011), the FCRR also identified scientifically based reading research as "research that applies rigorous, systematic and objective procedures to obtain valid knowledge relevant to reading development, reading instruction, and reading difficulties" (FCRR, 2004, "Components of Effective Reading Programs" para. 7). The FCRR (2004) has identified this type of research to include that which:

1. Employs systematic, empirical methods that draw on observation or experiment;
2. Involves rigorous data analyses that are adequate to test the stated hypotheses and justify the general conclusions drawn;
3. Relies on measurements or observational methods that provide valid data across evaluators and observers and across multiple measurements and observations;
4. Has been accepted by a peer-reviewed journal or approved by a panel of independent experts through a comparably rigorous, objective and scientific review.

("What is scientifically based," para. 2)

According to The Nation's Report Card (2007) even with the passage of federal regulations to promote the use of evidence-based practices in reading, students are continuing to experience failure in reading. Some may attribute the lack of reading success to an increase in the number of students who have a specific learning disability in the area of reading. Bursuck and Blanks (2010), however, reported that disabilities at best account for 2% to 6% of the cases of reading failure. They conclude that not utilizing evidence-based practices may result in reading failure. Research continues to

show the effectiveness of evidence-based reading interventions in reducing the number of children who do not meet reading level proficiency by the end of their third grade year (O'Connor, Fulmer, Harty, & Bell, 2005; Simmons et al., 2008). According to Borman (2005) the earlier well designed reading instruction and practices are implemented in a child's educational career the greater the achievement gains will be in reading.

Greenwood et al. (2003) examined the effectiveness of a school-wide implementation of evidence-based practices in reading to prevent early reading failure. Their study involved the implementation of evidence-based practices in reading looking at three cohorts of students consisting of kindergarten, first grade, and second grade over a two year period. The student outcomes were measured by the use of progress monitoring and CBM. In their study, in order for a practice to be considered evidence-based, the researchers required that evidence in the form of improved student learning from at least one empirical study was published. Overall, the results of the study showed substantial growth in CBM oral reading fluency through the use of evidence-based practices in reading. Of particular interest was the finding that 41% of the students in the participating school received free or reduced lunches. This finding indicates that achievement gains can also be obtained by students considered at risk for reading failure if evidence-based practices are implemented in the early elementary years.

Blachman et al. (2004) conducted research on the effects of evidence-based intensive reading instruction on second and third grade students identified as having reading difficulties. The treatment group was exposed to evidence-based reading instruction strategies while the control group continued to receive reading instruction that was not evidence-based. Those students assigned to the treatment group received 50

minutes of one-to-one tutoring five days per week for one school year in addition to their regular classroom reading instruction. The results of the study showed there were significant differences between the treatment and control groups on all reading measures used with the results of the follow-up year revealing similar patterns. Research continues to show the positive role of evidence-based strategies in reading instruction for students who are at risk for reading difficulties (Blachman et al., 2004; Greenwood et al., 2003; Scanlon, Vellutino, Small, Franuele & Sweeney, 2005).

Response to Intervention

Revisions made in 2004 to IDEIA introduced response to intervention (RtI) as a means of determining a child's eligibility for special education services with a Specific Learning Disability (SLD). Most of the literature on RtI describes it as a method of identifying students at risk for developing reading difficulties while promoting successful reading outcomes for all students (Mellard, Bryd, Johnson, Tollefson, & Boesche, 2004). The RtI model is a multi-tiered approach for early identification and support of students who are having difficulties academically. The RtI model contains evidence-based instruction, ongoing student assessment using universal screening and progress monitoring, and tiered instruction for all students (Batsche, et al., 2005). The goal of RtI in reading is to improve the level of student achievement using evidence-based practices aligned with the instructional level of each student. Fuchs, Fuchs, and Vaughn (2008) reported that the use of the multi-tier system is necessary because no single instructional method or reading program works for the specific needs of each individual student.

The RtI model can be described as a triangle with the base being the instruction and interventions that are provided at the Tier I level to all students. Tier I includes the

use of universal screenings conducted three times per year to assess student progress as compared to pre-established benchmarks and identify those students who may be at risk for reading failure. Tier 1 is known as the preventative tier where instruction takes place in the regular educational classroom setting with all students receiving high quality reading instruction from evidence-based core reading programs (Allain & Kukic, 2008). Through the use of evidence-based practices it is intended that most students in the regular education classroom setting will be successful in reaching the benchmarks. Lyon, Fletcher, Fuchs, and Chhabra (2006) reported that approximately 80% of the students in Tier 1 are expected to meet the established benchmarks. When the interventions provided in Tier 1 are found to be insufficient in assisting a student to make the needed gains in reading achievement the student is provided with Tier 2 interventions.

Students receiving Tier 2 interventions are provided with supplemental evidence-based instruction in addition to the core reading program. This level of intervention requires that students receive instruction beyond that provided for the Tier 1 students. Students receiving Tier 2 interventions are provided with small group instruction using interventions that are demonstrated to be evidence-based, effective, and aligned with state standards (Fuchs & Fuchs, 2005). Data-driven decision making becomes essential for students receiving Tier 2 interventions. Progress monitoring is used to provide the data necessary to make programmatic decisions and changes for these students. Progress monitoring involves the use of direct and frequent measurements of a student's performance before, during, and at the end of an intervention. The time series of the collected data not only allows a measurement of the student's present level of performance but provides estimated trends of performance using specific interventions

(Deno, 2002). The standard protocol used in progress monitoring is the use of CBM to monitor progress and collect data. While researchers vary in their recommendation of frequency of the administration of CBMs, data should be collected every other week at a minimum and increased to weekly if the student is experiencing increased levels of difficulty (Deno, Lembke, & Anderson, n.d.). The data collected will assist the decision makers in determining if each individual student's needs are being met by the evidence-based practices being implemented or if other interventions are necessary. The interventions at the Tier 2 level are estimated to meet the needs of approximately 20% of the students who have not met the predetermined benchmarks for Tier 1 (Vaughn & Chard, 2006).

Students who fail to respond to the Tier 2 interventions and continue to perform below expected benchmarks are provided with Tier 3 interventions. Tier 3 interventions provide students with more intensive evidence-based practices than found in Tier 2 interventions. These Tier 3 interventions are provided in small group settings (Fuchs & Fuchs, 2006). These interventions do not replace but are in addition to the instruction being provided in the core reading program. While a student is receiving Tier 3 intensive evidence-based interventions, progress monitoring is conducted weekly. The increase in the frequency of progress monitoring is necessary to assure the interventions are targeting the student's particular area of need. If progress is not being evidenced, necessary adjustments are made to the instructional practices (Denton, Fletcher, Anthony, & Francis, 2006). It is estimated that the number of students, who are in need of the intensive interventions of Tier 3, range from 2% to 5% (Ikeda et al., 2008). When

students fail to respond to the interventions provided in Tier 3 they are typically referred for possible identification of a SLD.

Socioeconomic Status

Socioeconomic status (SES), as discussed in educational research, is often defined in two distinct ways-- an individual's social position and an individual's economic position (Bradley & Corwyn, 2002). In the educational setting, children of low-SES are most commonly defined by their participation in the National School Lunch Program (Schafft, 2006). Children who receive free or reduced lunch have qualified for assistance due to low family income and are considered as having low-SES (Perie, Grigg, & Donahue, 2005). Children qualify for free lunches through the National School Lunch program if they have a family income at or below 130% of the poverty level. Children qualify for reduced lunch prices if they have family incomes between 130% and 185% of the poverty level (U.S. Department of Agriculture Food and Nutrition Service, 2011).

In Pennsylvania and across the United States, the number of low-SES students has steadily grown. According to the 2010 Kids Count Data book (Annie E. Casey Foundation, 2010) there was a 6% increase from 2000 to 2008 in the number of children living in poverty, an increase of one million more children living in poverty. Pennsylvania was ranked 25th out of 50 states in the percentage of children living in poverty. The 2010 Kids Count Data book, based on surveys taken in 2008, listed 17% of children in Pennsylvania living in poverty. The most current data provided by the 2011 Kids Count Data book ranked Pennsylvania at 20th out of 50 states in the percentage of children living in poverty (Annie E. Casey Foundation, 2011). While Pennsylvania's ranking has improved, when compared to other states, the number of children living in

poverty has not. The number of children in Pennsylvania living in poverty has risen from 17% in 2008 to 19% in 2010. In 2010 there were 522,000 children in the state of Pennsylvania living in poverty (Annie E. Casey Foundation, 2011).

The increase in the number of low-SES students poses a challenging problem for school administrators and teachers (Ross, Smith, Casey, & Slavin, 1995). Children living in poverty are statistically at risk of experiencing academic difficulty. The negative impact of a student's low-SES on academic achievement has been well documented (Arnold & Doctoroff, 2003; Flores, 2007). Research conducted by Brooks-Gun and Duncan (1997) has shown that a child's family income is more closely correlated to children's ability and achievement than to their emotional outcomes. They also reported that children living in extreme poverty or who have lived below the poverty line for multiple years suffer the most significant negative outcomes. Duncan and Magnuson (2005) examined the relationship between socio-economic factors and test score gaps and found that socio-economic factors do account for a large part of the social class academic discrepancies found among our nation's children.

The achievement gap in education refers to the disparity in academic performance between and among groups of students. It is most often used to describe the troubling gap in academic performance between minority students and their white peers, as well as between low-SES students and their middle-SES and high-SES peers. Numerous studies have reported the existence of a gap between the average achievement scores of various socio-economic groups (Flannery & Jehlen, 2005; Rogers, Wang, & Gomez-Bellenge, 2004). According to Williams (2003) the achievement scores for low-SES students have not been commensurate with those of their middle and upper-SES peers.

It has been commonly known that children from economically disadvantaged families tend to have lower test scores in reading than children from families of higher socio-economic status (Denton, West, & Walston, 2003). The factors contributing to the lack of children's success in reading can be noted in their family characteristics and home experiences. Children from low-SES families lack exposure to books and reading, have parents with negative approaches to learning, and have generally poor health. For some children, the lack of resources and support cause them to be at increased risk for school failure (West, Denton, & Germino-Hausken, 2000). This lack of sufficient resources can continue to affect the children's reading proficiency into first grade (Denton et al., 2003). Dubow and Ipplito (1994) examined the effects of poverty on the reading achievement of young children. The researchers evaluated the reading achievement levels of 473 children aged four to eight. The subjects completed an academic achievement measure in 1986 and then again in 1990. Findings showed that preschool children from high-poverty homes had low reading achievement levels that continued to be lower than their non-poverty peers in elementary school. Supporting this study is the 2011 Nation's Report Card (National Center for Educational Statistics, 2011) which revealed that only 18% of fourth grade students in low-income families were proficient in reading while almost 50% of fourth grade students in high-income families were proficient in reading. Children from less advantaged families continued to score significantly lower on standardized reading tests than more advantaged children, at grades four, eight and twelve. Even though billions of dollars have been spent and countless reforms have been passed over the past years one fact still remains, the reading achievement gap between low-SES students and their middle-SES and high-SES peers still remains. Even with the

passage of NCLB, the closing of this achievement gap in reading still continues to be an issue for the majority of school districts across the United States. With students' future academic and life success dependent on reading, it becomes imperative that educators address the achievement gap problem. To address the question of what schools can do to reduce the achievement gap, Slavin (1998) advised, "The only way to decrease the equity gap in academic performance is to greatly increase the achievement and school success of disadvantaged and minority students" (p. 8).

The achievement gap between low-income children and their more affluent peers begins early. Having fewer opportunities to engage in meaningful literacy-related experiences, these students enter school already behind their peers and are less likely to develop the skills and experiences they need to become successful learners (McEwan, 2002). Children do not develop into poor readers after completing years of education; they enter into school with the stage already set for reading failure. Lyons and Chhabra's (2004) review of research indicated that low-SES preschool students were significantly behind middle and high-SES preschool students in their knowledge of phonemes, letter names, letter sounds and vocabulary development. These pre-reading skills are extremely strong predictors of reading proficiency and those children entering into the educational system without them are at a disadvantage from the start (Snow, Burns, & Griffen, 1998).

The gap identified in preschool continues to develop in kindergarten. This gap can be clearly seen in the developmental rate of specific knowledge and skills. During the kindergarten year, children from more disadvantaged economic backgrounds make progress in closing the reading gap on basic skills such as recognizing letters, but the gap

widens in more sophisticated reading skills such as recognizing words by sight (West, Denton, & Reaney, 2005). Allington and McGill-Franzen (1989) suggested that children's achievement at the end of first grade predicts with alarming accuracy their success in school. Carbo (2003) further concluded that failure to develop basic reading skills by age nine or the end of third grade predicts a lifetime of illiteracy. The timing of poverty was found to have a strong correlation with specific negative child outcomes (Brooks-Gun & Duncan, 1997). Children who experience poverty during the formative years for reading in preschool and early school years were found to have lower rates of school completion than children and adolescents who experience poverty only in later years after these reading skills had been developed.

While reading success in the early grades of a child's educational career does not necessarily guarantee their reading success throughout their entire school career, failure in these early grades is highly associated with reading difficulties in the future (Slavin, Karweit, & Wasik, 1991). Studies have shown that students who failed to read adequately by third grade were at a significantly higher risk of dropping out of high school, of early pregnancy and delinquency (Slavin, 1994). One of the most frequently cited studies on literacy growth in low-SES students was conducted by Juel (1988), who emphatically stated that educators must make certain children learn to decode in first grade. Juel's longitudinal research tracked 54 first grade students through their fourth grade year. The results showed that the probability that a child would remain a poor reader at the end of fourth grade if the child was a poor reader at the end of first grade was 88%. The probability that a child would become a poor reader in fourth grade if the child had at least average reading skills in first grade was 12%. The evidence in this

study supported other research that the first grade struggling reader almost invariably remains a struggling reader by the end of fourth grade. In this same study, Juel also found that many children who were identified as struggling readers entered first grade with little phonemic awareness. By the end of their fourth grade year the struggling readers were only decoding at the second grade level. This lack of decoding skills prevented the struggling readers from being able to read as much text as the good readers, which appeared to create further problems. Juel estimated that a first grade child in the high reading group read approximately 19,000 words, whereas the low group child read, on average, only 9,900 words. Juel concluded that without special training, children with poor phonemic awareness are disadvantaged in learning to read.

The alarming message coming from the current research is that children who have difficulty in learning to read do not usually overcome the difficulty under ordinary school instruction (Carbo, 2003; Lyons & Chhabra, 2004). Most children placed in the low reading achievement group remain there and are far more likely to leave school before graduating, to fail a grade, or to be placed in special education (Hiebert, 1994). There is little evidence, however, that remedial reading programs or special education placement have been very successful in correcting reading problems (Slavin & Madden, 1989; Wasik & Slavin, 1993). Large-scale analyses of Title 1 remedial programs concluded that overall, Title 1 programs have minimal impact on the achievement of at-risk students (Dyer & Binkney, 1995). Very few programs produced significant gains in reading achievement, and of those programs that did show positive results, the gains were small and came from students in the primary grades. This research also found that traditional

remedial programs may report some gains, but children seldom catch up with their peers and there is no evidence of long-term effects from their efforts.

To assist struggling readers close the achievement gap, appropriate academic instruction in reading is necessary. While it is necessary to provide academic support to remediate students who are at risk for reading failure, not all reading instruction and support is successful in this process. Many typical interventions used with students experiencing difficulties with the reading process are effective at stabilizing the student's abilities, but not at actually providing remediation. Consequently, a significant percentage of students who attend remedial reading programs experience difficulty developing their skills in a manner that helps them close the achievement gap that exists between them and their peers (Torgesen et al., 2001). This deficiency creates significant implications for struggling readers as their peer group goes through the change process of learning to read to reading to learn. The lack of appropriate reading skills causes the at-risk student to experience difficulties in all areas of their education that require larger amounts of reading as they progress through grade levels such as science, history and literature.

Students tend to be successful at tasks in which they believe that they can succeed. When children begin to recognize their lack of reading skills in comparison to their peers, they may begin to believe the opportunity for being a successful reader is beyond their reach. They will begin to develop low levels of self-efficacy in reading. This low level of self-efficacy in reading determines the individual reader's feelings about how successful they can be in the reading process (Ferrara, 2005). This becomes a critical stage for educators in working to close the achievement gap between poor readers

and their peers. Student motivation toward the reading process is imperative during the elementary years. As students become more motivated toward the reading process, they are subsequently more likely to be successful. Initial indicators of reading performance illustrates that students who are struggling readers do not enjoy reading. In contrast, students who are motivated toward the reading process are more likely to become better readers with a greater ability to read fluently. Initial indicators illustrate that students who are motivated toward reading become more successful at the reading process.

Academic achievement gains for low-SES students are possible if correct educational practices and methods are implemented. Research conducted by Reeves (2000) on successful high poverty, high minority schools shows that at-risk students and districts can meet state academic standards in reading and other areas. Reeves identified what he called 90/90/90 schools "where 90% or more of the students were eligible for free and reduced lunch, 90% or more of the students were members of ethnic minority groups, and 90% or more of the students met the district or state academic standards" (Reeves, 2000, p. 1). Reeve's research used four years of test data from more than 130,000 students in 228 buildings located in inner-city, suburban, and rural schools. An investigation into the practices used by these schools to increase student achievement finds they are consistent with evidence-based practices. These practices included frequent progress monitoring, data-driven decision making, and supplemental instruction in areas of poor performance. Reeve's findings show support for the implementation of school wide practices found within the RtI model.

Oral Reading Fluency

Numerous children are identified annually as having a difficult time learning to read. A number of factors have been identified as causing individuals to have difficulty with reading. According to Schatschneider and Torgesen (2004) the National Research Council identified three reasons why people have difficulty learning to read. These include difficulties in learning to read words accurately and fluently, failure to acquire the verbal knowledge and thinking skills required to understand encountered text, and poor motivation in learning how to read. These influences significantly impact a reader's ability to succeed at the reading process. Students need to compensate for these disadvantages in order to become fluent readers.

Successful reading requires the learner to incorporate a number of reading skills in appropriate ways. The reading sub-skills deemed critical for the development of proficient reading include phonemic awareness, sight word recognition, fluency in reading instructional-level text and strategy use to aid comprehension (Chafouleas, Martens, Dobson, Weinstein, & Gardner, 2004). Student inability in appropriately performing and combining any of these important reading skills can lead to difficulties throughout the entire reading process, difficulties that are rarely remedied. Instead, proficient reading, or the ability to combine all of these necessary skills in obtaining meaning from text, can promote academic success. American educators recognize proficient reading as a complex performance interplay that requires simultaneous coordination across many tasks (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Competent readers are able to integrate the many reading skills, including phonemic awareness, oral

reading fluency, word recognition and other related skills, in obtaining meaning from the text one encounters.

Oral reading fluency may serve as one of the best indicators of basic reading competence. Student performances regarding oral reading fluency have been identified as possessing a powerful, direct link to reading proficiency. Developing oral reading fluency in students helps to ensure the creation of independent, self-monitoring readers (Stayter & Allington, 1991). Oral reading fluency is found to be one of the most critical components of the reading process and is defined as the ability to read orally in a smooth and effortless manner (Allinder, Dunse, & Brunken, 2001). Fluent reading is an imperative skill for all readers to develop. In fact, fluency has been likened to the development of other psychomotor skills such as playing tennis, with both skills benefiting from practice (Chard, Vaughn, & Tyler, 2002). Readers who focus more intensely on practicing their reading skills are generally able to become more fluent readers. Consequently, as students become more fluent readers, due to extensive practice, they are able to apply more conscious effort to the task of comprehending the text.

Oral reading fluency is distinctly separated into the two components of speed and accuracy that are critical for a student to possess prior to being able to read fluently. Accuracy refers to a student's ability to accurately identify words within the context of a passage while speed refers to how quickly the student is able to read the passage. In order to competently read with accuracy, readers need to have a thorough sight word vocabulary that enables them to recognize high-frequency words and other words that follow typical grapho-phonic rules (Worthy & Broaddus, 2002). Rapidly identifying

these words is also critical in achieving accuracy. The reader needs to possess a firm understanding of grapho-phonetic rules that can direct the manner in which word identification occurs.

As readers develop proficiency with reading, their ability to read more rapidly significantly improves. As readers improve in regard to their ability to read fluently, reaction time regarding text identification decreases at a corresponding rate. Initially, in acquiring their literacy skills, students generally experience rapid gains regarding speed (Naslund & Smolkin, 1997). This gain in reading speed is largely due to the type of books emergent readers focus on. Emergent readers frequently focus on books that have simple words and texts with numerous high-frequency words. As students begin to encounter more difficult books, the rate of reading speed begins to decrease. This reduction in reading speed is due to the development of new word recognition skills for the low frequency words encountered within the text. As the proficiency with the new text begins to improve, so does the reading speed allowing the reader to read at a rate that would be determined to be fluent. Reading fluently requires a student to read fairly rapidly while accurately identifying a large percentage of the words so as to ensure comprehension can occur. Readers who are able to read at a rapid rate should be able to utilize appropriate phrasing (Welsch, 2006).

When a reader has difficulty with reading fluency, the reader's ability to comprehend text is significantly impacted. Initially, readers generally have some difficulty recognizing words accurately; however, this initial frustration can be compensated for through practice and remediation. As one becomes more fluent in the reading process, mental energy can be devoted to the task of comprehending. Although

initially readers may find the reading process difficult, with more practice the task can become more automatic. This automaticity allows a reader to apply brain functions to fully comprehending the encountered text (Nathan & Stanovich, 1991). Once the reading becomes automatic, the process is able to be performed with minimal attention and conscious effort (Samuels & Flor, 1997). The corresponding automaticity enables a reader to more fully enjoy the reading process. Dysfunctional readers often exert most of their mental efforts to decoding words in a slow, laborious method making reading more of a labor than an enjoyable activity. As one becomes more fluent in the reading process, mental energy can be devoted to the task of comprehending. Schwanenflugel et al. (2006) describe the fluent reader as one who is characterized by the ability to read quickly without a lot of conscious effort. Being able to focus ones mental energy towards the text as a whole, instead of focusing on single words, makes it possible for readers to enjoy the experience of reading.

Assessment of Oral Reading Fluency

With the increase of accountability for student performance on high stakes tests, the identification of a way to identify students who are at risk for reading failure has become essential (Herman & Baker, 2005). With NCLB requiring all children to be reading on grade level by the end of their third grade year, it is essential to identify students who are at risk for reading failure earlier rather than later in their educational career. In addition, it is beneficial for educators to use an assessment procedure that is able to accurately predict student performance on the end of the year high stakes tests.

One assessment procedure for both predicting and monitoring student performance is CBM. CBM is a specific set of procedures that were developed by the

Institute for Research on Learning Disabilities at the University of Minnesota for the purpose of measuring and monitoring student growth in basic skills (Deno, 1985). CBM met the need of a valid and reliable assessment system that teachers could easily use to frequently measure their students' progress in basic reading skills. In the initial stages, CBM used assessment materials that were developed directly from a school's local curriculum. According to Fuchs and Deno (1994) continued development of CBM has led to generic measurement procedures which has made it possible to obtain relevant data that is technically adequate using materials other than the school's curriculum. One of the unique features of CBM is the use of generated data to make curriculum and instruction decisions for individual students. By graphing the repeated samples of a student's performance over the course of a year the teacher can evaluate the student's progress. Teachers can then make changes to the individual student's instruction and delivery when needed and monitor the effects on the student's rate of growth (Deno, 2003).

One important way to monitor student reading progress is through the assessment of oral reading fluency. CBMs for oral reading fluency have been established through research on reading passage difficulty and expected rates of reading growth for different grade levels (Marston & Magnusson, 1985; Marston & Tindal, 1995). The reliability and validity of CBM oral reading measures has also been well documented. Tindal, Marston, and Deno (1983) examined test-retest reliability on a sample of 566 students in grades one through six and found test-retest reliability of the CBM passages to be .92. Criterion validity has been demonstrated by Fuchs, Fuchs, and Maxwell (1988). A comparison was made of the average number of words read correctly per minute on CBM oral

reading fluency to the Reading Comprehension index of the Stanford Achievement Test and a correlation of .92 was found supporting the construct validity of CBM oral reading fluency measures.

According to Good and Kaminski (2002) one type of commercially available instrument to assess oral reading fluency is the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). DIBELS consist of seven fluency measures including: Initial Sounds Fluency, Letter Naming Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, Oral Reading Fluency, Retell Fluency, and Word Use Fluency.

The oral reading fluency component of the DIBELS (DORF) assessment assesses a student's ability to read fluently and accurately (Langdon, 2004). The students are instructed to read continuously for a period of one minute. Accuracy is maintained by the assessor's use of a stopwatch. The assessor documents any miscues the student makes during the allotted period of time. The DORF score is then constructed based on the number of correctly read words produced by the student during the assessment time. Student progress may be monitored as frequently as needed. Student progress regarding DORF can be documented throughout the academic career through the utilization of this assessment tool. The data can then be monitored to measure the students' progress throughout the year.

Oral Reading Fluency as a Predictor of Reading Achievement

Oral reading fluency has been identified as one of the best predictors of academic success for school-aged children (Fuchs, Fuchs, Hosp, & Jenkins, 2001). Studies have found that instruments measuring oral reading fluency are successful in identifying students at risk for reading failure and thus are beneficial for targeting specific students

for reading intervention (McGlinchey & Hixson, 2004; Buck & Torgeson, 2004). One study conducted by Sibley, Biwer, and Hesch (2001) analyzed the data collected by a suburban school district in northeastern Illinois to exam the correlation between CBM oral reading fluency benchmarks and the Illinois Standards Achievement Test (ISAT). Their finding showed a strong correlation between CBM oral reading fluency and the ISAT for reading. In their sample, 97% of students who met the second grade CBM oral reading fluency goal met, or exceeded the third grade ISAT reading standards. Of the nine students who did not meet the second grade CBM oral reading fluency standards, only 44% were able to attain the "meets the standards" performance rating in the ISAT reading standards. The study also examined the correlation between CBM oral reading fluency scores and the reading scores on the local achievement test called the Level Reading Test (LRT). The predictive ability of oral reading fluency scores and future scores on the LRT was also strongly supported. In their sample 100% of the students who met the third grade CBM oral reading fluency benchmarks attained an Average or High rating for the fourth grade LRT while only 33% of the students who were unable to meet the third grade CBM oral reading fluency benchmarks were able to attain an Average or High rating on the fourth grade LRT. Similar results were also found when comparing students' fourth grade CBM oral reading fluency benchmark scores to their fifth grade LRT scores.

DORF has specifically shown to predict level of success on high stakes state testing. Schilling, Carlise, Scott, and Zeng (2007) studied the predictive validity of DORF. Using data collected from 44 schools in Michigan, the researchers compared student DIBELS scores to their Iowa Test of Basic Skills (ITBS). The study found that

DORF was accurate in identifying students who were below average in reading on the ITBS. Of those students who were below the fiftieth percentile on the ITBS, 57% of the second graders and 57% of the third graders were identified by the DORF to be in the at risk category the previous fall. Similar results were also found by Wood (2006) in his study of DORF and student performance on a statewide reading test. Wood examined the relationship between student DORF scores and the reading scores on the Colorado Student Assessment Program (CASP) in third, fourth, and fifth grade students. The students were administered the winter benchmark of the DORF measure approximately two months before the administration of the CSAP. Students were given all three of the benchmark passages during one session and the median score was used to compare with the CASP. The correlations between DORF and CASP reading were found to be significant within each grade. The correlations for each grade were as follows: third grade, r = .70, fourth grade, *r* = .67, and for fifth grade, *r* = .75. Wood also found that DORF predicted performance on reading achievement tests equally across grade levels. The value of using CBMs in reading as predictors of performance on high stakes testing has been identified in numerous states such as Florida (Buck & Torgeson, 2004), Minnesota (Hintze & Siberglitt, 2005), and Washington (Stage & Jacobsen, 2001). These studies provide research identifying DORF scores as valid and reliable predictors of student performance on the reading sections of state achievement tests. They can be successfully used to identify those students who are at risk of future reading failure and in need of supplemental instruction.

Summary

With the higher levels of accountability that have resulted from the passage of NCLB, school district administrators are now focusing more attention on the academic areas where students are failing to meet AYP. They have also begun to identify particular student groups that are experiencing difficulty in making gains in their achievement levels. Research continues to show the area of reading to be problematic for many school-age children. Even with the numerous new interventions and strategies that have been implemented over the past 10 years the nation continues to have an unacceptable level of elementary students failing to acquire the skills necessary to be fluent readers.

NCLB has also focused attention on the practices being used in reading instruction. Historically there were no guidelines to determine if instructional practices used in school systems were effective in raising student achievement levels (Chalfant, Pysh, & Moultrie, 1979). NCLB has mandated that instructional practices used in the educational setting must provide evidence that they are effective. Known as evidence-based practices, these interventions must be quantitative showing that the effects of the intervention are measurable. A large quantity of research has shown evidence-based practices in reading to be effective in preventing early reading failure in elementary students. This is critical for reading success as children who continue to experience reading failure through fourth grade continue to experience failure throughout their entire school career.

The multiple-tier design of the RtI model creates a promising framework for the use of evidence-based practices in reading. All students, within this model, are instructed

using evidence-based practices providing the necessary groundwork for future reading achievement. Students who are identified as being at risk for reading difficulties are moved to the next tiers with more intensive evidence-based interventions being implemented.

The accountability movement has also focused attention on particular student groups that have historically shown reading achievement gaps with their peers. One particular group is the low-SES students. Students from low-SES households enter into school already significantly behind their middle-SES and high-SES peers in reading skills. Unfortunately, the achievement gap in reading that exists between the low-SES students and their peers only continues to widen as they progress through their academic career.

The literature indicates the use of evidence-based practices in reading, found within the RtI model, can result in an increase in reading achievement for low-SES students. The literature does not clearly indicate if equivalent achievement can be made by low-SES students not being instructed within the RtI model. The literature also does not address the grade levels most impacted by the use of evidence-based practices in reading found within the RtI delivery model. Research that examines the reading achievement of low-SES students instructed in reading through the RtI delivery model in comparison to the achievement of low-SES students not receiving evidence-based instruction through the RtI delivery model is needed. Research in this area can determine if there are educational practices and strategies that will help all students, including low-SES students reach AYP in reading.

CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to evaluate the effects of evidence-based practices found within the Response to Intervention (RtI) delivery model on low-socioeconomic-status (low-SES) elementary students in the area of reading achievement. The Dynamic Indicators of Basic Early Literacy Skills Oral Reading Fluency (DORF) scores of low-SES elementary students (as measured by their participation in the free and reduced lunch program) in schools that are currently using the RtI delivery model were compared to the DORF scores of low-SES elementary students in schools that are not using the RtI delivery model. The first testing administration and last testing administration DORF scores in grades first, second, and third, were examined to see if the magnitude of effect differed by grade level.

This chapter will identify the procedures and methods used in the study. The target population will be defined along with the sampling procedures. The instruments used for data collection will be described. The study design and methods used to analyze the data will be explained in this chapter.

Research Questions and Hypotheses

The following two research questions and hypotheses will be examined by this study:

1. Is there a significant difference in the DORF scores for low-SES students in schools implementing the RtI delivery model compared to the DORF scores for low-SES students in schools that have not implemented the RtI delivery

model? It was hypothesized that there would be a significant difference in the DORF scores for low-SES students in schools implementing the RtI delivery model compared to the DORF scores for low-SES students in schools that have not implemented the RtI delivery model.

2. When comparing the first testing administration and second testing administration DORF scores does the magnitude of effect differ in first, second, and third grades for low-SES students in schools using the RtI delivery model and those not using the RtI delivery model? It was hypothesized that the magnitude of effect differs in first, second, and third grades with the largest effect size witnessed in first grade for low-SES students in schools using the RtI delivery model.

Population

The target population for this study was first, second, and third grade low-SES students in six different rural Pennsylvania public school districts. According to The Center for Rural Pennsylvania a school district in Pennsylvania is defined as being rural "when the number of persons per square mile within the school district is less than 284 persons" (The Center for Rural Pennsylvania, n.d.). Students were identified as being low-SES by their participation in the free and reduced lunch program. To qualify for the free and reduced lunch program the student's family income must meet the guidelines established by the United States Department of Agriculture. The free lunch guidelines are at or below 130% of the Federal poverty guidelines and the reduced lunch guidelines are between 130% and at or below 185% of the Federal poverty guidelines (United States Department of Agriculture, 2011). In the 2009 – 2010 school year, students who

qualified for free lunch were from families whose income ranged below $26,955 in families of two and $48,114 in families of eight. Students who qualified for reduced lunch where from families whose income ranged from $18,941 to $26,955 in families of two and up to $48,114 to $68,469 in families of eight (United States Department of Agriculture, 2009).

In order to compare the effects of evidence-based practices in an RtI delivery model on reading achievement, the sample included students from three schools that have implemented the RtI delivery model in reading instruction and students from three schools that have not implemented the RtI model in reading instruction.

To access the level of implementation of evidence-based practices found within the RtI delivery model in each participating school, a district designee from each of the six districts who had knowledge of the use of RtI and evidence-based practices during the 2009-2010 school year completed the treatment fidelity survey found in Appendix A, The Survey of School Services for At-Risk Students (Gleason, 2012). The district designee was an elementary principal or curriculum director from each district. The survey respondents were selected based upon their knowledge of the reading curriculum used for first, second, and third grades during the 2009-2010 school year.

The total student population and percent of students that participated in the free and reduced lunch program in each of the participating schools is reported for the 2010-2011 school year. The percent of third graders proficient in reading on the Pennsylvania System of School Assessment (PSSA) is also reported. These data are based on the 2009 PSSA scores.

The first school implementing the RtI delivery model had a population of 472 students in grades kindergarten through sixth grade with 72% of third graders being proficient in reading on PSSA. The school had 22% of their students participating in the free and reduced lunch program.

The second school implementing the RtI delivery model had a population of 441 students in grades kindergarten through sixth grade with 76% of third graders being proficient in reading on the PSSA. The school had 19% of their students participating in the free and reduced lunch program.

The third school implementing the RtI delivery model had a population of 568 students in kindergarten through fifth grade with 82% of third graders being proficient in reading on the PSSA. The school had 41% of their students participating in the free and reduced lunch program.

The first school not implementing the RtI delivery model had a population of 422 students in grades kindergarten through sixth grade with 67% of third graders being proficient in reading on the PSSA. The school had 59% of their students participating in the free and reduced lunch program.

The second school not implementing the RtI delivery model had a population of 206 students in kindergarten through sixth grade with 82% of third graders being proficient in reading on the PSSA. The school had 53% of their students participating in the free and reduced lunch program.

The third school not implementing the RtI delivery model had a population of 231 students in grades kindergarten through fourth grade with 74% of third graders being

proficient in reading on the PSSA. The school had 44% of their students participating in the free and reduced lunch program.

Schools implementing the RtI delivery model had a larger student population than the schools not implementing the RtI delivery model. The schools not implementing the RtI delivery model had a larger percentage of students participating in the free and reduced lunch program. The percentage of third grade students proficient in reading on the 2009 PSSA were similar between the schools implementing the RtI delivery model and the schools not implementing the RtI delivery model.

The sample size was 600 students in first, second, and third grades. Each student in the sample was administered the DIBELS 6th Edition DORF test during the first testing administration as well as the last testing administration of the 2009-2010 school year. There were 322 students enrolled in schools that used the RtI delivery model in reading instruction. From these schools there were 106 first grade students, 110 second grade students, and 106 third grade students. There were 278 students from schools that did not use the RtI delivery model in reading instruction. From these schools there were 90 first grade students, 85 second grade students, and 103 third grade students.

Procedure

Three rural school districts in Pennsylvania that administered DORF measures in first through third grade and have implemented the RtI model in reading instruction and three rural school districts in Pennsylvania that administered DORF measures in first through third grade but did not implement the RtI model in reading instruction were identified for this study. Letters of intent, explaining the proposed study, were mailed to

the superintendents of participating districts and signed permission to conduct the study and collect the necessary data were obtained.

Archived data consisting of DORF scores from the 2009-2010 school year were collected on individual low-SES students in first through third grade who had been administered the DORF benchmark assessment. Specific data examined were the DORF scores from the initial testing administration in the fall of 2009 and final testing administration in the spring of 2010. The data were entered into a database with student names removed and identification numbers provided for each student. The data were broken down by grade level and district participation in the RtI delivery model. All student names were deleted at the district level before the database was sent to the researcher.

To determine the implementation of evidence-based practices found within the RtI delivery model, the district's principal or designee completed the Survey of School Services for At-Risk Students (Gleason, 2012). The survey was administered online using Survey Monkey. A link to the survey along with a letter of consent (see Appendix B) was emailed to each elementary principal. The elementary principal signed the consent form and completed the survey or selected a teacher knowledgeable about the district's implementation of RtI and the use of evidenced-based practices in first, second, and third grade reading curriculum during the 2009-2010 school year. If a teacher was selected to complete the survey, the principal was directed to provide the consent form and survey link to the teacher. The signed informed consent form was emailed back to the researcher.

DIBELS Oral Reading Fluency

The DIBELS (University of Oregon Center on Teaching and Learning, 2008) is a type of curriculum-based measurement that records the progress of reading skills using the seven following fluency measures: Initial Sounds Fluency, Letter Naming Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, Oral Reading Fluency, Retell Fluency, and Word Use Fluency. Each measure is standardized and individually administered. Being a criterion-referenced assessment, each DIBELS measure has an empirically established benchmark for each grade level. The benchmark goals that have been established for each grade level classify students into one of three categories: at risk, some risk, or low risk. Using these benchmarks, the student scores are "used to identify students who are discrepant from their peers and in need of diagnostic assessment, evaluate student rate of progress and evaluate the efficacy of instruction" (Assessment Committee Analysis of Reading Assessment Measures, 2002, p. 6).

The DIBELS subset measure that was used in this study is the DORF measure. The DORF measure has a set of standardized passages and administration procedures that have been designed to identify children who may need additional instructional support and to monitor individual student progress toward the instructional goals. The oral reading fluency subset passages and procedures are based on "the program of research and development of Curriculum-Based Measurement of Reading by Stan Deno and colleagues at the University of Minnesota" (DIBELS Oral Reading Fluency and Retell Fluency, n.d.). The DORF passages are calibrated for the goal level of reading in first, second, and third grades. Spache Readability was used to develop the reading passages in the first, second, and third grade DORF measure (Good & Kaminski, 2002). Reporting

a grade level equivalent score, the Spache Readability Formula "calculates the grade level of a text sample based on sentence length and number of unfamiliar words" (The SPACHE Readability Formula, 2012, para. 1). For first grade, Spache Readability is 2.0, 2.1, 2.2, or 2.3. For second grade Spache Readability is 2.4, 2.5, 2.6, or 2.7. For third grade, Spache Readability is 2.8, 2.9, 3.0, or 3.1. The level of reading difficulty of the DORF passages changes in a linear fashion according to grade level. DORF scores were developed to be used as screening assessments in the beginning of the year, middle of the year, and the end of the year. This study only utilized initial and end of the year DORF scores.

There are established procedures for the administration of the DORF assessment. According to the University of Oregon Center on Teaching and Learning:

> Student performance is measured by having students read a passage aloud for one minute. Words omitted, substituted, and hesitations of more than three seconds are scored as errors. Words self-corrected within three seconds are scored as accurate. The number of correct words per minute from the passage is the oral reading fluency score (DIBELS Oral Reading Fluency and Retell Fluency, n.d. para. 1).

Official scoring procedures for the DORF measure consist of the following steps.

1. Follow along on the examiner copy while the student is reading and put a slash (/) through words read incorrectly.
2. Score reading passages immediately after administration.

3. Discontinue Rule: If the student does not read any words correctly in the first row of the first passage, discontinue the task and record a score of 0 on the front cover.
4. Record the total number of words read correctly on the bottom of the scoring sheet for each passage.
5. If the student reads fewer than 10 words correct on the first passage, record the score on the front cover and do not administer passages 2 and 3.
6. If the student reads three passages, record the middle score on the front cover….
7. Hesitates or struggle with words: If a student hesitates or struggles with a word for three seconds, tell the student the word and mark it as incorrect. If necessary, indicate for the student to continue with the next word.
8. Hyphenated Words: Hyphenated words count as two words if both parts can stand alone as individual words. Hyphenated words count as one word if either part cannot stand alone as an individual word.
9. Numerals: Numerals must be read correctly in the context of the sentence.
10. Mispronounced Words: A word is scored correct if it is pronounced correctly given the context of the sentence. If the word is mispronounced in the context, it is scored as an error.
11. Self-Corrections: A word is scored as correct if it is initially mispronounced but the student self-corrects within three seconds. Mark SC above the word and score as correct.

12. Repeated Words: Words that are repeated are not scored as incorrect and are ignored in scoring.
13. Articulation and Dialect: The student is not penalized for imperfect pronunciation due to dialect, articulation, or second language interference. For example, if the student consistently says /th/ for /s/, and reads "rest" as "retht", he or she should be given credit for a correct word. This is a professional judgment and should be based on the student's responses and any prior knowledge of his/her speech patterns.
14. Inserted Words: Inserted words are ignored and not counted as errors. The student also does not get additional credit for inserted words. If the student frequently inserts extra words, note the pattern at the bottom of the scoring page.
15. Omitted Words: Omitted words are scored as incorrect.
16. Word Order: All words that are read correctly but in the wrong order are scored as incorrect.
17. Abbreviations: Abbreviations should be read the way you would normally pronounce the abbreviation in conversation. For example, TV could be read as "teevee" or "television" but Mr. would be read as "mister". (DIBELS Oral Reading Fluency and Retell Fluency, n.d, Scoring Procedures – Part 1: Oral Reading Fluency).

According to the University of Oregon Center on Teaching and Learning the test-retest reliabilities ranged from .92 to .97 while criterion-related validity has coefficients ranging from .52 to .91 (DIBELS Oral Reading Fluency and Retell Fluency, n.d.). The

Assessment Committee Analysis of Reading Assessment Measures (2002) found the second grade DORF measure had an alternate-form reliability coefficient that ranged from .89 to .96. When the second grade DORF measure was evaluated for concurrent validity with the Test of Reading Fluency (TORF) measure, the coefficients ranged from .94 to .96. When the second grade DORF measure was evaluated for alternate-form reliability, all correlations were significant $p < .01$ with reliability coefficients ranging from .89 to .96.

Treatment Fidelity Survey

A treatment fidelity survey, Survey of School Services for At-Risk Students (Gleason, 2012), was administered to a district designee from each of the six districts who had knowledge of the use of RtI and evidence-based practices in first, second, and third grade reading instruction. The survey was administered online using Survey Monkey. A letter of consent was emailed to each school's elementary principal to be signed and returned. A link to the survey was also emailed to the principal to access the survey through Survey Monkey. To ensure accurate survey responses, the specific research questions that were examined in the study were not revealed to the districts or the survey subjects.

The Survey of School Services for At-Risk Students (Gleason, 2012) is an 11 question survey to determine the level of implementation of evidence-based practices found within the RtI delivery model. The psychometric qualities of the survey have not been established by research at this point. One question assessed the schools' curriculum adaptation method. Three questions assessed factors implemented by the schools to support struggling readers. Four questions assessed the schools' monitoring of the

delivery of instruction. Two questions assessed the schools' data collection and decision making. The survey also identified the date that evidenced-based practices were implemented.

When the surveys were received from the district designee, the information was used to verify that the principals who had self-reported implementation of the RtI model were using a multi-tiered system of reading intervention, frequent curriculum-based measures for progress monitoring and data-based decision making, and evidence-based reading curriculum. The information on surveys from the district designees, where the principals had self-reported no implementation of the RtI model, verified that practices are not aligned with the evidence-based practices found within the RtI delivery model.

Study Design

The study design was a repeated measures factorial ANOVA. It was a 2 x 3 x 2 factorial design. In this three factor design, two of the factors were a between-subjects design and one factor was a repeated measures within-subjects design. The between-subjects factors were reading delivery model and grade level. Delivery model consisted of two different groups, students instructed through the use of evidence-based practices found within the RtI model and students who did not receive reading instruction through the use of evidence-based practices found within the RtI model. Grade level consisted of first grade, second grade, and third grade. The within factor was time of test administration with two levels, initial DORF test and last DORF test. The dependent variable was students' DORF scores.

When conducting a repeated measures factorial ANOVA, the following assumptions were addressed in order to reduce the risk of Type I and Type II errors. The

first assumption was the independence of observations. This assumption requires that one participant's score cannot influence another participant's score. Individual DORF scores were not influenced by other participants in this study.

The normality assumption requires that the distribution of DORF scores is normally distributed in the population. The DORF scores for each test administration must also be normally distributed in the population and the scores need to be normally distributed for each grouping level as well. The repeated measures ANOVA is generally considered robust to violations of the normality assumption (Weinfurt, 2004). According to Weinfurt (2004) "this means that the Type I and Type II error rates for the *F* test are significantly distorted only when the distribution of the data is an extreme deviation from normal" (p. 328).

The assumption of the absence of extreme outliers requires that there are no extreme outliers in the data. This assumption was tested in a box plot for each level of the dependent variable. Any extreme outliers discovered in the box plot for each level of the dependent variable where removed from the data set.

The homogeneity of variance assumption requires that the dependent variable have the same variance in each category of the independent variables. Levene's test of homogeneity of variance was used to test this assumption. The sphericity assumption, a special case of the homogeneity of variance assumption, must typically be met in a repeated measures ANOVA. This assumption requires that the variance of difference scores computed between any two levels of a within-subjects factor is the same value. The sphericity assumption is meaningful only when there are more than two levels of a within-subjects factor. Since this study only utilized two different administrations of the

DORF measure or two levels of a within-subjects factor, the sphericity assumption was not required in this design.

Statistical Analysis of Data

Using the computer program Statistical Package for the Social Sciences (SPSS) for Windows, version 11.0, a 2 x 3 x 2 factorial ANOVA was used to evaluate the first research question of this study. The mixed-model ANOVA indicated if there was a significant difference in the DORF scores for low-SES students in schools implementing the RtI delivery model compared to the DORF scores for low-SES students in schools that have not implemented the RtI delivery model in first, second, and third grades. In the 2 x 3 x 2 factorial ANOVA, the different effects analyzed included between-subjects effects, a within-subjects effect, and the interaction between groups and testing administration time effect. The between-subjects analysis for delivery model indicated if the mean scores differed by delivery model, regardless of testing administration time. Since the DORF score has benchmark scores increasing in a continual linear fashion in each grade level, the between-subjects analysis for grade level should differ by grade level. The within-subjects analysis indicated if there was a difference between the mean first administration DORF score and the mean last administration DORF score regardless of grouping. Of particular interest to this study was the difference in mean DORF scores across testing administration times as it related to the different between-subjects factors. This result indicated if there was a significant difference in the DORF scores for low-SES students in RtI schools compared to non-RtI schools based on the interaction of all variables. Due to the interaction of all variables, follow-up tests were conducted to determine if there was a significant difference between delivery models in each grade

level. To validate the impact of the delivery model on the mean difference score, three independent-samples *t* tests were conducted to determine if there was a significant difference in the first administration test scores between RtI schools and non-RtI schools.

To answer the second research question, 2 x 2 repeated measures ANOVAs were conducted as follow-up tests for each grade level. Time of testing administration was the within-subjects effect and delivery model was the between-subjects effect. The results of these tests indicated if there was a significant difference between schools implementing the RtI delivery model and schools not implementing the RtI delivery model for each grade level. In each grade level that evidenced a significant difference, the magnitude of effect was also indicated.

A standardized effect size for a factorial ANOVA is eta squared, η^2. The eta squared values of .01, .06, and .14 represent small, medium, and large effects, respectively (Cohen, 1988). This effect size describes the proportion of variance explained by the interaction of variables. Examining the standardized effect size of any significant interaction of the grade level groupings, reading delivery model, and testing administration time indicated which grade level and reading instruction method, if any, demonstrated the greatest magnitude of effect. Using the mean difference score between the first administration score and the last administration score, an effect size coefficient (Cohen's *d*) was also calculated for both delivery models at each grade level. Cohen's *d* values of .20, .50, and .80 represent small, medium, and large effects, respectively (Cohen, 1988). These findings indicated if the magnitude of effect differed in grade levels first, second, and third for low-SES students in schools using the RtI model and those not using the RtI model.

CHAPTER 4

RESULTS

Introduction

The focus of this study was to examine the impact of evidence-based practices found in the Response to Intervention (RtI) model on reading achievement levels of low-socioeconomic-status (SES) students. The oral reading fluency levels of low-SES students in grades first, second, and third were examined to determine whether there was a significant difference in the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Oral Reading Fluency scores in schools that have implemented the RtI delivery model in reading. The magnitude of effect was examined to determine if there was a significant difference in first, second, and third grade. The design used for the study was a repeated measures 2 x 3 x 2 factorial analysis of variance (ANOVA). This design included a within-factor (time of testing) and two between-subjects factors (grade level and delivery model). A treatment fidelity survey, the Survey of School Services for At-Risk Students (Gleason, 2012), was used to ascertain the use of evidence-based practices within the RtI delivery model. The survey was completed by one representative from each participating district.

Treatment Fidelity Survey Results

One individual from each of the six participating districts returned a completed Survey of School Services for At-Risk Students (Gleason, 2012). The individual completing the survey was selected by the principals based upon their knowledge of reading services provided to the students in first, second, and third grade during the 2009-2010 school year. When reporting the survey results in the tables below, the three

schools that have implemented the RtI delivery model are identified as District 1, District 2, and District 3. The three schools that have not implemented the RtI delivery model are identified as District 4, District 5, and District 6. The questions in the survey were divided into four main categories dealing with the level of implementation of evidence-based practices in reading. The categories included the following: curriculum adaptation method; factors implemented to support struggling readers; monitoring delivery of instruction; and data collection and decision making.

One question ascertained the methods used in the selection of reading curriculum for first, second, and third grades during the 2009-2010 school year. The question stated "What factors did your school consider in choosing its reading series?" Several factors were used by districts in the selection of the reading curriculum (see Table 1).

Table 1

Factors Used by Each District in the Selection of Reading Curriculum

	RtI Districts			Non-RtI Districts		
	1	2	3	4	5	6
Factors (Yes/No)						
Alignment with state standards	Yes	No	Yes	Yes	Yes	Yes
Positive review by national website	Yes	No	No	No	Yes	Yes
Chosen by a district panel	Yes	Yes	Yes	Yes	Yes	Yes
Cost	No	No	No	Yes	No	Yes
Empirical evidence from other districts	No	No	No	Yes	No	No

Three questions assessed factors implemented by each district to assist students who were experiencing reading difficulties. These questions included the following: "Did your school utilize a multi-tier system to support students who display academic difficulties in reading? Did your school have time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction? Did your school have grade level team or core team meetings that met at least three times a year to analyze and discuss students' reading benchmark and/or progress monitoring data?" If districts implemented elements of a multi-tiered system, the year of implementation was reported (see Table 2).

Two questions assessed if the district had used any formal mechanisms to ensure that core reading instruction and supplemental reading interventions were delivered in the way the instruction was designed to be delivered. The questions included the following: "Did your school use a formal mechanism (e. g., curriculum implementation checklist) to ensure that core reading instruction is being delivered in the way in which it was designed to be delivered?; Did your school use a formal mechanism (e. g., written intervention plan) to ensure that supplemental reading intervention is delivered in the way in which it was designed to be delivered?" The districts were also asked to indicate the formal mechanisms used to ensure that the core reading instruction and supplemental reading intervention was delivered in the way in which it was designed to be delivered (see Table 3).

Table 2

Factors Implemented in Each District to Assist Students With Reading Difficulties

Factor	District (1-3 RtI, 4-6 Non-RtI)	No/Yes	Year
Multi-Tier System	1	Yes	2002-2003
	2	Yes	2007-2008
	3	Yes	2005-2006
	4	No (Title I)	
	5	Yes (Title I)	2011-2012
	6	Yes (Title I)	no response
Support Time	1	Yes	2002-2003
	2	Yes	2007-2008
	3	Yes	2005-2006
	4	Yes (Title I)	1995-1996
	5	Yes (Title I)	2008-2009
	6	No	
Core Team Meetings	1	Yes	2004-2005
	2	Yes	2007-2008
	3	Yes	2005-2006
	4	Yes	2010-2011
	5	Yes	2008-2009
	6	Yes	2001-2002

Table 3

Formal Mechanisms Used by Each District to Monitor Core Reading Instruction and Supplemental Reading Intervention

District	Core reading instruction monitoring	Formal mechanisms	Supplemental reading intervention monitoring	Formal mechanisms
1 RtI	No	Focused walk-through	Yes	Written intervention plan Evaluation and feedback
2 RtI	Yes	Focused walk-through Observation by peer	No	
3 RtI	Yes	Curriculum implementation checklist Focused walk-through Observation by peer	Yes	Written intervention plan Evaluation and feedback
4 Non-RtI	No		Yes	Written intervention plan
5 Non-RtI	No	Focused walk-through Observation by peer	Yes	Written intervention plan Evaluation and feedback Observation by peer
6 Non-RtI	No		Yes	Written intervention plan

Two of the questions assessed if the district collected and used data to measure student progress and make data-based decisions regarding reading interventions. The

questions included the following: “Did your school conduct universal screenings/benchmarking in reading at least three times per year using a recognized tool? Did your school monitor students’ progress in response to reading intervention on a frequent basis using a formal measure?” If districts collected and used the data, the year of implementation was reported (see Table 4).

Table 4

Frequency of Progress Monitoring by Each District

District (1-3, RtI, 4-6, Non-RtI)	Three Times Per Year No/Yes and Year	Frequent Monitoring During Intervention No/Yes and Year
1	Yes 2002	Yes 2004
2	Yes 2006	Yes 2007
3	Yes 2000	Yes 2000 (Title I)
4	Yes 2006	Yes 2006
5	Yes 2005	Yes 2007
6	Yes 2001	Yes 2001

The schools that implemented the RtI delivery model utilized several evidence-based practices that were not implemented by the schools that did not implement the RtI delivery model (see Table 5). Only the three schools that implemented the RtI delivery model utilized a multi-tier system beyond Title I services to support students who displayed academic difficulties in reading. In addition to the time allocated for core reading instruction, only the RtI schools had time built into the schedule to support

struggling readers that was in addition to the regular Title I services offered by the RtI and non-RtI schools. Only the RtI schools utilized at least one formal mechanism to monitor the core reading instruction. The results indicate that schools that did not implement the RtI delivery model utilized several evidence-based practices that were also implemented by the RtI delivery model schools. These practices included grade level team meetings, frequent progress monitoring, and formal mechanisms for supplemental reading instruction.

Table 5

Number of RtI Schools and Non-RtI Schools Utilizing Evidence-Based Practices

Evidence-Based Practices	RtI Schools	Non-RtI Schools
Formal Mechanism Monitoring Core Reading Instruction	3	0
Multi-Tier System Beyond Title I	3	0
Time Built Into Schedule Beyond Title I	3	0
Grade Level Team Meetings	3	3
Frequent Progress Monitoring	3	3
Formal Mechanism for Supplemental Reading Instruction	2	3

Results for the First Research Question

A repeated measures 2 x 3 x 2 factorial ANOVA was conducted to address the first research question. The first research question being "Is there a significant difference in the DIBELS Oral Reading Fluency scores for low-SES students in schools implementing the RtI delivery model compared to the DIBELS Oral Reading Fluency

scores for low-SES students in schools that have not implemented the RtI delivery model?" It was hypothesized that there would be a significant difference in the DIBELS Oral Reading Fluency scores for low-SES students in schools implementing the RtI delivery model compared to the DIBELS Oral Reading Fluency scores for low-SES students in schools that have not implemented the RtI delivery model. Three schools that implemented the RtI delivery model and three schools that had not implemented the RtI delivery model submitted beginning and end of the year administrations of DIBELS ORF scores for students in first, second, and third grade for the 2009-2010 school year. The total number of participants from the RtI schools was 322 students and the total number of participants from the schools that did not implement the RtI delivery model was 278 students. A distribution of participants by grade level is shown in Table 6.

The 2009-2010 DIBELS ORF score means and standard deviations for both the first administration and last administration for students in RtI schools and non-RtI schools are listed in Table 6. Since the mean scores for the last testing administration in first grade are higher than the first testing administration scores in second grade and the mean scores for the last testing administration in second grade are higher than the first testing administration scores in third grade, summer drop-off in reading may have impacted the first testing administration scores.

To ensure that the initial scores were not significantly different for each grade level regardless of delivery model, three independent-samples *t* tests were conducted to determine if there was a significant difference in the first testing administration oral reading fluency scores between the RtI schools and the non-RtI schools in first, second, and third grade. The first grade RtI mean of 29.25 was not significantly different from

the non-RtI mean of 25.72, $t(195) = 1.32$, $p = .25$. The second grade RtI mean of 50.43 was not significantly different from the non-RtI mean of 44.58, $t(194) = 2.30$, $p = .13$. The third grade RtI mean of 79.04 was not significantly different from the non-RtI mean of 79.98, $t(208) = .04$, $p = .84$. These tests indicated that there was not a significant difference in the first, second, and third grade first testing administration scores between the RtI schools and the non-RtI schools.

Table 6

Number of Participants, Mean and Standard Deviations for First Administration and Last Administration DIBELS ORF Scores

		First Administration		Last Administration	
Grade/ Delivery Model	*n*	*M*	*SD*	*M*	*SD*
1st RtI	106	29.25	22.09	56.58	31.49
1st Non-RtI	90	25.72	20.54	46.18	27.23
2nd RtI	110	50.43	28.37	97.34	31.55
2nd Non-RtI	85	44.58	24.46	82.29	32.82
3rd RtI	106	79.04	31.26	109.46	32.50
3rd Non-RtI	103	79.98	34.18	112.02	35.14

To ensure the robustness of the repeated measures factorial ANOVA the following assumptions were tested: multivariate normality, the absence of extreme outliers, and homogeneity of variance. The assumption of multivariate normality was tested using the Kolmogorov-Smirnov test for each level of the dependent variable. It found the assumption not tenable for first grade RtI first administration, $Z(106) = .86$, $p <$

.01, with skewness of 1.50 (*SE* = .24) and with kurtosis of 2.22 (*SE* = .47); first grade non-RtI first administration, *Z*(90) = .22, *p* < .01, with skewness of 1.53 (*SE* = .25) and with kurtosis of 1.62 (*SE* = .50); second grade RtI first administration, *K*(110) = .09, *p* = .02, with skewness of .98 (*SE* = .23) and with kurtosis of 1.11 (*SE* = .46); second grade non-RtI first administration, *Z*(85) = .14, *p* < .01, with skewness of .78 (*SE* = .26) and with kurtosis of .04 (*SE* = .52); and first grade non-RtI last administration, *K*(90) = .13, *p* < .01, with skewness of .75 (*SE* = .25) and with kurtosis of .41 (*SE* = .50). The Kolmogorov-Smirnov found the assumption of normality tenable for third grade RtI first administration, *Z*(106) = .07, *p* =.20; third grade non-RtI first administration, *Z*(103) = .09, *p* = .06; first grade RtI last administration *Z*(106) = .08, *p* < .01; second grade RtI last administration, *Z*(110) = .06, *p* = .20; second grade non-RtI last administration, *Z*(85) = .06, *p* = .20; third grade RtI last administration, *Z*(106) = .06, *p* = .20; third grade non-RtI last administration, *Z*(103) = .08, *p* = .16. Although the multivariate normality assumption was not tenable for some of the levels of the dependent variable a repeated measures ANOVA is generally considered robust to violations of the normality assumption especially when the sample size is greater than 30 (Weinfurt, 2000).

A box plot for each level of the dependent variable was used to evaluate the assumption of the absence of extreme outliers. There was one extreme outlier in first grade non-RtI first administration and two in first grade RtI first administration scores. To assure that the assumption was not violated; all three cases were removed from the data set.

Levene's test was used to test the null hypothesis that error variance of the dependent variance is equal across groups. Levene's test is robust to violations of

normality. Homogeneity of variance was found tenable for each grade level testing administration: first grade first test administration, $F(1,194) = .101$, $p = .75$; first grade last test administration, $F(1,194) = 1.32$, $p = .25$; second grade first test administration, $F(1,193) = .84$, $p = .36$; second grade last test administration, $F(1,193) = .40$, $p = .53$; third grade first test administration, $F(1,207) = .47$, $p = .49$; third grade last test administration, $F(1,207) = .30$, $p = .58$.

A repeated measures 2 x 3 x 2 factorial ANOVA was conducted to evaluate if there was a significant difference in DIBELS ORF scores between schools that had implemented the RtI delivery model and schools that had not implemented the RtI delivery model. The within-subjects factor was time of test administration (Time) with two levels (first administration and last administration). The between-subjects factors were grade level (Grade: first, second, and third) and delivery model (Delivery Model: RtI and non-RtI). The tests for the within-subjects effects, sphericity assumed, are presented in Table 7. Of particular interest to this study was the Time main effect as well as the Time x Grade x Delivery Model interaction effect. Since Wilks' Lamda (Λ) is the statistic of choice for most researchers when examining multivariate results, it was used to report the Time main effect and Time x Grade x Delivery Model interaction effect. The Time main effect was significant, $\Lambda = .22$, $F(1, 594) = 2{,}157.82$, $p < .01$, multivariate $\eta^2 = .78$, indicating there was a significant difference between the first administration and last administration scores. The last administration scores were significantly higher than the first administration scores. The Time x Grade x Delivery model interaction effect was significant, $\Lambda = .98$, $F(2, 594) = 5.64$, $p < .01$, multivariate $\eta^2 = .02$ indicating there was a significant difference in scores based on the interaction of

the variables: time of testing, grade level, and delivery model. Due to the interaction effect of all the variables, the direct impact of the delivery model on the mean difference score cannot be determined. Follow-up tests were conducted to determine if there were significant differences between the RtI and non-RtI delivery model in each grade level.

Table 7

Results of Within-Subjects Effects when Sphericity is Assumed for the Repeated Measures 2 x 3 x 2 Factorial ANOVA

Source	*df*	*SS*	*MS*	*F*	*p*
Time	1	313661.60	313661.60	2157.82	<.01
Time*Grade	2	16604.22	8302.11	57.11	<.01
Time*Delivery Model	1	1727.08	1727.08	11.88	<.01
Time*Grade*Delivery model	2	1640.90	820.45	5.64	<.01

Results for the Second Research Question

Because a significant interaction was found in the delivery model across time and grade levels, follow-up 2 x 2 repeated measures ANOVAs were conducted for each grade level to answer the second research question: "When comparing fall and spring DIBELS Oral Reading Fluency scores, does the magnitude of effect differ in first, second, and third grades for low-SES students in schools using the RtI delivery model and those not using the RtI delivery model?" It was hypothesized that the magnitude of effect does differ in first, second, and third grades with the largest effect size witnessed in first grade low-SES students in schools using the RtI delivery model. Using the mean difference score between the first administration score and the last administration score, an effect

size coefficient (Cohen's *d*) was also calculated for both delivery models at each grade level (see Table 8).

Table 8

Comparison of Differences between Testing Times

Grade/Delivery Model	*M* Difference Score	*M (SD)*	*d*
1st RtI	27.34	26.79	1.02
1st Non-RtI	20.46	23.89	.86
2nd RtI	46.91	29.96	1.57
2nd Non-RtI	37.72	28.64	1.32
3rd RtI	30.43	31.88	.95
3rd Non-RtI	32.04	34.66	.92

A 2 x 2 repeated measures ANOVA was conducted to evaluate if there was a significant difference in the DIBELS ORF scores between first graders exposed to the RtI delivery model and first graders that had not been exposed to the RtI delivery model. Using the multivariate criterion of Wilks' lambda (Λ), the Time x Delivery model interaction effect was significant for first graders, $\Lambda = .96$, $F(1, 194) = 8.30$, $p < .01$, multivariate $\eta^2 = .04$. By evaluating the pairwise comparisons for first grade RtI and non-RtI and examining the mean difference score for the first administration and last administration DIBELS ORF scores an effect size coefficient (Cohen's *d*) was calculated for first graders exposed to the RtI delivery model, $d = 1.02$, and first graders that had not

been exposed to the RtI delivery model, d = .86. These results indicate there was a significantly greater magnitude of effect for first grade RtI students.

A 2 x 2 repeated measures ANOVA was conducted to evaluate if there was a significant difference in the DIBELS ORF scores between second graders exposed to the RtI delivery model and second graders that had not been exposed to the RtI delivery model. Using the multivariate criterion of Wilks' lambda, the Time x Delivery model interaction effect was significant for second graders, $\Lambda = .94$, $F(1, 193) = 12.65$, $p < .01$, multivariate $\eta^2 = .06$. By evaluating the pairwise comparisons for second grade RtI and non-RtI and examining the mean difference score for the first administration and last administration DIBELS ORF scores an effect size coefficient (Cohen's d) was calculated for second graders exposed to the RtI delivery model, d = 1.57, and second graders that had not been exposed to the RtI delivery model, d = 1.32. These results indicate there was a significantly greater magnitude of effect for second grade RtI students.

A 2 x 2 repeated measures ANOVA was conducted to evaluate if there was a significant difference in the DIBELS ORF scores between third graders exposed to the RtI delivery model and third graders that had not been exposed to the RtI delivery model. Using the multivariate criterion of Wilks' lambda, the Time x Delivery model interaction effect was not significant for third graders, $\Lambda = .99$, $F(1, 207) = .50$, $p = .48$ indicating there was not a significant difference in the magnitude of effect for the third grade RtI students, d = .95, and third grade non-RtI students, d = .92.

Summary

The overall results indicate that there is a significant difference in the magnitude of effect in first grade and second grade for low-SES students in schools using the RtI

delivery model compared to those not using the RtI delivery model but not in third grade. The largest magnitude of effect was found in second grade RtI students, $d = 1.57$. The results from the Survey of School Services for At-Risk Students (Gleason, 2012) indicate that the schools implementing the RtI delivery model utilized three evidence-based practices that were not utilized by the schools not implementing the RtI delivery model. Although all of the schools regardless of delivery model utilized evidence-based practices in reading, the three differing practices implemented by the RtI schools include a multi-tier system beyond Title I services to support students who displayed academic difficulties in reading, time built into the schedule to support struggling readers in addition to the regular Title I services, and at least one formal mechanism to monitor the core reading instruction. The RtI schools that implemented these three evidence-based practices demonstrated significantly higher oral reading fluency scores for low-SES students in first and second grade than the Non-RtI schools that had not implemented these three practices. In third grade, a significant difference was not found between the schools implementing the RtI delivery model and the schools not implementing the RtI delivery model.

CHAPTER 5

DISCUSSION

Discussion of the Results

In this study the use of evidence-based practices found within the Response to Intervention (RtI) delivery model on reading achievement levels of low-socioeconomic-status (SES) students in first, second, and third grade was investigated. The oral reading fluency scores from schools implementing the RtI delivery model were compared to the oral reading fluency scores from schools not implementing the RtI delivery model. The oral reading fluency scores from archival DIBELS data from the first testing administration and the last testing administration in the 2009-2010 school year were examined. The oral reading fluency scores from the last testing administration were significantly higher than the first testing administration scores for the low-SES students. There was also a significant difference in oral reading fluency scores between schools implementing the RtI delivery model and those not implementing the RtI delivery model in two of the three grades examined. The oral reading fluency scores were significantly higher in first and second grade for the schools that utilized the RtI delivery model than for those schools that did not utilize the RtI delivery model. In third grade, there was not a significant difference in oral reading fluency scores between the RtI schools and non-RtI schools. The largest magnitude of effect was evidenced in second grade.

First and Second Grade Oral Reading Fluency Scores

The overall results of this study indicate that there is a significant difference in the magnitude of effect in first grade and second grade for low-SES students in schools using the RtI delivery model compared to those not using the RtI delivery model but there was

not a significant difference in the third grade oral reading fluency scores between the RtI schools and non-RtI schools. Fitch (2009) found that the implementation of interventions in third grade does not show the same magnitude of effect as in earlier grades. There are critical elements of reading that need to be developed at the early grade levels. In a study on literacy growth in low-SES students, Juel (1988) stated that educators must make certain children learn to decode in first grade. In Juel's longitudinal research tracking first grade students through their fourth grade year, the results indicated an 88% probability that a child would remain a poor reader at the end of fourth grade if the child was a poor reader at the end of first grade. In a study conducted on elementary students, Crowe, Connor, and Petscher (2009) found that first and second grade students experienced accelerated growth in oral reading fluency scores throughout the academic year while third grade students demonstrated trends of deceleration over the academic year. Allington and McGill-Franzen (1989) suggested that children's achievement at the end of first grade predicts with alarming accuracy their success in school. Interventions provided at the first and second grade levels have a greater magnitude of effect than interventions provided at later grade levels.

While it was anticipated that the results of this present study would indicate a greater magnitude of effect in first grade oral reading fluency scores, in comparison to the magnitude of effect found in second and third grade, the greatest magnitude of effect was found in second grade. In this present study, the magnitude of effect was highest in second grade contrasting previous research studies which found first graders demonstrating higher gains in reading achievement than second and third graders (Connor, Jakobsons, Crowe, & Meadows, 2009). The magnitude of effect was

calculated by taking the mean difference score divided by the mean standard deviation for each grade level and delivery model. The magnitude of effect for first grade scores may have been impacted by the first grade scores not having a normal distribution.

Entry Level Reading Skills

In this study the first grade oral reading fluency scores during the first available testing administration for all low-SES students in RtI and non-RtI schools were not a normal distribution and were skewed heavily to the right. The low-SES median score was considerably below the mean low-SES first grade score for both RtI and non-RtI schools. This may be attributed to the fact that many of the low-SES students have limited opportunities to engage in meaningful literacy-related experiences such as exposure to print, books and literature. Available resources and family circumstances differ greatly among low-SES students. As previously mentioned, low-SES students traditionally enter school already behind their peers and are less likely to develop those skills necessary to become successful readers (McEwan, 2002). Research conducted by Lyons and Chhabra (2004) found that as early as preschool the low-SES students were behind their peers in knowledge of phonemes, letter names, letter sounds, and vocabulary development. The lack of sufficient resources can continue to affect the children's reading proficiency into first grade (Denton et al., 2003).

Low-SES Gains in Reading Achievement

The results in this study indicate that there was a significant difference in oral reading fluency scores between the first testing administration oral reading fluency scores and the last testing administration oral reading fluency scores for first, second, and third grade low-SES students. The last testing administration oral reading fluency scores were

significantly higher than the first testing administration scores. This finding indicates that it is possible for low-SES students to make significant gains in reading achievement during the academic school year. Supporting this finding, Blank (2011) found that most states have made significant gains in low-SES student reading achievement since the implementation of grade-level testing. This finding is also supported by research conducted by Reeves (2000) on successful high poverty schools. Reeves found that low-SES students can demonstrate academic achievement gains when educational practices and methods are properly implemented.

Summer Drop-Off

The first grade scores in the last testing administration were higher than the second grade first testing administration scores and the second grade scores in the last testing administration were higher than the third grade first testing administration scores. This finding may be the result of summer drop-off. Summer drop-off in reading is a topic that has been well documented and researched. Large differences in out-of-school learning environments have been found between low-SES students and their more affluent peers that can be traced back to preschool (Hart & Risley, 1995). Family and community resources often have a significant impact on the amount and availability of academically enriched environments. Of particular importance to this study is the exposure to and availability of books. Anderson, Wilson, and Fielding (1988) conducted research on the amount of time children spend in reading outside of the school setting. They found that the majority of the elementary students in their study spent as little as four to five minutes per day reading books. They also found the amount of time spent reading books was a predictor of the reading gains between second and fifth grades. A

more recent study conducted by Alexander, Entwisle, and Olsen (2007) found similar results. In a longitudinal study on the reading losses of low-SES students, family income was found to have a profound impact on summer drop-off accounting for as much as three grade levels of difference between low-SES students and their peers by sixth grade.

RtI Delivery Model

In this study, the schools implementing the RtI delivery model demonstrated significantly higher gains in oral reading fluency scores than schools not implementing the RtI delivery model in two of the three grades examined. Implementing evidence-based practices found within the RtI delivery model can significantly improve oral reading fluency scores for low-SES students. This finding is supported by numerous research studies that have shown the positive role of evidence-based strategies in reading instruction for students who are at risk for reading difficulties (Blachman et al., 2004; Greenwood et al., 2003; Scanlon, Vellutino, Small, Franuele, & Sweeney, 2005). Torgesen (2009) also reported that the use of evidence-based practices in reading, within an RtI model, is an effective method in raising the reading achievement levels of low-SES students. The findings of this present research study continue to add to the growing body of research supporting the effectiveness of RtI in reading for struggling readers (Archer, Gleason, & Vachon, 2003; Bursuck & Blanks, 2010; Ritchery, 2011).

Evidence-Based Practices in RtI Delivery Model Schools

To determine the level of implementation of evidence-based practices by the schools implementing the RtI delivery model and the schools not implementing the RtI delivery model, the Survey of School Services for At-Risk Students (Gleason, 2012) was completed by an individual with direct knowledge of reading services provided to the

students in first, second, and third grade during the 2009-2010 school year. The survey results were examined collectively to compare the use of evidence-based practices in all schools regardless of whether the school had implemented the RtI delivery model.

Results from the Survey of School Services for At-Risk Students (Gleason, 2012) indicated that all of the schools utilized some evidence-based practices but there were certain practices that distinguished RtI schools from the non-RtI schools. The distinguishing practices implemented by the schools using the RtI delivery model included a multi-tiered system to support students who display academic difficulties in reading, time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction, and a formal mechanism to ensure that core reading instruction is being delivered in the way it was intended. The use of these evidence-based practices found within the RtI delivery model may contribute to the higher oral reading fluency scores found in first grade and second grade in the RtI schools.

While five of the six schools participating in the study reported utilizing a multi-tier system to support students who display academic difficulties in reading, only the three schools implementing the RtI delivery model utilized a three tiered model found in the RtI delivery model. Two schools not implementing the RtI delivery model identified the services provided through Title I as a multi-tiered system and these schools did not provide any additional support outside of Title I. The three RtI schools provided levels of support in addition to Title I services.

The RtI model schools in this study had implemented a multi-tiered system for at least three years prior to the 2009-2010 school year. The multi-tiered support system implemented by the RtI model schools consist of a three tiered system. The RtI schools

indicated that Tier 1 included the instruction and interventions provided to all students. The survey confirmed that at the Tier 1 level universal screenings were conducted three times per year to assess student progress and identify those students at-risk for reading failure. Previous descriptions of RtI describe Tier 1 as providing all students in the regular educational classroom setting with high quality reading instruction from evidence-based core reading programs (Allain & Kukic, 2008). The three RtI schools indicated that students who did not make the needed gains in reading achievement provided in Tier 1 were provided with Tier 2 level instruction and interventions not including Title 1 services.

Five schools had time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction. The schools not implementing an RtI delivery model accomplished this only through Title I services for low-SES students. The three schools implementing an RtI delivery model provided extra time in the daily schedule to support struggling readers in Tier 2 and Tier 3 levels of instruction. The goal of Tier 2 interventions is to provide students who have failed to meet grade level proficiency in reading with limited, but focused, support. Each of the RtI schools reported providing Tier 2 students with an additional 30 minutes per day of supplemental evidence-based instruction in addition to the core reading program. This practice of providing Tier 2 students with small group instruction using interventions that are demonstrated to be evidence-based, effective, and aligned with state standards is supported by previous research (Fuchs & Fuchs, 2005). The survey indicated that two of the RtI schools use progress monitoring to provide data for making programmatic decisions and changes for students receiving Tier 2 interventions. This progress

monitoring uses direct and frequent measurements of a student's performance before, during, and at the end of the intervention.

According to the RtI model, students who fail to respond to the Tier 2 interventions and continue to perform below expected benchmarks are provided with Tier 3 interventions. Students receiving Tier 3 interventions are provided with more intensive evidence-based reading interventions than in Tier 2 in small group settings (Fuchs & Fuchs, 2006). The three RtI schools reported that students receiving Tier 3 interventions were provided with 45 minutes of evidence-based instruction in addition to the core reading program. The students in the RtI schools received substantially more time in interventions than the students in the non-RtI schools. The impact of this extra intervention time inherent in the multi-tier format may have had an impact on the difference in scores found between the RtI and non-RtI schools. It cannot, however, be concluded by this study whether it was the extra intervention time or the actual utilization of evidence-based practices that resulted in the significant difference in oral reading fluency scores.

The three schools implementing the RtI delivery model also implemented formal mechanisms as a fidelity check to ensure core reading instructional practices and curriculum were being used accurately and consistently. This was not implemented on a consistent basis by the schools not utilizing the RtI delivery model. Ironically, the non-RtI schools did monitor the implementation of the supplemental reading instruction. Monitoring the core reading instruction may reduce the need for supplemental reading instruction. Several studies have addressed the importance of implementation fidelity in maximizing programming effectiveness (Foorman & Schatschneider, 2003; Gresham,

MacMillian, Beebe-Frankenberger, & Bocain, 2000; Kovaleski, Gickling, Marrow, & Swank 1999). The mechanisms implemented by the RtI model schools included curriculum implementation checklists, focused walkthroughs, and observations by a coach or peer teacher. Curriculum implementation checklists are typically used to ensure the curriculum and instruction are being properly implemented. Checklists are frequently used to identify and assess the degree to which the specific and critical features of the instructional practices are implemented to ensure a high degree of implementation fidelity.

Focused walkthroughs, another formal mechanism identified on the survey, are frequently used to determine if the reading programs and methods of instruction are being delivered and implemented as planned. Focused walkthroughs are frequently defined as brief observations made by principals or curriculum directors focusing on the instructional methods teachers use and the responsiveness of the students to the instruction. Information gathered from the walkthroughs is often shared with the teachers in team meetings to increase the levels of effective instructional practices. The effectiveness of walkthroughs has been supported by Cervone and Martinez-Miller (2007) as being an effective tool used to drive improvement by focusing on not only the delivery of instruction but also the effects of the instruction on the students.

The third fidelity check used by the RtI model schools was observations by a coach or peer teacher. This process usually involves a coach or peer teacher observing another teacher directly involved in the classroom instruction. As the coach or peer teacher is observing, the individual is taking notes on the material being taught, the methods of instruction, and class participation (Swafford, 1998). In a post-observation

meeting, information is shared and discussed between the coach or peer teacher and the teacher being observed. According to Shidler and Fedor (2010), the purpose of the observation is to be supportive in nature and provide teachers with recommendations as to improvement in method of instruction.

Evidence-Based Practices Utilized by all Schools

The results of the Survey of School Services for At-Risk Students (Gleason, 2012) indicate that all six schools were using several evidence-based practices in reading. The use of evidence-based practices in reading increases student reading achievement and effectively prevents early reading failure in first, second, and third grades (Greenwood, et al., 2003). The implementation of evidence-based practices by all six schools may have contributed to the significant achievement gains between the first testing administration and the last testing administration in all schools and in all grade levels regardless of the implementation of the RtI delivery model. The evidence-based practices utilized by the schools include frequent progress monitoring, grade level team or core team meetings to discuss students' reading benchmark scores and/or progress monitoring data, and frequent monitoring of supplemental reading interventions.

The frequent use of progress monitoring of student performance not only allows the measurement of the students' present levels of performance but also provides estimated trends of their performance. Each of the six schools monitored student progress using DIBELS. This assessment was administered as a screening tool at least three times throughout the academic school year. The DIBELS data were collected and reviewed by intervention teams. All of the schools reported using the progress monitoring data in grade level and/or core team meetings to make necessary

programmatic decisions and changes for their students who were struggling readers. Research supports this practice of using progress monitoring data by teachers for early identification of struggling readers and in making the necessary programmatic changes to the way the student is being instructed (Fuchs & Fuchs, in press).

All six schools utilized core team meetings to examine the progress monitoring data and instructional practices being implemented. Kovaleski (2003) noted that team members should work in a collaborative, peer-coaching format for the purposes of establishing necessary changes. This method ensures that collected data are examined from a team approach where useful team solutions can be determined and achieve treatment fidelity in the classroom. In the schools not implementing the RtI model of delivery, the purpose of core team meetings is to identify struggling readers for interventions but not the structured interventions found within the RtI delivery model.

Five schools utilized a formal mechanism to ensure that the supplemental reading interventions were being delivered in the way they were designed to be delivered. One RtI school did not implement the use of formal mechanisms for supplemental reading interventions. The formal mechanisms used by the schools included written intervention plans; coach, mentor, or administrator evaluation of data with feedback to teachers working with student; and observation of delivery of intervention. These checks of implementation integrity provide a clear picture of whether the supplemental intervention is being delivered appropriately. Without proper implementation the effects of the intervention cannot be known (Wilkinson, 2006). Improper implementation of interventions may result in outcomes that do not accurately reflect the student's responsiveness to the intervention. Within the RtI delivery model, a necessary

component of both Tier 2 and Tier 3 interventions is a fidelity check on the delivery of the intervention. The fidelity check is typically used to determine the effectiveness of the intervention and make necessary programmatic changes.

Implications

Given the results of this study, there are several implications for schools implementing the RtI model as well as for schools not currently implementing the RtI model. Since schools utilizing the RtI delivery model demonstrated a significantly greater difference in oral reading fluency scores for low-SES students than schools not utilizing the RtI delivery model, it is recommended that all schools implement the RtI delivery model. Although many schools utilize evidence-based practices, they may fail to utilize the three distinguishing practices that were implemented by the RtI schools in this study. These critical practices included a multi-tiered system to support students who display academic difficulties in reading, time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction, and a formal mechanism to ensure that core reading instruction is being delivered in the way it was intended. The use of these practices may contribute to oral reading fluency score gains for low-SES students.

Two of the critical evidence-based practices that all schools should implement are a multi-tiered system found within the RtI model and time built into the schedule in addition to the time allocated for core reading instruction to support low-SES students who display academic difficulties in reading. The first tier must consist of an evidence-based core reading curriculum delivered to all students. Students who are identified in Tier 1 as having reading difficulties should be provided with Tier 2 interventions.

Students receiving Tier 2 interventions should be provided with additional instructional time using supplemental evidence-based interventions in addition to the time spent in the core reading curriculum and Title I services. If students receiving Tier 2 interventions continue to have reading difficulties, they should receive Tier 3 interventions. Students receiving Tier 3 interventions need to be provided with more intervention time than provided by Tier 2 interventions. The multi-tiered delivery model will provide low-SES students struggling in reading with supplemental interventions and additional instructional time beyond that provided in the core curriculum and Title I services. The additional time and levels of evidence-based interventions provided in a multi-tiered system can increase the oral reading fluency of low-SES students resulting in overall improvement in reading skills.

In this study, all RtI schools had a formal mechanism to ensure that the core reading instruction was being delivered in the way it was intended. A system of universal monitoring of the implementation and delivery of evidence-based practices in reading should be utilized by all schools regardless of the delivery model. District monitoring of the implementation of the core curriculum and instructional practices is essential. According to Snipes and Doolittle (2002), the focus of monitoring the instructional practices and curriculum must not only focus on school-level compliance but, more importantly, at the individual classroom level. To ensure strategies are being implemented according to design, school administrations and core team members should monitor the fidelity of implementation of the evidence-based practices and interventions used to support low-SES students in their schools. Monitoring of the implementation of evidence-based practices by school administrators and team leaders is important in

promoting treatment fidelity and a sense of accountability for those implementing the interventions (Hatch, 2000).

In this study low-SES students demonstrated a significant difference in oral reading fluency scores between the first testing administration and the last testing administration in both the RtI and non-RtI schools. Given this finding, all schools regardless of the delivery model are encouraged to implement the evidence-based practices consistently utilized by both the RtI and non-RtI schools in this study. These evidence-based practices include frequent progress monitoring, grade level team or core team meetings to discuss students' reading benchmark scores and/or progress monitoring data, and frequent monitoring of supplemental reading interventions.

One evidence-based practice that all schools should utilize regardless of delivery model is frequent progress monitoring. The frequent collection of progress monitoring data to evaluate student progress and responsiveness to interventions is critical. Schools should monitor low-SES students' oral reading fluency through the use of curriculum-based measures. The collection and evaluation of this progress monitoring data should be conducted frequently throughout the school year. The data collected during progress monitoring must be used to drive decisions concerning the level of implementation of evidence-based interventions and strategies. Since the highest magnitude of effect in this study was found in second grade, progress monitoring in reading should begin at the earliest grade level possible. Progress monitoring assists in the early identification of struggling readers and encourages programmatic changes in the delivery of interventions (Fuchs & Fuchs, in press).

Another evidence-based practice implemented by all the schools in this study was the utilization of core team meetings to examine progress monitoring data and instructional practices. All schools should implement grade level team or core team meetings to discuss students' reading benchmark scores. This data should be examined from a team approach to make data-based decisions for instructional practices. Kovaleski (2003) encouraged team members to work in a collaborative, peer-coaching format to establish the necessary programmatic changes. Implementing core team meetings to discuss instructional practices for low-SES students will help in achieving treatment fidelity in the classroom.

Frequent monitoring of supplemental reading interventions was another evidence-based practice utilized by the schools in this study. Regardless of delivery model, all schools should frequently monitor supplemental reading interventions for low-SES students. Several studies have confirmed the importance of fidelity in the implementation of the interventions being provided to students in the RtI model and non-RtI model (Reschly & Gresham, 2006; Johnson, Mellard, Fuchs, & McKnight, 2006). In order to ensure that supplemental reading interventions are meeting the low-SES students' needs, it is necessary that interventions are delivered in the way they are designed to be delivered. If the interventions are not being delivered in the designed fashion, low-SES students may not appropriately respond to the intervention.

Limitations

Several limitations related to the use of evidence-based practices were discovered that could impact the study's findings. Prior to conducting this study, the reliability and validity of the Survey of School Services for At-Risk Students (Gleason, 2012) had not

been established. Data are not available on the robustness of this instrument. The questions may have been interpreted differently by each individual completing the survey, which may have limited the ability to accurately compare responses. The survey was completed by only one individual from each school. Since only one individual was asked to complete the survey, inter-rater reliability as to the implementation of the practices could not be established.

This study only examined the use of evidence-based practices found within the RtI model on the oral reading fluency of low-SES students in first, second, and third grade. The results cannot be generalized to students who are not categorized as low-SES students. The level of impact of low-SES factors on reading achievement for individual students was not determined by this study. The factors may have varied due to the length of time each individual student was categorized as low-SES.

The generalizability of this study to elementary schools in other geographical locations is limited. There were only six rural elementary schools in Pennsylvania utilized for this study. A larger sample drawn from urban school districts throughout the country may result in different findings.

Future Research

Due to the limitations of this study, further research needs to be conducted to investigate the long-term effects of the use of evidence-based practices in the RtI delivery model on the reading achievement levels of low-SES students. This study focused solely on the DIBELS oral reading fluency scores of student in first, second, and third grade during the 2009-2010 school year. Longitudinal studies to examine the reading achievement levels of low-SES students over time could identify the long-term

effectiveness of providing evidence-based practices in reading during first, second, and third grade. In addition, research comparing the number of years a school has implemented the RtI delivery model and the reading achievement levels of low-SES students in first, second, and third grade could provide important data in regards to the number of years it takes to successfully implement the RtI delivery model by districts. Further research should be conducted to determine if the three evidence-based practices that were implemented by the RtI schools and not implemented by the non-RtI schools are the factors that most significantly impact oral reading fluency for low-SES students.

Studies should also focus on the achievement gap that exists between low-SES students and their non-disadvantaged peers to see if the gap is closing through the use of evidence-based practices found within the RtI delivery model. The present study only examined students who were considered at risk for reading failure due to being low-SES. Research into the effectiveness of evidence-based practices found within the RtI delivery model for other groups considered to be at risk for reading failure such as English language learners should also be conducted. Additional research that examines the longitudinal effects of the implementation of evidence-based practices found within the RtI delivery model that includes students from all socioeconomic backgrounds and examines additional factors that may have an impact on oral reading fluency scores would enhance the findings of this study.

Conclusion

With the implementation of No Child Left Behind (NCLB) more attention has been brought to the reading achievement gap that exists between low-SES elementary students and their more affluent peers. One of the mandates of NCLB is the use of

evidence-based practices in reading. This study examined effects of the use of evidence-based practices found within the RtI delivery model on low-SES students in first, second, and third grade. The oral reading fluency scores from the first test administration and last test administration for the 2009-2010 school year were examined. Three schools that had implemented the RtI delivery model and three schools that had not implemented the RtI delivery model were used in this study. All schools implemented evidence-based practices to some extent but only those schools using the RtI delivery model implemented a multi-tiered system to support students who display academic difficulties in reading, time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction, and a formal mechanism to ensure that core reading instruction is being delivered in the way it was intended.

A comparison of DIBELS oral reading fluency scores from the first test administration and last test administration between schools implementing the RtI delivery model and those not implementing the RtI delivery model were examined. There was a significantly greater difference found in the oral reading fluency scores with the schools that had implemented the RtI model of delivery in two of the three grades examined. The largest magnitude of effect was found in second grade RtI schools.

Given these findings, schools should implement the critical evidence-based practices found within the RtI delivery model. These practices should be implemented in the way they were intended to be delivered. To ensure the evidence-based practices are properly implemented, treatment fidelity checks should be done on a frequent basis. Monitoring of student progress and interventions should also be done on a frequent and regular basis. Data collected through progress monitoring should be used to make

programmatic decisions concerning the level of implementation of evidence-based practices. Following the evidence-based practices found within the RtI delivery model may result in oral reading fluency scores gains for low-SES students.

References

Alexander, K., Entwisle, D., & Olson L. (2007). Lasting consequences of the summer learning gap. *American Sociological Review, 72*, 167-180. doi:10.1177/000312240707200202

Allain, J., & Kukic, S. J. (2008). The devil is in the details: The logistics of tier 2 interventions. *The Communique, 36*, 29-32.

Allinder, R. M., Dunse, L., & Brunken, C. D. (2001). Improving fluency in at-risk readers and students with learning disabilities. *Remedial and Special Education, 22*, 48-54. doi:10.1177/074193250102200106

Allington, R. L. (1995). Literacy lessons in the elementary schools: Yesterday, today, and tomorrow. In R. L. Allington & S. A. Walmsley (Eds.), *No quick fix: Rethinking literacy programs in America's elementary schools* (pp. 1-15). New York, NY: Teachers College.

Allington, R. L. (2001). *What really matters for struggling readers*. New York, NY: Addison-Wesley.

Allington, R. L., & McGill-Franzen, A. (1989). School response to reading failure: Instruction for Chapter 1 and special education students in grades two, four, and eight. *The Elementary School Journal, 89*, 529-542.

Anderson, R. L., Wilson, P., & Fielding, L. (1988). Growth in reading and how children spend their time outside of school. *Reading Research Quarterly, 23*, 285- 303. doi:10.1598/RRQ.23.3.2

Annie E. Casey Foundation. (2010). State profiles of child well-being. In *KIDS COUNT Data Book, 2010* (pp. 35). Baltimore, MD: Author.

Annie E. Casey Foundation. (2011). State profiles of child well-being. In *KIDS COUNT Data Book, 2010* (pp. 26). Baltimore, MD: Author.

Archer, A. L., Gleason, M. M., & Vachon, V. L. (2003). Decoding and fluency: Foundation skills for struggling older readers. *Learning Disability Quarterly*, *26*, 89. doi:10.2307/1593592

Arnold, D. H., & Doctoroff, G. L. (2003). The early education of socioeconomically disadvantaged children. *Annual Review of Psychology, 54,* 517-545. doi:10.1146/annurev.psych.54.111301.145442

Assessment Committee Analysis of Reading Assessment Measures (2002). [Technical adequacy information for DIBELS sub-tests which were available as of 5th edition]. Retrieved from https://dibels.uoregon.edu/techreports/dibels_5th_ed.pdf

Batsche, G., Elliot, J., Graden, J. L., Grimes, J., Kovaleski, J. F., Prasse, D., Tilly III, W. D. (2005). *Response to intervention: Policy considerations and implementation.* Alexandria, VA: National Association of State Directors of Special Education (NASDSE).

Blachman, B. A., Schatschneider, C., Fletcher, J. M., Francis, D. J., Clonan, S. M., Shaywitz, B. A., & Shaywitz, S. E. (2004). Effects of intensive reading remediation for second and third graders and a 1-year follow-up. *Journal of Educational Psychology*, *96*, 444-461. doi:10.1037/0022-0663.96.3.444.

Blank, R. K. (2011). *Closing the achievement gap for economically disadvantaged students: Analyzing change since No Child Left Behind using state assessments*

and the National Assessment of Educational Progress. Washington, DC: Council of Chief State School Officers.

Borman, G. D. (2005). National efforts to bring reform to scale in high-poverty schools: Outcomes and implications. *Review of Research in Education, 29,* 1-27.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53*(1), 371. doi:10.1146/annurev.psych.53.10090

Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future of Children, 7*(2), 56-70.

Buck, J., & Torgesen, J. K. (2004). *The relationship between performance on a measure of oral reading fluency and performance on the Florida Comprehensive Assessment Test* (FCRR Technical Report #1). Tallahassee, FL: Florida Center for Reading Research. Retrieved from http://www.fcrr.org/technicalreports/TechnicalReport1.pdf

Bursuck, B., & Blanks, B. (2010). Evidence-based early reading practices within a Response to Intervention system. *Psychology in the Schools, 47,* 421-431.

Bursuck, W. D., Smith, T., Munk, D., Damer, M., Mehlig, L., & Perry, J. (2004). Evaluating the impact of a prevention-based model of reading on children who are at risk. *Remedial and Special Education, 25,* 303-323. doi:10.1177/07419325040250050401

Carbo, M. (2003). Achieving with struggling readers. *Principal, 83*(2), 20-24.

Cervone, L., & Martinez-Miller, P. (2007). Classroom walkthroughs as a catalyst for school improvement. *Leadership Compass, 4*(4), n.p. Retrieved from www.naesp.org/resources/2/Leadership_Compass/2007/LC2007v4n4a2.pdf

Chafouleas, S. M., Martens, B. K., Dobson, R. L., Weinstein, K. S., & Gardner, K. B. (2004). Fluent reading as the improvement of stimulus control: Additive effects of performance-based interventions to repeated reading on students' reading and error rates. *Journal of Behavioral Education, 13,* 67-81. doi:10.1023/B:JOBE.0000023656.45233.6f

Chalfant, J. C., Pysh, M. V. D., & Moultrie, R. (1979). Teacher assistance teams: A model for within-building problem solving. *Learning Disability Quarterly, 2,* 85-95.

Chard, D. J., Vaughn, S., & Tyler, B. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities, 35,* 386. doi:10.1177/00222194020350050101

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Connor, C., Jakobsons, L. J., Crowe, E. C., & Meadows, J. (2009). Instruction, student engagement, and reading skill growth in reading first classrooms. *Elementary School Journal, 109,* 221-250. doi:10.1086/592305

Council for Exceptional Children. (2008). *Classifying the state of evidence for special education professional practices: CEC practice study manual*. Arlington VA: Author. Retrieved from http://www.cec.sped.org/Content/NavigationMenu/ProfessionalDevelopment/Professiona%09lStandards/Practice_Studies_Manual_1_25.pdf

Crowe-Coyne, E., Connor-McDonald, C., & Petscher, Y. (2009). Examining the core: Relations among reading curricula, poverty, and first through third grade reading achievement. *Journal of School Psychology, 47*, 187-214. doi:10.1016/j.jsp.2009.02.002

Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children, 52*, 219-232.

Deno, S. L. (2002). Problem solving as best practice. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology, IV* (pp.37-55). Bethesda, MD: National Association of School Psychologists.

Deno, S. L. (2003). Curriculum-based measures: Development and perspectives. *Assessment for Effective Intervention, 28*(3), 3-12. doi:10.1177/073724770302800302

Deno, S. L., Lembke, E., & Anderson, A. R. (n.d.). Progress monitoring: Study group content module. Retrieved from http://www.progressmonitoring.org/pdf/cbmMOD1.pdf

Denton, C., Fletcher, J., Anthony, J., & Francis, D. (2006). An evaluation of intensive intervention for students with persistent reading difficulties. *Journal of Learning Disabilities, 39*, 447-466. doi:10.1177/00222194060390050601

Denton, K., West, J., & Walston, J. (2003). *Reading: Young children's achievement and classroom experiences.* Washington DC: National Center for Education Statistics. Retrieved from http://nces.ed.gov/pubs2003/2003070.pdf

Devries, B. A. (2004). *Literacy assessment and intervention for the elementary classroom.* Scottsdale, AZ: Holcomb Hathaway.

DIBELS Oral Reading Fluency and Retell Fluency. (n.d.). Retrieved from https://dibels.uoregon.edu/measures/orf.php/

Dion, E., Brodeur, M., Gosselin, C., Campeau, M., & Fuchs, D. (2010). Implementing research-based instruction to prevent reading problems among low-income students: Is earlier better? *Learning Disabilities Research & Practice 25*, 87-96. doi:10.1111/j.1540-5826.2010.00306.x

Dion, E., Morgan, P. L., Fuchs, D., & Fuchs, L. S. (2004). The promise and limitations of reading instruction in the mainstream: The need for a multilevel approach. *Exceptionality, 12*, 163-173. doi:10.1207/s15327035ex1203_4

Dubow, E. F., & Ippolito, M. F. (1994). Effects of poverty and quality of the home environment on changes in academic and behavioral adjustment of elementary school-age children. *Journal of Clinical Child Psychology, 23*, 401. doi:10.1207/s15374424jccp2304_6

Duncan, G., & Magnuson, K. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps? *The Future of Children, 15*(1), 35-54.

Dyer, P. C., & Binkney, R. (1995). Estimating cost-effectiveness and educational outcomes: Retention, remediation, special education and early intervention. In R. L. Allington & S. A. Walmsley (Eds.), *No quick fix: Rethinking literacy programs in America's elementary schools* (pp. 61-77). New York, NY: Teachers College.

Ferrara, S. L. (2005). Promote reader self-efficacy. *Intervention in School & Clinic, 41*, 36-38.

Fitch, W. (2009). *An examination of the impact of RtI on K-3 reading achievement* (Doctoral dissertation). Available from ProQuest Dissertation and Thesis database. (UMI No. 3352853)

Flannery M. E., & Jehlen, A. (2005). Closing the gap. *National Education Association Today, 23*(4), 22-31.

Florida Center for Reading Research (2004). *Florida reading first guidance to LEAs.* Tallahassee, FL: Author. Retrieved from http://209.85.135.104/u/fcrr?q=cache:NTkTuw68xVwJ:www.fcrr.org/FCRRReports/PDF/Components_of_Effective_Reading_Programs.pdf+evidence+based+criteria&hl=en&ct=clnk&cd=4&gl=us&ie=UTF-8

Flores, A. (2007). Examining disparities in mathematics education: Achievement gap or opportunity gap? *The High School Journal, 91*(1), 29-42. doi:10.1353/hsj.2007.0022

Foorman, B. R., Petscher, Y., Lefsky, E. B., & Toste, J. R. (2010). Reading first in Florida: Five years of improvement. *Journal of Literacy Research, 42*, 71-93. doi:10.1080/10862960903583202

Foorman, B.R., & Schatschneider, C. (2003). Measuring teaching practices in reading/language arts instruction and their relation to student achievement. In S. Vaughn and K. Briggs (Eds.), *Reading in the classroom: Systems for observing teaching and learning*. Baltimore, MD: Brookes.

Fuchs, D., & Fuchs, L. S. (2005). Responsiveness-to-intervention: A blueprint for practitioners, policymakers, and parents. *Teaching Exceptional Children, 38*(1), 57-61.

Fuchs, D., & Fuchs, L. S. (2006). Introduction to Response to Intervention: What, why, and how valid is it?. *Reading Research Quarterly, 41*(1), 93-99. doi:10.1598/RRQ.41.1.4

Fuchs, D., Fuchs, L. S., & Vaughn, S. (Eds.). (2008). *Response to intervention: A framework for reading educators.* Newark, DE: International Reading Association.

Fuchs, L. S., & Deno, S. L. (1994). Must instructionally useful performance assessment be based in the curriculum? *Exceptional Children, 61*, 15-24.

Fuchs, L.S., & Fuchs, D. (in press). Can diagnostic assessment information enhance general educators' instructional planning and student achievement. In B. Foorman (Ed.), *Prevention and intervention for reading disabilities.* New York, NY: York Press.

Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading, 5,* 239-256. doi:10.1207/S1532799XSSR0503_3

Fuchs, L. S., Fuchs, D., & Maxwell, L. (1988). The validity of informal reading comprehension measures. *Remedial and Special Education 9,* 28-29. doi:10.1177/074193258800900206

Gleason, T. (2013). *The impact of RtI practices on student reading achievement* (Unpublished doctoral dissertation). Indiana University of Pennsylvania, Indiana, Pennsylvania.

Good, R. H., & Kaminski, R. A. (2002). *DIBELS oral reading fluency passages for first through third grade* (Report No. 10). Eugene: University of Oregon.

Good, R. H., & Kaminski, R. A. (2002). *Dynamic indicators of basic early literacy skills* (6th ed.). Eugene, OR: Institute for the Development of Educational Achievement.

Greenwood, C. R., Tapia, Y., Abbott, M., & Walton, C. (2003). A building-based case study of evidence-based literacy practices: Implementation, reading behavior, and growth in reading fluency, K-4. *Journal of Special Education, 37*, 95. doi:10.1177/00224669030370020401

Gresham, F.M., MacMillian, D.L., Beebe-Frankenberger, M.E., & Bocain, K.M. (2000). Treatment integrity in learning disabilities intervention research: Do we really know how treatments are implemented? *Learning Disabilities Research & Practice, 15*, 198-205.

Guisbond, L., & Neill, M. (2004). Failing our children. *Clearing House, 78*(1), 12-16.

Gunning, T. G. (2006). *Closing the literacy gap*. Boston, MA: Pearson Education Inc.

Hart, B., & Risley, T., (1995). *Meaningful differences in the everyday experience of young american children.* Baltimore, MD: Paul H. Brookes.

Hatch, T. (2000). What does it take to go to scale? Reflections on the promise and perils of comprehensive school reform. *Journal of Education for Students Placed at Risk, 5*, 339-354.

Herman, J. L., & Baker, E. L. (2005). Making benchmark testing work. *Educational Leadership, 63*(3), 48-54.

Hiebert, E. H. (1994). Reading recovery in the United States: What difference does it make to an age cohort? *Educational Researcher, 23*, 15-25.

Hintze, J., & Silberglitt, B. (2005). A longitudinal examination of the diagnostic accuracy and predictive validity of R-CBM and high-stakes testing. *School Psychology Review*, *34*, 372-386.

Hoffman, J. V., McCarthey, S. J., Elliott, B., Bayles, D. L., Price, D. P., Ferree, A., & Abbott, J. A. (1998). The literature-based basals in first-grade classrooms: Savior, satan, or same-old, same-old? *Reading Research Quarterly*, *33*, 168. doi:10.1598/RRQ.33.2.2

Hoover, J., & Love, E. (2011). Supporting school-based response to intervention: A practitioner's model. *Teaching Exceptional Children*, *43*, 40-48.

Houston, P. D. (2007). The seven deadly sins of No Child Left Behind. *Phi Delta Kappan*, *88*, 744-748.

Individuals with Disabilities Education Act (2004). *Changes in initial evaluation and reevaluation*. U.S. Department of Education, Office of Special Education Programs. Washington, D.C. Retrieved from http://www.ed.gov/about/offices/lists/osers/osep/index.html

Ikeda, M. J., Neesen, E., & Witt, J. C. (2008). Universal screening. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology*, *IV* (pp. 103-114). Bethesda, MD: National Association of School Psychologists.

Institute of Education Sciences. (2007). *Intervention: Peer-assisted learning strategies (PALS)*. Washington DC: US Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/reports/beginning_reading/pals/

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, *80*, 437-447. doi:10.1037/0022-0663.80.4.437

Johnson, E., Mellard, D. F., Fuchs, D., & McKnight, M. A. (2006). *Responsiveness to intervention (RTI): How to do it.* Lawrence, KS: National Research Center on Learning Disabilities.

Kornhaber, M. L., & Orfield, G. (2001). High-stakes testing policies: Examining their assumptions and consequences. In G. Orfield & M. L. Kornhaber (Eds.), *Raising standards or raising barriers? Inequality and high-stakes testing in public education* (pp. 1-18). New York, NY: The Century Foundation.

Kovaleski, J. F. (2003). *The three tier model for identifying learning disabilities: Critical program features and system issues.* Kansas City, MO: National Research Center on Learning Disabilities.

Kovaleski, J. F. (2007). Response to Intervention: Considerations for research and systems change. *School Psychology Review, 36,* 638-646.

Kovaleski, J. F., Gickling, E. E., Marrow, H., & Swank, P. (1999). High verses low implementation of instructional support teams: A case for maintaining program fidelity. *Remedial and Special Education, 20,* 170-183.

Kreisman, B. M., & John, A. B. (2010). A case law review of the Individuals with Disabilities Education Act for children with hearing loss or auditory processing disorders. *Journal of the American Academy of Audiology, 21,* 426-440. doi:10.3766/jaaa.21.7.2

Kretlow, A. G., & Blatz, S. L. (2011). The ABCs of evidence-based practice for teachers. *Teaching Exceptional Children, 43,* 8-19.

Langdon, T. (2004). DIBELS: A teacher-friendly basic literacy accountability tool for the primary classroom. *Teaching Exceptional Children, 37,* 54-59.

Land, D., & Legters, N. (2002). *Evaluation basics: A practitioner's manual*. Newbury Park, CA: Sage.

Lyons, C. R., & Chhabra, V. (2004). The science of reading research. *Educational Leadership, 61*, 13-17.

Lyons, C. R., Fletcher, J. M., Fuchs, L., & Chhabra, V. (2006). Learning disabilities. In E. Mash & R. Barkley (Eds.), *Treatment of childhood disorders* (3rd ed., pp. 512-591). New York, NY: Guilford.

Manzo, K. K. (2003). Urban minority students performing on par with suburban counterparts. *Education Week. 23*, n.p. Retrieved from http://www.edweek.org/ew/ewstory.cfm?slug=15naep_web.h23

Marston, D., & Magnusson, D. (1985). Implementing curriculum-based measurement in special and regular education settings. *Exceptional children, 52*, 266-276.

Marston, D., & Tindal, G, (1995). Performance monitoring. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology III* (pp. 597-607). Washington, DC: National Association of School Psychologists.

McDill, E. L., & Natriello, G. (1998). The effectiveness of the Title I compensatory education program: 1965-1997. *Journal of Education for Students Placed At Risk, 3*, 317. doi:10.1207/s15327671espr0304_3

McEwan, E. K. (2002). *Teach them all to read*: *Catching the kids who fall through the cracks.* Thousand Oaks, CA: Corwin Press.

McGlinchey, M. T., & Hixson, M. D. (2004). Using curriculum-based measurement to predict performance on state assessments in reading. *School Psychology Review, 33*, 193-203.

McMasters, A. (2011). *Use of a tier 3 evidence-based intervention with progress monitoring, formative assessment, and student goal-setting: An evaluation of the immediate and long-term effects on student reading achievement* (Doctoral Dissertation). Available from ProQuest Dissertation and Thesis database. (UMI No. 3453606)

Menzies, H. M., Mahdavi, J. N., & Lewis, J. L. (2008). Early intervention in reading: From research to practice. *Remedial & Special Education*, *29*(2), 67-77. doi:10.1177/0741932508315844

Mellard, D. F., Byrd, S. E., Johnson, E., Tollefson, J. M., & Boesche, L. (2004). Foundations and research on identifying model responsiveness-to-intervention sites. *Learning Disability Quarterly, 27,* 243-256. doi: 10.2307/1593676

Naslund, J., & Smolkin, L. B. (1997). Automaticity and phonemic representations: Perceptual and cognitive building blocks for reading. *Reading and Writing Quarterly, 13,* 147-165. doi:10.1080/1057356970130204

Nathan, R., & Stanovich, K. (1991). The causes and consequences of differences in reading fluency. *Theory into Practice, 30,* 176-185.

National Center for Education Statistics. (2006). *The Nation's Report Card -2005 Assessments results*. Washington, DC: U.S. Department of Education. Retrieved from http://nces.ed.gov/nationsreportcard/nrc/reading_ math_2005

National Center for Education Statistics. (2011). *NAEP summary data tables.* Washington, DC: U.S. Department of Education. Retrieved from http://nces.ed.gov/nationsreportcard

National Reading Panel. (2000). *Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implication for reading instruction* (NIH Publication No. 00-4769). Washington, DC: Government Printing Office.

No Child Left Behind Act, 20 U.S.C. 6301 (2002).

No Child Left Behind Act of 2001: Title I- Improving the Academic Achievement of the Disadvantaged, 20 U.S.C § 6301 (2004).

Odom, S. L., Brantlinger, E., Gersten, R., Horner, R. H., Thompson, B., & Harris, K. (2005). Research in special education: Scientific methods and evidence-based practices. *Exceptional Children, 71*, 137-148.

O'Connor, R. E., Fulmer, D., Harty, K. R., & Bell, K. M. (2005). Layers of reading intervention in kindergarten through third grade: Changes in teaching and student outcomes. *Journal of Learning Disabilities*, *38*, 440-455. doi:10.1177/00222194050380050701

Paleologos, T. M., & Brabham, E. G. (2011). The effectiveness of DIBELS Oral Reading Fluency for predicting reading comprehension of high- and low-income students. *Reading Psychology*, *32*, 54-74. doi:10.1080/02702710903341262

Perie, M., Grigg, W. S., & Donahue, P. L. (2005). *The nation's report card: Reading 2005* (No. NCES 2006-451). Washington, DC: Government Printing Office.

Rasinski, T. V. (2003). *The fluent reader: Oral reading strategies for building word recognition, fluency, and comprehension*. New York, NY: Scholastic Professional Books.

Reeves, D. (2000). *High performance in high poverty schools: 90/90/90 and beyond.* Denver, CO: Center for Performance Assessment.

Reschly, D. J., & Gresham, F. M. (2006, April). *Implementation fidelity of SLD identification procedures.* Retrieved from: http://www.nrcld.org/sea/presentations_worksheets/fidelity/Reschly.pdf

Ritchery, K. D. (2011). The first 'R': Evidence-based reading instruction for students with learning disabilities. *Theory into Practice, 50*, 28-34. doi:10.1080/00405841.2011.534928

Rogers, E. M., Wang, C., & Gomez-Bellenge, F. X. (2004, April). *Closing the literacy achievement gap with early intervention.* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Ross, S. M., Smith, L. J., Casey, J., & Slavin, R. E. (1995). Increasing the academic success of disadvantaged children: An examination of alternative early intervention programs. *American Educational Research Journal, 32*, 773-800. doi:10.2307/1163335

Samuels, S. J., & Flor, R. F. (1997). The importance of automaticity for developing expertise in reading. *Reading and Writing Quarterly, 13*, 107-122. doi:10.1080/1057356970130202

Sattler, J. M. (2001). *Assessment of children: Cognitive applications* (4th ed.). La Mesa, CA: Jerome M. Sattler.

Scanlon, D., Vellutino, F., Small, S., Fanuele, D., & Sweeney, J. (2004). Severe reading difficulties: Can they be prevented? A comparison of intervention approaches. *Exceptionality, 13*, 209-227. doi:10.1207/s15327035ex1304_3

Schafft, K. A. (2006). Poverty, residential mobility, and student transiency within a rural New York school district. *Rural Sociology, 71*, 212-231.

Schilling, S. G., Carlisle, J. F., Scott, S. E., & Zeng, J. (2007). Are fluency measures accurate predictors of reading achievement? *Elementary School Journal, 107*, 429-448.

Schatschneider, C., & Torgesen, J. K. (2004). Using our current understanding of dyslexia to support early identification and intervention. *Journal of Child Neurology, 19*, 759-765.

Schwanenflugel, P. J., Meisinger, E. B., Wisenbaker, J. M., Kuhn, M. R., Strauss, G. P., & Morris, R. D. (2006). Becoming a fluent and automatic reader in the early elementary school years. *Reading Research Quarterly, 41*, 496-522. doi:10.1598/RRQ.41.4.4

Shidler, L., & Fedor, K. (2010). Teacher to teacher: The heart of the coaching model. *Young Children, 65*, 70-75.

Shinn, M. R. (2002). Best practices in using curriculum-based measurement in a problem-solving model. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology, IV* (pp. 671-697). Bethesda, MD: National Association of School Psychologists.

Shinn, M. R. (2007). Identifying students at risk, monitoring performance, and determining eligibility within response to intervention: Research on educational need and benefit from academic intervention. *School Psychology review, 35*, 601-617.

Shinn, M. R., Good III, R. H., Knutson, N., Tilly, W. D., & Collins, V. (1992). Curriculum-based measurement of oral reading fluency: A confirmatory analysis of its relation to reading. *School Psychology Review 21*, 459.

Sibley, D., Biwer, D., & Hesch, A. (2001, April). *Establishing curriculum-based measurement oral reading fluency performance standards to predict success on local and state tests of reading achievement.* Paper presented at the annual meeting of the National Association of School Psychologists, Washington, DC.

Simmons, D., Coyne, M., Kwok, O., McDonagh, S., Harn, B., & Kame'enui, E. (2008). Indexing response to intervention: A longitudinal study of reading risk from kindergarten through third grade. *Journal of Learning Disabilities*, *41*, 158-173.

Slavin, R. E. (1994). Preventing early school failure: The challenge and the opportunity. In R. E. Slavin, N. L. Karweit, B. A. Wasik, (Eds.), *Preventing early school failure: Research, policy and practice,* (pp 1-12). Boston, MA: Allyn & Bacon.

Slavin, R. E. (1998). Can education reduce social inequity? *Educational Leadership, 55*, 6-10.

Slavin, R. E., Karweit, N. L., & Wasik, B. A. (1991). *Preventing early school failure: What works?* (Report No. 26). Washington, DC: The John Hopkins University, Center for Research on Effective Schooling for Disadvantaged Students. (ERIC Document Reproduction Service No. ED340475).

Slavin, R. E., & Madden, N. A. (1989). What works for students at-risk: A research synthesis. *Educational Leadership, 46,* 4-13.

Snipes, J., & Doolittle, F. (2002). Foundations for success: Case studies of how urban school systems improve student achievement. Washington, DC: MDRC for the Council of the Great City Schools.

Snow, C. E., Burns, S., & Griffen, P. (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academy Press.

Stage, S. A., & Jacobsen, M. D. (2001). Predicting student success on a state-mandated performance-based assessment using oral reading fluency. *School Psychology Review, 30,* 407-419.

Stayter, F., & Allington, R. (1991). Fluency and the understanding of texts. *Theory Into Practice, 33,* 143-148.

Swafford, J. (1998). Teachers supporting teachers through peer coaching. *Support for Learning, 13,* 54.

The Center for Rural Pennsylvania (n.d.). Rural/Urban PA. Retrieved from http://www.rural.palegislature.us/rural_urban.html

The Nation's Report Card. (2007). *American Libraries, 38,* n.p.

[The SPACHE Readability Formula]. (2012). Retrieved from http://www.readabilityformulas.com/spache-readability-formula.php

Therrien, W. J., Gormley, S., & Kubin, R. M. (2006). Boosting fluency and comprehension to improve reading achievement. *Teaching Exceptional Children, 38,* 22-26.

Thomas, M., & Bainbridge, W. (2001). All children can learn: Facts and fallacies. *Phi Delta Kappan, 82,* 660-662.

Tindal, G., Marston, D., & Deno, S. L. (1983). *The reliability of direct and repeated measurement* (Report No. 109). Minneapolis: University of Minnesota Institute for Research on Learning Disabilities.

Title I. (2004). The Elementary and Secondary Act (The No Child Left Behind Act of 2001). 2004; Retrieved from http://www.ed.gov/policy/elsec/leg/esea02/index.html

Torgesen, J. K. (2009). The response to intervention instructional model: Some outcomes from a large-scale implementation in reading first schools. *Child Development Perspectives, 3*, 38-40.

Torgesen, J. K., Alexander, A. W., Wagner, R. K., Rashotte, C. A., Voeller, K., Conway, T., & Rose, E. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes from two instructional approaches. *Journal of Learning Disabilities, 34*, 33-58. doi: 10.1111/j.1750-8606.2009.00073.x

University of Oregon Center on Teaching and Learning (2008). *DIBELS: Information about the DIBELS measure.* Retrieved from https://dibels.uoregon.edu/docs/dibelsinfo.pdf

U. S. Department of Agriculture Food and Nutrition Service (2009). *National school lunch program.* Alexandria, VA: Office of Public Affairs. Retrieved from http://www.fns.usda.gov/cnd/frp/UI_frp.pdf

U. S. Department of Agriculture Food and Nutrition Service. (2011). *National school lunch program.* Alexandria, VA: Office of Public Affairs. Retrieved from http://www.fns.usda.gov/cnd/lunch/aboutlunch/NSLPFactSheet.pdf

Vadasy, P. F., Sanders, E. A., & Abbott, R. D. (2008). Effects of supplemental early reading intervention at 2-year follow up: Reading skill growth patterns and predictors. *Scientific Studies of Reading, 12,* 51-89. doi:10.1080/10888430701746906

Vaughn, S., & Chard, D. (2006). Three-tier intervention research studies: Description of two related projects. *Perspectives, 32,* 30-35.

Washington State Board of Education. (2010). *Crownhill Elementary case study: Closing the economic achievement gap*. Retrieved from http://www.eric.ed.gov/PDFS/ED518184.pdf

Wasik, B. A., & Slavin, R. E. (1993). Preventing early reading failure with one-to-one tutoring: A review of five programs. *Reading Research Quarterly, 28,* 179-20.

Weinfurt, K. (2004). Repeated measures analyses: ANOVA, MANOVA, and HLM. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding more multivariate statistics* (pp. 317-362).Washington, DC: American Psychological Association.

Welsch, R. G. (2006). Increase oral reading fluency. *Intervention in School & Clinic, 41,* 180-183.

West, J., Denton, K., & Reaney, L. M. (2005). The kindergarten year: Findings from the early childhood longitudinal study, kindergarten class of 1998-99. *Education Statistics Quarterly, 2*(4), 25-30.

West, J., Denton, K., & Germino-Hausken, E. (2000). America's kindergarteners: Findings from the early childhood longitudinal study, kindergarten class of 1998: Fall 1998. *Education Statistics Quarterly, 2,* 7-13.

Wilkinson, L. A. (2006). Monitoring treatment integrity: An alternative to the consult and hope strategy in school-based behavioral consultation. *School Psychology International, 27*, 426-438. doi:10.1177/0143034306070428

Williams, B. (2003). *Closing the achievement gap: A vision for changing beliefs and practices*. Arlington, VA: Association for Supervision and Curriculum Development.

Wood, D. E. (2006). Modeling the relationship between oral reading fluency and performance on a statewide reading test. *Educational Assessment, 11*, 85-104. doi:10.1207/s15326977ea1102_1

Worthy, J. & Broaddus, K. (2002). Fluency beyond the primary grades: From group performance to silent, independent reading. *Reading Teacher, 55*, 334-344.

Appendix A

Survey of School Services for At-Risk Students
Please answer each question based on the **2009-2010** school year.

Q1. School District Name:

Q2. Did your school conduct universal screenings/benchmarking in reading at least 3 times per year using a recognized tool (e.g., CBM, DIBELS, AIMSweb)?

- □ Yes If yes please indicate the year first implemented: _____
- □ No

Q3. What factors did your school consider in choosing its reading series (Check all that apply)?

- □ Alignment with state standards
- □ Positive review by national website (e. g., Florida Center for Reading Research, What Works Clearinghouse)
- □ Research conducted by publisher
- □ Chosen by a district panel (e. g., curriculum coordinator, teachers, principals)
- □ Cost
- □ Empirical evidence from other districts
- □ Other

Q4. Did your school use a formal mechanism (e. g., curriculum implementation checklist) to ensure that core reading instruction is being delivered in the way in which it was designed to be delivered?

- □ Yes If yes please indicate the year first implemented: _____
- □ No

Q5. Please indicate the formal mechanism your school used to ensure that core reading instruction was being delivered in the way in which it was designed to be delivered (Check all that apply).

- □ Curriculum implementation checklist
- □ Focused walk-throughs
- □ Delivery of the instruction is observed by a coach, peer teacher, or administrator
- □ Videotaping of lessons
- □ Other

Q6. Did your school utilize a multi-tier system to support students who display academic difficulties in reading?

□ Yes If yes please indicate the year first implemented: _____
□ No

Q7. Did your school have time built into the schedule to support struggling readers in addition to the time allocated for core reading instruction?

□ Yes If yes please indicate the year first implemented: _____
□ No

Q8. Did your school have grade level team or core team meetings that met at least three times a year to analyze and discuss students' reading benchmark and/or progress monitoring data?

□ Yes If yes please indicate the year first implemented: _____
□ No

Q9. Did your school monitor students' progress in response to reading intervention on a frequent basis (e. g., once per week, twice per month) using a formal measure (e. g., CBM, DIBELS, AIMSweb)?

□ Yes If yes please indicate the year first implemented: _____
□ No

Q10. Did your school use formal mechanism (e. g., written intervention plan) to ensure that supplemental reading intervention is delivered in the way in which it was designed to be delivered?

□ Yes If yes please indicate the year first implemented: _____
□ No

Q11. Please indicate the formal mechanism your school used to ensure that supplemental reading intervention was delivered in the way in which it was designed to be delivered
(Check all that apply).

- □ The interventionist is given a written intervention plan (e. g., how the intervention is delivered, the frequency and duration of the intervention, and how student progress is monitored).
- □ A coach, mentor, or administrator evaluates the results of the data collected and provides feedback to the teacher of staff member working with the student.
- □ Delivery of the intervention is observed by a coach, peer teacher, or administrator.
- □ An administrator, coach, or peer teacher observes the interventionist using an intervention implementation checklist.
- □ The interventionist conducts a self-analysis using an intervention implementation checklist.
- □ Other

Appendix B

Research Information and Consent Form

You are invited to participate in a treatment fidelity survey for a research study investigating The Impact of Evidence-Based Practices on Oral Reading Fluency in Low-Socioeconomic-Status Elementary Students. This study is being conducted by Thomas B. McCracken, a doctoral candidate in the Educational and School Psychology Program, at the Indiana University of Pennsylvania. You were selected as a participant in this research because of your knowledge of the level of evidence-based practices used by your district at the elementary level. As part of measuring treatment fidelity, I am requesting that you complete a brief survey of school services for at-risk students.

Background Information:
The survey that I am requesting you to complete measures the level of implementation of evidence-based practices in the reading program of your school.

Procedures:
If you decide to participate, you will be asked to complete a brief survey of school services for at-risk students using the link provided in order access the survey on Survey Monkey. The completion of the survey should take approximately 15 minutes.

Risks and Benefits:
There are may be potential risks if the results of the survey are shared with others. If you are critical of your school district, you could be seen as insubordinate and this could have a negative impact on your relationship with your superior. To prevent this, the survey will be completed using Survey Monkey and the results will only be accessible by the researcher. Your survey responses will not be revealed to your district. The benefits include a determination of the level of implementation of evidence-based practices in your district.

Confidentiality:
The data will only be shared with the researcher's dissertation chair, members on the researcher's dissertation committee, and district superintendents participating in the study. Your responses will be coded in such a way that the name of the school district will be known only to the researcher and will not be shared with anyone else, including district personnel. Further, all results of the study will not be identifiable as to the name of the school or district.

Voluntary nature of the study:
Participation in the completion of this survey is voluntary. Your decision whether or not to participate will not affect your relations with your employer or future relations with the Indiana University of Pennsylvania in any way. If you decide to participate, you are free to stop at any time without affecting these relationships, and no further data will be collected.

Contacts and questions: If you have any questions, please feel free to contact me, Thomas McCracken, at 11450 County Road 33 Norwood Young America, MN 55397. Phone: 814/590-0268. Email: mccrackent@crown.edu or Dr. Joseph Kovaleski (Dissertation Chair) at the Indiana University of Pennsylvania Stouffer Hall, Room 246, 1175 Maple Street, Indiana, PA 15705. Phone 724/357-2316. Email: jokv@iup.edu

If you are willing to complete the survey, please sign the statement below and return to Thomas McCracken at the email address provided above. If you choose not to participate please let me know as soon as possible.

Statement of Consent:
You are making a decision to participate. Your signature indicates that you have read this information. Even after signing this form, please know that you may withdraw from the study at any time and no further data will be collected.

I consent to complete the survey.

_____

Signature of Participant Date

_____

Name (PLEASE PRINT)

You may keep a copy of this form for your records.

Please sign and return the Research Information and Consent Form as an email attachment to:
Thomas McCracken
mccrackent@crown.edu