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The effects of oral reading fluency on reading comprehension for students with reading disabilities and specific learning disabilities

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2010

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MEd, Indiana Wesleyan University, 1995

BA, Mount Vernon Nazarene College, 1976

Doctoral Study Submitted in Partial Fulfillment

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Abstract

The gap in reading achievement continues to be consistent, despite No Child Left Behind goals to narrow these gaps among minority and other subgroup populations. This gap is especially profound for students with disabilities, and any evidence to support progress monitoring of oral reading fluency (ORF) and comprehension will inform educational policy and practice. The theory of automaticity explains that a reader can focus more attention on the meaning of a reading passage when less attention is needed for word and sound recognition. The literature has suggested that reading comprehension can be improved through efforts to improve ORF. The central purpose of this quantitative, correlation study was to determine the relationship between gains in ORF and gains in reading comprehension of both informational and literary texts among 46 students in Grades 3 through 6 with reading difficulties and specific learning disabilities in a rural southern U.S. school district. A second purpose was to determine whether repeated readings or cold reads is the better predictor of reading comprehension. Gains in ORF rates over a 10-week period, determined by the difference in pre- and postmeasurements on two curriculum-based measures of ORF, were regressed on reading comprehension scores on the Measures of Academic Procedures test. There was not a statistically significant relationship between ORF and reading comprehension gains, and neither repeated readings nor cold reads was statistically a better predictor of reading gains. The findings offer several suggestions for the continuation of support for students who struggle with the reading process. Implications for social change included improved reading levels for those with reading and other specific learning disabilities.

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Dedication

This doctoral study is dedicated to the one who was my motivation, my encourager, my inspiration, my cheerleader, my mentor, and my prayer partner throughout this venture. For more than 50 years, I watched you study and work hard, pushing yourself to be the very best. Your example was my very motivation. Over the years, you encouraged me to reach my potential and then strive just a little beyond that point. You inspired me when I saw you manage your many hats as you went to school and earned your degree while you were wife, mother, Sunday School teacher, community and church leader, and good friend to many. During this journey, you cheered me on when I was overwhelmed on occasions. I looked to you for guidance, and you never let me down. Your prayers sustained me during times when I was too exhausted to pray for myself.

To you, Gwen Jacqualyn Barron, I dedicate this dissertation.

……..Love,

Renee, your appreciative daughter

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Section 1: Introduction to the Study

"The ability to read fluently and with adequate comprehension is considered the hallmark of skilled reading" (Mokhtari & Thompson, 2006, p. 73). However, not every student reads with expertise and is acclaimed a skilled reader. Conversely, although there is heightened awareness in society of increased literacy demands on students, reading skills either have remained stagnant or decreased during the past 30 years (Ryder, Burton, & Silberg, 2006). Hock et al. (2009) found that despite heightened awareness and consequent focus on reading skills, students continue to score low on reading tests and then struggle with postsecondary transitions. Vadasy, Sanders, and Tudor (2007) claimed that many students are simply not developing the reading skills they need to function efficiently in a society of increasing literacy demands. They stated that several inequities in the American public school system have contributed to this dilemma, including (a) teachers who lack the technical knowledge needed to teach phonological awareness and phonics, (b) nonaccessibility of well-trained teachers and science-based reading instruction, (c) inconsistency in the scope and sequence of reading instruction across grade levels, and (d) the challenge of supplementing reading instruction to students who struggle.

One group of students who struggle with the reading process meet federal guidelines of the Individuals With Disabilities Education Improvement Act and specific state requirements for special education services (IDEA, 2004). They qualify as students with specific learning disabilities (SLD) and receive special education support. The second group of students may not meet the specific federal and state requirements for

special education and remain in the regular education classroom, despite their struggles with reading. Both groups of students have reading difficulties, and both groups labor to comprehend the written word. For the purpose of this study, the groups will remain identified separately: Students with SLD have met federal guidelines of IDEA (2004) and specific state requirements for special education service, and students with reading disabilities (RD) have either failed to meet or have not yet met federal guidelines of IDEA and specific state requirements for special education service.

Researchers have postulated that both groups struggle with reading. Jenkins, Fuchs, van den Broek, Espin, and Deno (2003b) noted that students with RD have substantially lower reading performance than that of their nondisabled peers. According to Shapiro, Church, and Lewis (as cited in Therrien & Hughes, 2008), "Thus, 80% of the 2.8 million students with LD have identified needs in reading" (p. 1). According to L. S. Fuchs, Fuchs, Hosp, and Jenkins (2001), reading is a task that necessitates concurrent implementation of various skills. Consequently, it is logical to propose that to become a more effective teacher of reading, one must be proficient in the identification of reading skills an individual needs, and in the instruction of the particular reading skills in order to facilitate the process of learning to read.

The National Reading Panel (NRP), part of the National Institute for Child Health and Human Development (NICHD, 2000), identified oral reading fluency (ORF) as one of the critical components or skills necessary for reading instruction. Since that proclamation and in reaction to the report from the NRP (NICHD, 2000), many researchers have substantiated the identification of ORF as an essential element in

reading instruction. For example, Rasinski et al. (2005) claimed that ORF has become recognized as a key element in successful classroom reading programs. Ming and Dukes (2008) posited, "Students with reading difficulties can benefit from a comprehensive empirically supported reading program in which teachers directly teach and ultimately enhance reading fluency skills" (p. 2). L. S. Fuchs et al. (2001) proclaimed, "Because oral reading fluency reflects this complex orchestration, it can be used in an elegant and reliable way to characterize reading expertise" (p. 240) in reference to their belief that reading necessitates the concurrent implementation of various skills.

Background of the Study

Historically, ORF has been identified and studied for many years by such researchers as Cattell, Huey, LaBerge and Samuels, and Doehring, but according to Wolf and Katzir-Cohen (2001), "[Fluency instruction] might best be characterized as intellectually spasmodic: There are periods of great effort and creativity, followed by fallow periods of relative disinterest" (p. 211). As early as 1927 and through the 1960s, the practice of ORF was a segment of the reading curriculum in schools in America (L. S. Fuchs et al., 2001). However, by the 1970s, ORF was no longer considered a critical part of reading instruction, perhaps because of the onset of literature-based instruction versus phonics-approached instruction and because of the emphasis on the language experience (L. S. Fuchs et al., 2001). It is, however, noteworthy that Wolf and Katzir-Cohen declared that the work of LaBerge and Samuels in 1974 "ushered in an era of renewed attention to fluency" (p. 214). However, once again, by 1983, ORF instruction had all but been abandoned (Allington, 1983; Kame'enui & Simmons, 2001) in reading curricula

throughout American schools, although researchers such as LaBerge and Samuels, Adams, and Logan continue to study ORF.

When the NRP of the NICHD (2000) identified ORF as a vital segment of reading instruction, ORF once again became a renewed area of interest in reading curricula for American schools (Hasbrouck & Tindal, 2006; Pikulski & Chard, 2005; Rasinski et al., 2005). ORF is, as L. S. Fuchs et al. (2001) claimed, "a complicated, multifaceted performance" (p. 239), but as of yet, researchers have not agreed on a clear definition of ORF. Instead, they have used descriptors such as rate, automaticity, accuracy, and prosody as characteristics, but they have not yet derived a common definition. For the purpose of this study, ORF is defined as the ability to decode words in text automatically so that cognitive resources are used for comprehending text; ORF includes the ability to phrase text in meaningful phrases, evidenced through various prosodic elements (Rasinski & Padak, 2005). As a result of the research that followed the renewed interest in ORF, researchers substantiated the theory of automaticity, which asserts that word-recognition growth has a causal impact on ORF (Eldredge, 2005) and identified a link between ORF and reading comprehension skills acquisition (L. S. Fuchs et al., 2001; Pikulski & Chard, 2005; Rasinski et al., 2005; Reis, Eckert, McCoach, Jacobs, & Coyne, 2008).

Researchers have described fluent readers as readers who can focus their attention on content, making connections with the words in the text and their own prior knowledge with ease. This ability enables fluent readers to focus readily and with ease on comprehension. In contrast to fluent readers, students who are less fluent readers have to

use their cognitive resources and energy to decode specific words. Using cognitive resources leaves less fluent readers with little energy to make the necessary connections with their prior knowledge and experiences. Consequently, their level of reading comprehension is lower. In yet an even stronger voice, Bashir and Hook (2009), rather than identify a link between fluency and comprehension, actually labeled ORF the "key link between word recognition and comprehension" (p. 196).

Although ORF has been identified as one of the critical components in reading, and even though a substantial link between ORF and reading comprehension has been determined, the research on ORF and its relationship to reading comprehension remains incomplete. Reading comprehension is an umbrella that covers a multitude of skills. Continued research is needed in order to focus on whether the measured gains made in reading comprehension are a short-term effect based upon repeated exposure to a passage or whether the reading comprehension gains are internalized and the effects are long term. As Rasinski et al. (2005) suggested, it is important to know whether ORF generalizes to improved performance on other reading passages not previously encountered.

Statement of the Problem

Faver (2008) stated, "The ultimate goal of a fluent reader is to read at a normal speaking pace while comprehending what is being read" (p. 350). As simplistic as the goal may sound, there exists, nevertheless, a problem in the educational system for students with RD and for students with SLD in becoming successful and proficient readers. This problem has been identified at all levels of governmental assessments:

national, state, and local. For example, The Nation's Report Card confirmed the problem by stating, "Because SD [students with disabilities] and ELL [English language learners] students tend to perform near the bottom of the achievement distribution, significant fluctuations in their participation can influence state scores disproportionately" (National Center for Education Statistics, 2007, Accommodations and Exclusions in NAEP section, ¶ 3). The basis for this statement came from the final report of the American Institutes for Research on inclusion and exclusion factors for statewide testing for students with disabilities (as cited in Stancavage, Makris, & Rice, 2007). The Nation's 2007 Report Card (U.S. Department of Education [USDoE], 2007) reported reading scores for students in Grade 4. According to this report, students with disabilities have lower scores in reading than their nondisabled peers.

The problem that students with RD and SLD have in reading has been validated by the South Carolina 2007 Annual State Report Card (South Carolina State Department of Education [SCSDoE], 2007) and the 2007 Annual State Report Card for a specific South Carolina school district, which for the purpose of this study, was referred to and referenced as Study County School District (2007). The following data illustrate the difficulty that students with disabilities experience when attempting to pass the statewide test throughout South Carolina and in the Study County School District. In South Carolina in 2007, 60.9% of students with disabilities scored at Below Basic on the Palmetto Achievement Challenge Test (PACT), and 27.7% scored at Basic. Only 8.5% were Proficient, and a mere 2.9% scored at an Advanced level. The results indicated that South Carolina's population of students with disabilities did not meet their performance

objective. This finding is significant because, as described by Roberts, Torgesen, Boardman, and Scammacca (2008), "Students reading below the *Basic* level are unable to understand important concepts and acquire new knowledge from grade-level text" (p. 63). For the Study County School District, the trend in 2007 seemed similar, with 65.9% of students with disabilities scoring at the lowest performance level in English Language Arts, 26.4% scoring at a Basic level, and only 6.5% and 1.1% scoring Proficient and Advanced, respectively. As in the case at the South Carolina state level, the county participating in this study did not meet its performance objectives for the population of students with disabilities, defined as a population of students with current individualized education programs (IEPs).

In addition to evidence identified through national, state, and local report card data, researchers have substantiated the need to identify best practices that will enable students with RD to become proficient readers. For example, according to Wolf and Katzir-Cohen (2001), some areas of reading difficulties, such as single naming-speed deficits, phonological deficits, and combinations of these deficits can cause students to develop ORF and comprehension problems. Therrien, Gormley, and Kubina (2006) observed that many students with RD have difficulties in the areas of ORF, comprehension, or both, that can be the cause of academic failure. This theory was corroborated by Chard, Vaughn, and Tyler (2002), who conducted a study to synthesize research on interventions designed to increase ORF for students with SLD. They looked at 24 different studies, some of which had been published, and some of which had not, but all of which had reported a variety of interventions, including repeated readings,

sustained reading, repetitions, modification of difficulty of text, and criteria for improvement. Chard et al. stated that students with SLD often struggle with ORF, which has a direct impact on reading comprehension.

Based on this information from the national, state, and local education assessments and from a plethora of research, there is a substantiated need to increase the academic standards of all students (Conderman & Strobel, 2008). This need includes increasing the reading comprehension levels of students with RD to comprehend on a level commensurate with their nondisabled peers. The implication for this need to increase reading skills for students with RD means that students who have struggled to make average yearly progress (AYP) must now make considerably more than expected AYP in reading in order to catch up with their nondisabled peers (Roberts et al., 2008). "Fluency is…necessary for reading comprehension" (NICHD, 2000, p. 11), and although research has benefited from the renewed interest in ORF, not all children are reaping the benefits at this time.

Kuhn and Stahl (2000) noted the parallel need and omission of instruction when they stated, "We have come to view fluency instruction as successful in improving the reading achievement of children…. However, we have seen relatively little of this instruction in the schools" (p. 27). L. S. Fuchs et al. (2001) validated that ORF is not being used by teachers and researchers in a proportionate manner, and Griffith and Rasinski (2004) maintained that many teachers still express "a lack of familiarity with the concept of fluency and how best to teach it" (p. 127). Rasinski and Padak (2005) stated that fluency has been ignored in middle and high schools (p. 37). Finally, Foorman

(2007) eloquently described the phenomenon as one in which "research on reading instruction has not necessarily penetrated the pedagogical design of core reading programs" (p. 29). Thus, the need for continued research on ORF has been substantiated by multiple researchers.

Purpose of the Study

ORF is vital to the acquisition of reading comprehension skills (Hasbrouck & Tindal, 2006; Pikulski & Chard, 2005; Rasinski et al., 2005); however, ORF is not being taught (L. S. Fuchs et al., 2001; Griffith & Rasinski, 2004; Kuhn & Stahl, 2000; Rasinski & Padak, 2005). Juxtaposing the claims that fluency is not being taught is a contrasting action for many special education teachers, namely, the requirement to develop and implement IEPs for students with SLD as well as monitor the progress of those students based on ORF measures. This contrasting action was substantiated by Shippen, Houchins, Calhoon, Furlow, and Sartor (2006) when they discussed accountability issues resulting from the No Child Left Behind Act (NCLB), the subsequent national measure of AYP, and the impact of these policies on students with disabilities. This concept was exemplified and expounded on by Baker et al.'s (2008) statement of reinforcement. They commented that "other major education reforms, such as response to intervention (IDEA, 2004), have also significantly increased the use of ORF to assess reading performance" (p. 19) have led to a dramatic transformation and an extreme change in pedagogy for many teachers. For special education teachers, rather than use the traditional methods of presenting the results of present levels of performance and functioning, developing IEP goals, and reporting progress, they now must incorporate ORF rates as data measures.

Another significant change involves the identification of students with SLD. Shinn (2007) reported the significance of the change, noting that "recent changes in federal special education law resulted in a dramatic reconceptualization of the process that educators could use to identify a student as eligible for special education under the category of specific learning disabilities (SLD)" (p. 601). Gersten and Dimino (2006) explained the connection of students with SLD to response to intervention (RTI):

> More recently, every shift or change in special-education policy or procedure has had dramatic repercussions for the field of reading instruction. These reforms invariably have a profound effect on students with reading difficulties because the largest groups of special-education students are those with LD, and the vast majority of these students demonstrate serious difficulties in reading. Response to Intervention (Fuchs & Fuchs, 1998, Vaughn & Fuchs, 2003), or RTI, is the latest of such innovations. (pp. 99-100)

RTI is the provision for early interventions without labeling students at risk for school failure as learning disabled. RTI is a prereferral intervention to determine whether a child is responding to the intervening instruction. Linan-Thompson, Cirino, and Vaughn (2007) described RTI as a preventive approach that includes the use of students' learning rates and levels of performance, often measured by benchmark scores set by a norm group, to make instructional decisions. Dyson, Miller, and Gagne (2008) indicated that interventions are essential for struggling students, and Vaughn et al. (2009) echoed this sentiment by stating, "For the majority of students, these interventions result in significantly improved reading performance over time" (p. 166). The goal of RTI, as

supported by the IDEA (2004), is to limit the identification of students with SLD (Lose, 2007). Foorman (2007) reiterated the financial ramification of IDEA when she explained the "enormous important provision – the provision that up to 15% of funds can be used for prevention" (p. 24). RTI is an alternative to identifying children with learning disabilities using IQ-achievement discrepancy (L. S. Fuchs & Fuchs, 2006). Bonfiglio, Daly, Persampieri, and Anderson (2006) confirmed the appropriateness of making individual student decisions from a behavioral perspective because "growth in academic skills is an individual phenomenon" (p. 94).

RTI is frequently viewed as a three-tiered model:

> Within the three-tiered system, a response-to-intervention (RTI) model addresses the specific educational process of implementing increasing tiers of targeted instruction. RTI provides guiding parameters to decide academic placement and instruction based on student progress. This keeps the focus on the student's learning and the educational environment, and tracks the extent to which academic and instructional goals are met. (Kamps et al., 2007, p. 155)

In Tier 1, the general education teacher provides the extra instruction, using evidenced-based strategies to promote learning. Students who do not reach the benchmarks are then placed in Tier 2, which is characterized by small-group intervention and can be provided by the general education teacher or a reading specialist. In Tier 2, a continual system of progress monitoring is put into place. Students who do not reach the benchmarks in Tier 2 are then placed in Tier 3, which is usually a longer term instructional experience, and

services are provided by reading specialists or special education teachers. Academic progress is monitored on a regular basis (D. Fuchs, Mock, Morgan, & Young, 2003).

These recent changes and mandates can result in levels of frustration and loss of power for teachers. As Buffum and Hinman (2006) noted, teachers sometimes feel as if they are just workers who are subject to the mandates of schools or government. To maximize the educational experience for all students, teachers need to believe in what they are doing. Rasinski and Padak (2005) asserted that teachers need to believe in the theory and method(s) of instruction, and see positive results in order to create a positive learning environment. These contextual factors inspired this study.

Because of the previously described changes that have occurred in special education classrooms and the continuation of mandated change in special education departments in the United States due to NCLB, the use of ORF strategies requires close examination. The examination should include ORF strategies as well as measurement tools used to diagnose gaps in reading skills, monitor the progress of reading growth, and predict outcome measures such as reading goals on IEPs. The findings derived from this study will contribute to the body of knowledge needed to address the problem that students with RD and students with SLD have in becoming successful and proficient readers. I examined the relationship between ORF and reading comprehension and also investigated which protocol for the progress monitoring of ORF is the better predictor of gains in total reading comprehension, namely, curriculum-based measurement of ORF (CBM ORF) or the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) ORF (DORF).

The primary purpose of this quantitative study was to examine the relationship between ORF and comprehension among students with RD and those with SLD in reading in a certain school district in South Carolina. This particular school district has made the inclusion of ORF instruction mandatory, and the expectations for all special education teachers are as described: Use ORF measures to create and result IEP goals, monitor the progress of students on a weekly basis, and report progress to parents using fluency measures. Pikulski and Chard (2005) appositely described, "Fluency without accompanying high levels of reading comprehension is of very limited value" (p. 518); therefore, it is imperative to know whether ORF instruction increases the comprehension skills of students with RD and those with SLD in reading.

The following statement represents the principal rationale for designing and conducting this study. The theory of automaticity (LaBerge & Samuels, 1974) holds that if ORF increases, a positive change in the reading comprehension score also will occur because the student is spending less energy sounding out words and is spending more energy making meaning and connections with the words in the text and prior knowledge, which enables the student to focus readily and with ease on comprehension.

Nature of the Study

I used a correlation design in this quantitative study to relate gains in reading comprehension to gains in ORF among 46 students in Grades 3 through 6 with RD and SLD in reading who attend two separate schools in the Study County School District. Reading comprehension data were retrieved from the Northwest Evaluation Association's (NWEA, 2004) Measures of Academic Progress (MAP) reading test, and ORF rates were

measured using DIBELS ORF (Good & Kaminski, 2002a) and CBM ORF methods. Using the MAP test as pretest and posttest instruments, the difference in pre- and posttest scores indicated changes in reading comprehension scores as calculated by the NWEA. The MAP test data were retrieved from the school district's Testview site. The MAP test has published strong reliability and validity ratings (NWEA, 2004).

Two types of ORF rates were measured weekly using progress monitoring techniques. The first type of ORF data was collected using DORF cold read passages, which means the students had not previously seen the reading passages and were therefore not familiar with them. The second type of ORF data, CBM ORF, was collected using curriculum passages, which were repeated readings rather than cold reads, meaning that the students were familiar with and had practiced reading the passages through the daily classroom reading instruction. The teachers who provided the ORF instruction had been trained in direct ORF instructional procedures and in progress monitoring strategies for both cold reads and repeated readings. Section 3 provides specific details of the ORF data collection procedures.

All data used in this study were archived. The predictor variable in this study was the observed gains in ORF resulting from instructional strategies that included ORF instructional techniques. The instruction was administered in small groups of various sizes, with approximately 2 to 7 students in each. The criterion variable in this study was the measured change in reading comprehension scores as analyzed on the MAP test developed by the NWEA (n.d.).

According to the NWEA (2008a), the MAP test is used by more than 6,905 school districts and educational partners, and more than 2.8 million students participate in the testing. The MAP reading comprehension test is a computerized test aligned to state standards that provides an individualized testing experience for each student because the test adapts itself to the progress of the individual student. Bracey (2007) explained that MAP test data use item response theory, which places all MAP items on a common scale. This protocol allows states to compare test performance data with other states, even if they have different items on their MAP test. Bracey explained that this is a preferred method of comparison over using national test data because states have different curricula, resulting in a mismatch between NAEP and state tests.

In the Study County School District, the MAP test is administered to all students in Grades 3 through 6 three times a year, namely, in the fall, winter, and spring, during specific designated windows of time determined by the school district and the NWEA. The MAP reading test, which is aligned to the South Carolina state standards of reading, has three categories that present a total reading comprehension score when they are combined: understanding and using informational texts, understanding and using literary texts, and building vocabulary. Section 3 includes a discussion of the reliability and validity characteristics of the MAP test.

A form of progress monitoring for ORF documentation is necessary to examine the change in reading skills. This need was substantiated by Hosp and Fuchs (2005), who indicated that "[assessments are] needed to help educators efficiently and accurately screen, diagnose, and monitor the progress of students' reading skills" (p. 9). Educators

are searching for tools with which to assess ORF, as indicated by Hasbrouck and Tindal (2006). Wallace, Espin, McMaster, Deno, and Foegen (2007) reported the necessity and justification for monitoring student progress when they stated, "Recently, with requirements brought on by standards-based reform and school accountability (No Child Left Behind Act of 2001), progress monitoring has received closer attention in educational research policy, and practice" (p. 66). Thus, the need for progress monitoring has been established. However, Mokhtari, Rosemary, and Edwards (2007) reported that teachers feel as though they lack the knowledge and skills to assess and document students' progress, despite their need to keep up with data-based decision making due to the increased accountability mandated in local, state, and federal policies.

Deno (2003) originally developed CBM, an approach to monitor student progress, as a special education intervention to help teachers formatively evaluate their own instruction. According to Deno, CBM uses generic procedures as well as stimulus materials that come directly from instructional materials used by teachers in their classrooms. L. S. Fuchs, Deno, and Mirkin (1984) posited that research has validated the premise that teachers who use systematic formative evaluation based on CBM have greater achievement rates. More than 2 decades later and still researching CBM, L. S. Fuchs, Fuchs, and Hamlett (2007) advised teachers that CBM is standardized and provides them with reliable and valid indicators of academic competence. Furthermore, with the use of CBM, teachers can gauge individual student standing at any given point. As a result, "The CBM approach to monitoring student progress has now become the primary instrument for generating student performance data" ("Stanley Deno," 2008, p.

507). Hintze, Callahan, Matthews, Williams, and Tobin (2002) reiterated the benefits of CBM when they stated that CBM is an assessment on which rests both educational services and resource allocations. M. K. Hosp and Hosp (2003) substantiated this assessment:

> However, we anticipate that recent legislation may prompt greater attention to CBM. An increased focus on accountability has been manifested in requirements that educators monitor student progress toward meeting goals and objectives and to regularly inform parents of the child's progress (IDEA, 1997; 1999). CBM stands out as one of the best measures to efficiently accomplish these requirements. (p. 11)

Therefore, the secondary purpose of this study was to estimate the predictive ability of CBM as a method to monitor the progress in reading of students with RD and those with SLD. This study evaluated DORF, which utilizes a cold read approach, and CBM ORF, which uses a repeated reading approach. A regression analysis compared which protocol, the CBM ORF or the DORF, was a better predictor of gains on the MAP reading comprehension tests.

Research Questions and Hypotheses

To examine the relationship between ORF and reading comprehension of students with RD and those with SLD, and to estimate the predictive ability of CBM as a method to monitor the progress in reading of students with RD and those with SLD, I addressed the following questions and respective hypotheses:

Research Question 1

What is the relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF?

H_{01}: There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

H_{02}: There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to DORF progress monitoring protocol.

$H_{a1:}$ There is a significant relationship between student gains in comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{a2:}$ There is a significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to DORF progress monitoring protocol.

Research Question 2

What is the relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF?

$H_{03:}$ There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{04:}$ There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to the DORF progress monitoring protocol.

$H_{a3:}$ There is a significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{a4:}$ There is a significant relationship between student gains in reading comprehension as related to the understanding and using of informational text, and student gains in ORF assessed according to the DORF progress monitoring protocol.

Research Question 3

What is the relationship between student gains in total reading comprehension and student gains in ORF?

$H_{05:}$ There is no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{06:}$ There is no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the DORF progress monitoring protocol.

$H_{a5:}$ There is a significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the CBM ORF progress monitoring protocol.

$H_{a6:}$ There is a significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the DORF progress monitoring protocol.

Research Question 4

Which protocol for progress monitoring of ORF is the better predictor of gains in total reading comprehension, the CBM protocol or the DORF protocol?

H_{07}: There is no better predictor of gains in total reading comprehension between the DORF protocol and the CBM ORF protocol.

H_{a7}: There is a better predictor of gains in total reading comprehension between the DORF protocol and the CBM ORF protocol.

Theoretical Framework

In the search to find more efficient ways to increase the reading comprehension levels of students with RD and those with SLD, the theory of automaticity provides an insightful guideline. This theory, as identified by LaBerge and Samuels (1974), attempts to relate ORF to comprehension:

> During the execution of a complex skill, it is necessary to coordinate many component processes within a very short period of time. If each component process requires attention, performance of the complex skill will be impossible, because the capacity of attention will be exceeded, but if enough of the components and their coordinations can be processed automatically, then the load on attention will be within tolerable limits and the skill can be successfully performed. Therefore, one of the prime issues in the study of a complex skill such

> as reading is to determine how the processing of component subskills becomes automatic. (p. 293)

The theoretical framework implies that automaticity or fluency directly impacts a reader's ability to focus attention on the meaning of a reading passage rather than channel attention to individual sounds, sound groups, or isolated words. LaBerge and Samuels (1974) continued with their explanation of automaticity by describing reading as the operation of multicomponent complex skills in which each stage needs to be automatic. As an example of multicomponent skills, they described ball handling by a basketball player. The experienced ball handler can automatically use the subskills of dribbling, passing, and catching, and the transitions between each subskill. The inexperienced player has difficulty when one or all subskills and transition skills are not automatic.

LaBerge and Samuels (1974) used the criterion for proclaiming a skill to be automatic when it can be accomplished while attention is focused somewhere else. They claimed, "The reader can maintain his attention continuously on the meaning units of semantic memory, while the decoding from visual to semantic systems proceeds automatically" (p. 313). Simply stated, LaBerge and Samuels explained, "When the decoding and comprehension processes are automatic, reading appears to be 'easy.' When they require attention to complete their operations, reading seems to be 'difficult'" (p. 314). Hudson, Lane, and Pullen (2005) expanded on the theory of automaticity and described the extreme nature of the fluency problem:

> This lack of fluent reading is a problem for poor readers because they tend to read in a labored, disconnected fashion with a focus on decoding at the word level that makes comprehension of the text difficult, if not impossible. (p. 702)

As described earlier in the Background section, automaticity has been a part of reading curriculums intermittently for decades and has now returned as a theory of high interest to many researchers. As more researchers have begun to investigate ORF and its impact on the acquisition of reading comprehension skills, educators are reflecting on the research findings, and changes are being made in the ways in which teachers approach reading instruction in their classrooms (Rasinski et al., 2005).

ORF and its implications are affecting more than just reading instruction. Currently, changes are being made in the ways in which schools identify high-risk students and the entire IEP process, that is, the development and writing of an IEP, the implementation of the IEP, and the resulting or reporting of progress for the IEP goals. Changes are also being made in the manner in which progress monitoring information is presented to parents during IEP meetings (Deno, 2003). With the onset of claims that ORF increases comprehension (L. S. Fuchs et al., 2001; Hudson et al., 2005; Kuhn & Stahl, 2000; Pikulski & Chard, 2005; Rasinski, 2000) and the expectations of the NCLB (USDoE, 2001), special education departments are looking toward ORF as a means to directly influence the reading scores of students with RD and SLD.

Operational Definitions of Terms

To facilitate the reading and comprehension of this study, the following is a list of operational definitions.

AIMSweb Progress Monitoring and Response to Intervention System (AIMSweb, (2006)*:* AIMSweb is a progress monitoring system based upon direct, frequent, and continuous student assessment.

Automaticity: As visual words are processed through many stages en route to meaningfulness, each stage is processed automatically (LaBerge & Samuels, 1974).

Cold read: A cold read is a reading passage that has not been viewed previously by the reader (Conderman & Strobel, 2006).

Curriculum-based measurement of oral reading fluency (CBM ORF): CBM ORF is an ORF rate that comes from a repeated reading of routinely used curriculum material (Deno, 2003).

Decode: Decoding is the act of linking an individual letter or letter combination with its appropriate sound and then blending the sounds to form words (NICHD, 2000).

DIBELS Oral Reading fluency (*DORF):* DORF (Good & Kaminski, 2002b) are passages for students in Grades 1 to 6 that have been developed for progress monitoring. They are appropriate for regular education students and for students with SLD. DORF is a standardized, individually administered test of accuracy and fluency with connected text. The DORF passages and procedures are based upon the program of research and development of the CBM of Reading by Deno (2003) and use the procedures described by Shinn (1989).

Individualized education program (IEP): The IEP document for children with disabilities designed to meet the children's unique needs. An IEP is the cornerstone of a quality education for each child with a disability (USDoE, 2001).

Informational text: Informational text is strand, goal, or category of the MAP reading test that include skills such as main idea, central theme, summarizing, cause and effect, facts and opinions, author bias, propaganda, text elements, graphic feathers, and text features (NWEA, 2007a).

Literary text: Literary text is a strand, goal, or category of the MAP reading test that includes skills such as prediction, conclusion, inference, characters, setting, plot, theme, and point of view (NWEA, 2007a).

Oral reading fluency (ORF): ORF refers to incremental differences or change that can be indexed, or counted, as words read correctly per minute so that scores reflect small, roughly equal interval units (L. S. Fuchs et al., 2001).

Present levels of performance and functioning: This statement of a child's current academic level of functioning is determined by various evaluation assessments (USDoE, 2001).

Probes: Probes are brief, easily administered measures (Safer & Fleischman, 2005).

Progress monitoring: Progress monitoring helps teachers to use student performance data to continually evaluate the effectiveness of their teaching and make more informed instructional decisions. Teachers measure students' academic progress regularly using probes (Safer & Fleischman, 2005). The National Center on Student

Progress Monitoring (n.d.) described progress monitoring as “a scientifically based practice that is used to assess students' academic performance and evaluate the effectiveness of instruction” (¶ 1).

Rasch unit (RIT): The RIT is a unit of measure that uses individual item difficulty values to estimate student achievement. These scores create an equal-interval scale, where the difference between scores is the same, whether the score is at the top, middle, or bottom of the RIT scale. RIT scores also have the same meaning regardless of grade level and reflect the instructional level at which a student is performing (NWEA, 2008b).

Reading comprehension: Reading comprehension is an active process that requires an intentional and thoughtful interaction between the reader and the text (NICHD, 2000).

Reading disabilities: Students who experience RD have extraordinary difficulty acquiring word-reading proficiency (Jenkins et al., 2003a).

Repeated reading(s): This educational strategy requires the student to reread a passage in connected text or word lists until meeting a criterion level (Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009; Therrien & Kubina, 2006).

Response to intervention (RTI): RTI is the provision for early interventions without labeling students at risk for school failure as learning disabled. RTI is a prereferral intervention to determine whether a child is responding to the intervening instruction. The goal of RTI, as supported by the IDEA, is to limit the identification of students with SLD (Lose, 2007). RTI is an alternative to identifying children with learning disabilities using IQ-achievement discrepancy (L. S. Fuchs & Fuchs, 2006).

Result (v): Result is used as a verb to explain the process of recording regularly measured skills such as the number of correct words per minute and comparing a student's progress to the rate of improvement needed to meet end-of-year goals (Safer & Fleischman, 2005).

Specific learning disabilities (SLD): SLD are disorders that affect the ability to understand or use spoken or written language (National Institute of Neurological Disorders and Stroke, 2007). For the purpose of this study, a student with learning disabilities was identified in one of two ways, namely, if there is a discrepancy of approximately 18 points between a student's IQ and the student's reading achievement scores as determined on a psychoeducational evaluation or the student's RTI. The process of determining the RTI includes the following steps:

1. The student is recommended by the regular education teacher to have an intervention team observe, examine the student's educational progress and test scores, and make a list of possible interventions to be completed.
2. Classroom documentation of interventions is completed by the regular education teacher. If, after several weeks, the student is improving, the process of identification of a learning disability is stopped. If, however, the student is still experiencing difficulty, the next step begins.
3. Recommendation is made by the intervention team to have more intense interventions by a special education teacher. The student then spends 8 to 12 weeks doing intense intervention with fluency instruction.

4. The intervention team meets a third time and decides whether the student responded to the interventions. If the student responded to interventions, but did not make sufficient progress to meet grade-level standards, the student would receive the label of a student with a SLD, and the student would then be placed in special education. If it is still unclear whether a student has a learning disability, or not, then a complete psychoeducational evaluation is recommended, and results are reviewed by the intervention team. A decision is then made to determine either the student is a student with learning disabilities and provide special education services or that the student does not have an SLD. This entire procedural process is based upon the specific school district's policy derived from the SCSDoE's (2004) interpretation of the IDEA According to the SCSDOE, eligibility criteria for entry into programs of special education for students with SLD may be met as a student progresses through this process.

Total reading comprehension score: This score is the RIT score comprised of three strands: (a) understanding and using informational text, (b) understanding and using literary texts, and (c) building vocabulary.

Words correct per minute (wcpm): The number of words read per minute, minus errors, is a student's wcpm (Parker, Hasbrouck, & Tindal, 1992).

Assumptions, Limitations, and Delimitations

This section explains the assumptions (i.e., something accepted as truth without proof); the limitations (i.e., factors beyond the researcher's control that potentially impact

the internal validity of the study); and delimitations (i.e., factors that the researcher intentionally impose to constrain the scope of the study to make it more manageable; Leedy & Ormrod, 2010).

Assumptions

The primary assumption for this study was that students with RD and SLD have a history of struggling with the reading process and have not typically made AYP in reading while receiving traditional reading instruction in the regular classroom, thus requiring reading intervention. Another assumption was that when a student began to receive reading intervention in the form of direct instruction in a special education small-group setting and made a notable increase in reading skills, the change was to the result of the direct instruction in the special education small-group setting, not the result of the continuation of traditional (basal) reading instruction provided in the regular classroom. Further assumptions included the following: (a) Both participating teachers followed the same protocol for resulting ORF data, and (b)the instruments used in this study (MAP, DORF, and CBM ORF) are reliable and valid assessments of reading comprehension gains and ORF.

Limitations

The limited range of this study, including the purposive sampling procedure, may have made it difficult to generalize about the utilization of these data in a larger context. Therefore, further replication of this research across many more participants could provide stronger means of generalization. In addition, because ORF instruction was administered in a resource room setting, and the students also received basal reading

instruction in their regular education classrooms, findings could have been subject to influences and interpretations from other reading instruction and experience. Although this potential weakness could have confounded the results, there was no intention to imply causation with respect to the relationship between ORF and reading comprehension.

Delimitations

This quantitative study was limited to using archived data for students identified as SLD or RD involved in the RTI process in the Study County School District. The data that were routinely collected and archived throughout the specific school district included reading comprehension pretest and posttest scores on the MAP test, DORF scores, and CBM ORF scores. DORF and CBM ORF scores were collected once a week by trained special education teachers between the administration of the winter 2009 MAP test and the spring 2009 MAP test. The study involved scores from students with RD and those identified with SLD in reading in Grades 3 through 6. The schools included in the study were two separate elementary schools with similar populations in the Study County School District.

Significance of the Study

Danielson (1996) declared, “A person cannot teach what he or she does not know” (p. 62). As ORF becomes more accepted as part of reading curricula across the country, and because many school systems are beginning to use ORF as the primary measurement for reading comprehension growth, teachers need to know the significance and effect of ORF instruction on reading comprehension skills acquisition. However, it

could be easy for educators to focus energy on ORF scores alone without remembering why they are using ORF instructional strategies. This concern leads to a cautionary note about ORF that bears mentioning. Pikulski and Chard (2005) suggested that ORF in and of itself is not extremely valuable.

Hasbrouck and Tindal (2006) warned educators to recognize the important role of ORF in skill acquisition, measurement of progress, assessment of instructional needs, and consequent decision making, and yet to keep ORF in the right perspective. They stipulated that raising a student's ORF rate should not be the main goal of reading instruction. They maintained that a balance in perspective must be found and preserved in order to keep instructional strategies in the correct perspective. Eldredge's (2005) findings were consistent with ORF theoretic models, including the observation that fluency is an essential, but not sufficient, condition for comprehension. Rasinski and Lenhart (2008) suggested approaching ORF from a more authentic angle, using texts that lend themselves to prosodic element practices such as speeches, poetry, scripts, songs, monologues and dialogues, journals, letters, reader's theater, and other audience- friendly venues. Rasinski, Rupley, and Nichols (2008) suggested that oral performances should be a natural outcome or goal of such reading interventions as repeated readings.

With this cautionary note in mind, it is imperative to ensure that this paradigm shift toward a focus on ORF instruction is based on a strong theoretical framework. Specifically, because society is changing how special education teachers look at the nuances of implementing reading methods, there is a need to evaluate the ways in which these methods impact student learning (Chard et al., 2008). Thus, this study, which

investigated the relationship between ORF and reading comprehension skill acquisition, is important for several reasons. First, there is always value in awareness of current research, so understanding the relationship between ORF and reading comprehension is of value. If this study documented an increase reading comprehension scores, then the continuation of ORF instruction is validated, and the theory of automaticity is substantiated once more through appropriate findings. The validation would support a societal change calling for increased ORF instruction in American classrooms for students with RD and those with SLD for the purpose of increasing reading comprehension skills acquisition.

Second, understanding the relationship between ORF and reading comprehension can inspire teachers to be accommodating, amenable, and compliant with state or district curriculum decisions and mandates, if such mandates occur, accepting change with less stress than what sometimes accompanies dramatic paradigm shifts and pedagogy revolutions. Understanding the relationship between ORF and reading comprehension is important because change, although difficult in many educational settings, can be facilitated when there is proportionate and substantial teacher support. Buffum and Hinman (2006) aptly described many special education teachers across the nation who are in the process of making this change when they stated, “Some teachers see themselves as pawns, subject to the whims of local, state and federal mandates” (p. 16). Unlike Buffum and Hinman, Rasinski and Padak (2005) found more promising results when teachers believe in either the theory and method of instruction, or both, and become empowered to facilitate change by maximizing the educational experience.

How do special education teachers find a balance between these two contrasts? It is not easy for teachers to surrender their old methods and beliefs and embrace a new educational pedagogy, especially when it is mandated and choice in instruction is not given to teachers. What happens when mandated curriculum and instructional methods are either not what the teacher believes to be best practice, or the teacher does not know if they are best practice? It is important for teachers to be introduced to the rationale for a mandated curriculum. These questions need to be answered in order for student learning to be maximized while special education teachers function within the boundaries of new expectations and demands. The outcome of this study will enhance this inevitable process for many teachers of students with RD and SLD in reading by adding to the volume of research.

Third, in order to measure changes in ORF, a systematic process must be in place to monitor ORF growth because monitoring student ORF growth is different from mastery assessments such as unit tests given after instruction. Safer and Fleischman (2005) described assessments such as unit tests as indicators of whether students have mastered certain skills which have been recently taught. They described progress monitoring as an indicator of whether students are learning at a pace that will lead to their reaching their annual learning goals set by either the teachers or their goals in the IEP. They advocated the use of probes that measure the number of words correct per minute (wcpm). These measures are then compared to goals set by the students or teachers. If, after progress monitoring, the rate of the students' learning is deficient and unsatisfactory, teachers should then adjust instruction based upon the findings. Thus, it is

vital to have a process that can be used for storing, graphing, and retrieving progress monitoring data.

I used AIMSweb (Pearson Education, 2008), a web-based data management system and Excel spreadsheets, to store, graph, and retrieve progress monitoring data. AIMSweb was selected because it uses the wcpm measure, which is used in the CBM ORF and the DIBELS (Good & Kaminski, 2002a) system (Hale et al., 2007). The progress monitoring measuring tools of DORF (Good & Kaminski, 2002b) and CBM ORF were selected for reasons already mentioned and to illustrate the ease with which progress monitoring can be administered. DORF and CBM ORF also were selected to compare the results of cold reads from DORF versus repeated readings on CBM ORF measures. These selections were meant to be a beginning point for future research; they were not meant whatsoever to be conclusive.

Fourth, although this study did not confirm the relationship between ORF and increased comprehension scores, attention to the outcome may facilitate further questions to clarify this relationship, and subsequently lead to greater increases in reading comprehension. Research needs to continue for the best methods to reach the reading comprehension needs of students with RD and SLD. The questions arising from this study may contribute to the recommendations for further study that are presented in Section 5.

Implications for Social Change

There is a need for social change that will result in a positive outcome for the education system. This is particularly true for the area of reading and especially true for

students with RD and SLD. First, all students who struggle with reading need to become better readers to be successful members of society. A process for creating and applying new ideas, strategies, and ideologies must occur in what is taught and how it is taught. An abundance of current and historic research has provided an intellectually comprehensive foundation for a new pedagogy, indicating that fluency instruction is to be an intricate part of reading curricula. Yet, there is a dichotomy of ORF not being taught as much as research has indicated that it should be, and school districts mandating the use ORF measures to create and result IEP goals, monitor the progress of students on a weekly basis, and report progress to parents using fluency measures. The current and historic research juxtaposed with the dichotomy of the use of ORF can lead to confusion and the production of strong opinions.

American teachers and school administrators need to decide whether it is possible to embrace ORF as a way to teach comprehension or to pose a logical argument against it. Making appropriate decisions can happen only when knowledge becomes power. Kame'enui and Simmons (2001) corroborated the need for social change when they acknowledged that the idea of ORF instruction is correct, but that ideation only is not enough to advance society to embrace change. Much work needs to be done to conceptualize the complexity of the features, mechanisms, and process of ORF. These are important steps toward societal change and achieving improved reading levels for some of the country's most needy students.

Summary

Some students have difficulty comprehending what they read. Current research has indicated that ORF is connected to comprehension and that increasing ORF can be a way to increase comprehension. However, research also has indicated that many teachers across the country are not incorporating ORF instruction in their daily routine. As suggested by Guskey (2002), this finding—in conjunction with current mandates from many special education departments to use ORF measures to create and result IEP goals, monitor the progress of students on a weekly basis, and report progress to parents using fluency measures—is creating a critical area of need among many special education teachers. Educators need an awareness of the current research based upon ORF in order to stand as leaders and either embrace this shift in pedagogy or refute it. Guskey stated, "[It is] the experience of successful implementation that changes teachers' attitudes and beliefs. They believe it works because they have seen it work, and that experience shapes their attitudes and beliefs" (p. 383), and although no predetermination as to the effectiveness of ORF instruction is being made at this point, this study is an important addition to the scope of research in this area.

Section 2 presents a complete review of related research and literature. Included is a description of the most important aspects of the theory of automaticity in reading and its impact on comprehension. Comparisons and contrasts of different points of view from different research outcomes are presented. I intend to establish a relationship between this current study and previous studies on fluency. A more detailed description of the research variables and methodologies is explained.

The research design and approach of this study are detailed in Section 3. The section includes a description of the study, justification for the study, and an explanation of how the study originates from the problem statement. The population and sample size are identified, along with the criteria for participation and any sample characteristics. The actual instrumentation and materials, as well as reliability and validity statements, are named and listed. All data collection processes, data analysis tools, tests, and procedures are explained. Section 3 concludes with an explanation of the ways in which the participants' rights will be protected, and the role I took as researcher.

In Section 4, the research findings are presented using standard procedures. Any adjustments of instruments that may have occurred are justified, and the effects of those adjustments are discussed. Any observed consistencies or inconsistencies are described in detail.

Section 5 begins with an overview of why and how the study was accomplished. Included are a review of the central and subquestions, and an application for how the findings can be applied to classrooms around the country. For each finding, a relationship was established based on past theoretical and empirical research. The implications for social change will be made by illustrating the ways in which the findings can be used to advance the cause of improving reading comprehension in students with RD and SLD across the country. An appropriate audience will be identified based upon the stakeholders who will benefit from the findings and conclusion. Section 5 concludes with recommendations for further research based upon the results from this study.

Section 2: Literature Review

This section includes a discussion of the historical perspectives of ORF and presents a critical analysis of the literature related to ORF and reading comprehension. The section also presents an examination of the use of ORF as a measuring tool for gains in comprehension and identifies some missing components in ORF research. The literature review focused on reading instruction for students with RD and SLD. I used several strategies to complete the literature review, including, but not limited to, searching for relevant information in textbooks; various books written by leading researchers; databases such as ERIC, Academic Search Premier, Education Research Complete, and Teacher Reference Center; as well as various governmental and commercial websites.

As stated previously, there is a problem in the educational system for students with RD and SLD in becoming successful and proficient readers. As described in Section 1, reading involves the concurrent implementation of skills (L. S. Fuchs et al., 2001). Because one must be proficient in the identification and instruction of the various skills in order to facilitate the process of learning to read, education researchers and theorists must lead the way toward the identification of those specific skills. Towards this means, The NRP (NICHD, 2000) identified ORF as one of the critical components necessary for reading skill acquisition. In a reaction to the NRP's report, ORF has taken on renewed importance as a viable area of instruction, and consequent changes have filtered down from the national level to the state level as well as local school districts across the United States.

Subsequently, expectations for developing, monitoring, and implementing IEPs have undergone a dramatic transformation in the Study County School District. The current requirement for special education teachers in this particular school district is to write present levels of performance, goals, and objectives on each IEP for individuals with SLD based on measurable data derived from specific probes such as ORF tests. According to the school district's IEP manual (SCSDoE, 2006), daily instruction now incorporates the mandatory use of ORF measures and incorporates the gathering of reportable data on a weekly basis. Therefore, the use of ORF measures, as well as their effectiveness when used to gather data and as instructional tools, has captured the attention of special education teachers in this specific school district. To embrace the current mandates or, conversely, pose a logical argument against them, special education teachers need to develop a personal educational pedagogy that is informed, logical, and based on a review of historic and current research.

Such a dramatic shift in pedagogy produces a plethora of research questions. The primary inquiry reflects questioning the relationship between gains in ORF and gains in reading comprehension. Specific questions include the following:

- What are the effects of ORF on reading comprehension?
- How lasting are the effects of ORF on reading comprehension gains?
- Are the comprehension gains isolated and related only to the practiced passage, or do the effects of ORF transfer to unpracticed passages?
- Is there a noted difference in cold read and repeated reading ORF measures as predictors of gains in reading comprehension?

- Is there a better predictor of reading comprehension gains using CBM measures?
- Are the effects of ORF the same on reading comprehension at an informational text level as they are on a literary text level?
- If ORF is increased through repeated readings and extra practice (Kuhn, 2004; Partnership for Reading, 2001; Rasinski & Padak, 2005; Therrien & Kubina, 2006; Wolf & Katzir-Cohen, 2001), and if fluency builds reading comprehension skills, what components of comprehension remain a necessary part of instruction models?

As the aforementioned questions are considered, another aspect of ORF appears necessary for contemplation. ORF is only one of the essential components for effective reading skills, albeit the one that the NRP refers to as neglected (NICHD, 2000); consequently, a final question involves perspective and balance (Hasbrouck & Tindal, 2006). Specifically, what kind of perspective and balance should educators establish between striving to increase ORF scores and the higher goal of increasing competency in reading? This concept was validated by Pikulski and Chard (2005), who summarized, "Fluency without accompanying high levels of reading comprehension is of very limited value" (p. 518).

Related Research

ORF: Historic Review

Schools in the United States have experienced an ebb and flow regarding ORF instruction in the classroom. At times, such as the era between 1927 and the 1960s, ORF

was a definite segment of reading curricula, with approximately 20% of tests measuring ORF. This active era was then followed by a decade of disinterest, perhaps the result of the impact of literature-based instruction versus a phonics approach to instruction, and because of the emphasis on the language experience (L. S. Fuchs et al., 2001). Another theory offered by Pikulski and Chard (2005) for the disinterest is that comprehension resulting from oral reading is not nearly as important as silent reading comprehension, simply because the majority of reading is done silently rather than orally. Therefore, ORF has not been emphasized historically.

Regardless of the reasons, by 1983, ORF instruction in American classrooms had been abandoned (Allington, 1983; Kame'enui & Simmons, 2001). However, studies in ORF continued by such researchers as LaBerge and Samuels, M. J. Adams, and G. D. Logan. When the NRP (NICHD, 2000) identified ORF as a vital segment of reading instruction, the ebb and flow response was once more evident, and ORF became a renewed area of interest in reading curricula across the United States (Hasbrouck & Tindal, 2006; Pikulski & Chard, 2005; Rasinski et al., 2005).

In conjunction with the increase and renewed interest in fluency is a phenomenon that is difficult to explain, understand, and accept. Although research has benefited from the renewed interest, researchers such as Kuhn and Stahl (2000) have noted the parallel need for and omission of instruction when they stated, "We have come to view fluency instruction as successful in improving the reading achievement of children….However, we have seen relatively little of this instruction in the schools" (p. 27). L. S. Fuchs et al.

(2001) substantiated that ORF is not used by teachers and researchers in a proportionate manner:

> Teachers and researchers, for the most part, have ignored not only theoretical and empirical accounts of the importance of fluency as an indicator of reading competence but also recent calls for a stronger focus on the assessment of oral reading fluency. (p. 250)

Griffith and Rasinski (2004) maintained that many teachers still express "a lack of familiarity with the concept of fluency and how best to teach it" (p. 127). Finally, Rasinski and Padak (2005) posited that ORF has been ignored in middle and high schools.

ORF: Link to Reading Comprehension

Currently, perhaps because of renewed interest, literature in the area of ORF and the link to reading comprehension has increased. As part of a theoretical base for ORF, L. S. Fuchs et al. (2001) postulated, "Theoretical frameworks…provide a basis of conceptualizing oral reading fluency…as a performance indicator of overall reading competence, which includes comprehension" (p. 241). Fuchs, Fuchs, and Maxwell (as cited in L. S. Fuchs et al., 2001) used three direct measures of reading comprehension: question answering, passage recall, and cloze. They compared these comprehension measures to an ORF measure, and they found that ORF was a stronger measure of reading passages and answering questions. ORF has been described as a bridge between word recognition and reading comprehension, allowing readers to concentrate on what the text means rather than on decoding words (Partnership for Reading, 2001). Speece

and Ritchey (2005) described fluency as critical to skilled reading because of the correlation or even causal relationship to reading comprehension. Hudson et al. (2005) declared, “Each aspect of fluency has a clear connection to text comprehension” (p. 703). They continued their explanation of the connection between ORF and comprehension by stating without accurate word reading there is no ORF, and without ORF, the reader cannot gain access to the author’s meaning. In other words, nonfluency leads to a misinterpretation of text.

Kuhn and Stahl (2000) argued that studies should reflect the role of ORF in comprehension, noting the connection between ORF and comprehension. One basis for their opinion is that reading necessitates two interdependent tasks. Namely, the reader must recognize and read the words while simultaneously constructing meaning of those words. Nes Ferrara (2005) linked the development of reading ORF to becoming an efficient reader. Ferrara explained the process of fluent oral reading as the ability to grasp larger units of meaning and to use syntax to aid in predicting new vocabulary. This process results in fluent readers who can demonstrate automaticity in word recognition, have good word attack strategies; use self-correction, have good comprehension skills, and read in a smooth and flowing manner with expression. Furthermore, Pikulski and Chard (2005) acknowledged a strong research and theoretical base between ORF and comprehension and labeled the relationship between these two aspects of reading as complex. They continued their argument by noting, “Fluency is absolutely necessary for that achievement because it depends upon and typically reflects comprehension” (p. 517). They concluded their argument by explaining that a nonfluent reader attends to decoding

words and has insufficient attention for constructing meaning of text. Reis et al. (2007) asserted, “In this study, comprehension scores were highly associated with reading fluency, a finding consistent with previous research” (p. 19).

Rasinski (2000) coupled ORF and reading comprehension more closely by stating that disfluent reading is linked to inadequate comprehension skills, which leads to students reading less and therefore making slower progress than their peers, which consequently leads to frustration. Rasinski explained this phenomenon further by using the scenario of a Grade 5 student reading a social studies textbook during class. The student has a slow reading rate and has only accomplished about 50% of the reading when he realizes that his peers have finished the reading assignment. The student then makes a decision to either quit reading and not be exposed to the rest of the information or to continue reading, which broadcasts the lack of reading proficiency to his peers and his teacher. Rasinski’s explanation continued with two other examples: (a) the 60-minute homework assignment that takes the nonfluent reader much longer, and (b) the student who never or who hardly ever reads for pleasure. Without practice, reading will not improve, and frustration will be perpetuated. Shippen, Houchins, Steventon, and Sartor (2005) noted the relationship between the lack of fluent reading and the lower motivation to continue to read.

Other researchers (L. S. Fuchs et al., 2001; LaBerge & Samuels, 1974; Partnership for Reading, 2001; Pikulski & Chard, 2005; Rasinski et al., 2005) have agreed with the theory of a relationship between ORF and comprehension. In different words, written after either conducting their own studies or reviewing existing literature,

they all explained the relationship in similar fashion. They described fluent readers as being able to focus their attention on content, make connections with the words in the text and their own prior knowledge with ease, and subsequently focus on comprehension. Less fluent readers use their cognitive resources and energy to decode specific words and have little energy left to make the necessary connections to prior knowledge and experiences. Consequently, their level of comprehension is lower. For example, LaBerge and Samuels posited that skilled reading takes a reallocation of the reader's attentional capacity from the mere processing of word identification to a higher level of resource-demanding comprehension. Pikulski and Chard described the relationship as a developmental process in which ORF and comprehension are reciprocal and causal. Hudson et al. (2005) described the extreme nature of the problem as the following:

> This lack of fluent reading is a problem for poor readers because they tend to read in a labored, disconnected fashion with a focus on decoding at the word level that makes comprehension of the text difficult, it not impossible. (p. 702)

Rasinski et al. (2005) found that a lack of ORF accompanies difficulties in comprehension and that after interventions have been introduced, students make significant gains in both areas.

ORF: A Measuring Tool

Hudson et al. (2005) recommended that teachers identify disfluent readers among their students, and educators are searching for tools with which to assess ORF (Hasbrouck & Tindal, 2006). Indeed, several ORF assessment tools have now been developed (Hudson et al., 2005), are easily accessible, are easily administered, and

produce measurable data. In a statement defining ORF, Parker et al. (1992) stated, "Within special and remedial education oral reading fluency (ORF), or number of words read per minute minus errors, has proved to be a powerful reading assessment tool" (p. 492).

CBM is a tool that has been widely studied and continues to be used in both regular education classrooms and special education classrooms. It was developed as a tool to help teachers to increase the reading achievements of students struggling with the reading process (Deno, 2003). According to McDonnell, McLaughlin, and Morison (as cited in L. S. Fuchs, Fuchs, & Compton, 2004), "CBM is becoming a signature feature associated with effective special education" (p. 7). By using CBM measures, L. S. Fuchs et al. found:

> Each assessment produces an indicator of reading competence because it requires a multifaceted performance. This performance entails, for example, a reader's skill at automatically translating letters into coherent sound representations, unitizing those sound components into recognizable wholes and automatically accessing lexical representations, processing meaningful connections within and between sentences, relating text meaning to prior information, and making inferences to supply missing information. (p. 8)

They further explained that procedures for using CBM to measure ORF have documentation of reliability and validity. They stated that the validity of CBM ORF scores is so sufficiently established, it can be used as a predictive role in prereading measures and early literacy interventions.

As described by Deno (2003), L. S. Fuchs et al. (2004), and Hasbrouck and Tindal (2006), when a teacher uses a CBM procedure to measure ORF, a student reads a passage aloud for a prescribed period of time, usually for 1 minute, while the teacher notes the number of errors and the total number of words read. At the end of 1 minute, the errors are subtracted from the total number of words read to get the wcpm score, which is then referred to as the student's ORF measure (Parker et al., 1992).

L. S. Fuchs et al. (2001) posited that the theoretical frameworks for understanding the reading process have indicated that measured ORF rates are a statistic for reading comprehension proficiency. In Wilfong's (2008) discussion on CBM, wcpm allows teachers to compare a student to the U.S. norms for the purpose of seeing where that student functions in comparison to peers his own age. CBM is translated in both norm-referenced and criterion-referenced frameworks, thus facilitating a comparison between individuals; the prediction of reading success, including the probability of high-stakes testing scores; and the identification of RD. Yovanoff, Duesbery, Alonzo, and Tindal (2005) suggested the flexibility offered by CBM is "increasingly important in the era of NCLB-mandated high-stakes testing and reporting" (p. 11). Deno (2003) reported that research has recently explored using CBM data to predict success on high-stakes assessments.

Hosp and Fuchs (2005) commented that assessments are "needed to help educators efficiently and accurately screen, diagnose, and monitor the progress of students' reading skills" (p. 9). They used CBM as a tool in their quantitative study involving 310 participants. The primary purpose of their study was to critique whether

the relation between CBM and specified reading skills changed across grade levels. The secondary purpose of their study was to determine whether CBM corresponded with benchmark performances on specific standardized tests. If so, the study would provide evidence that CBM can be sensitive to specific reading skills such as decoding, word reading, and comprehension. The results of their study provided evidence that CBM is appropriate for monitoring specific reading skills and may help identify students who require more intensive reading instruction.

Another tool for ORF is the DIBELS (Good & Kaminski, 2002a). The DIBELS contains probes that individually measure reading skills and are used to monitor the progress of reading skills in the early literacy stage. In addition, for students with reading skills beyond the early literacy stage, there are the DORF (Good & Kaminski, 2002b) passages, which were developed for progress monitoring. DIBELS and DORF are appropriate for regular education students and for those students in special education with SLD.

ORF: A Look at Studies

In a small but powerful intervention program, Conderman and Strobel (2008) looked at the fall 2004 MAP (NWEA) test reading RIT scores of Grade 2 students in a midwestern elementary school. The test scores identified 17 Grade 2 students who were below the 33rd percentile in reading. The researchers established a 5-day a week ORF intervention program for these students. The interventions took approximately 5 minutes per day. The ORF program was based upon the students reading a passage for 1 minute and subtracting errors in order to assess an ORF rate of words read correctly minus

errors. Care was given to determine exactly where the ORF instruction was to begin for each student, based on where the student first met the instruction placement standard. ORF rates were plotted, using the ORF norms of Hasbrouck and Tindal (2005), to create a box-and-whiskers graph for each student. The researchers used the student's median score for each of the terms: fall, winter, and spring. From these data, teachers could compare a student's ORF rate with the peer median ORF rate. This information was then used by teachers for continued instructional guidance and decisions.

After 6 weeks of ORF interventions, the students were reassessed on the MAP test. On average, the students increased their reading scores by 16 RITs. The average student growth in reading for 1 year was 10 RITs. After a full year, the students showed average gains of 22 RITs. A year later, follow-up MAP data indicated that the students had maintained their skill in reading. These data are vital for the conceptualization of ORF being the tool by which to teach reading comprehension because most research, according to Baker et al. (2008), has focused on ORF as a measure of reading at a single point in time. Few other studies have examined ORF as a direct measure of reading over time.

A recent longitudinal study by Baker et al. (2008) had three objectives and engaged students from 34 Oregon Reading First schools. Four cohorts of students participated, representing approximately 2,400 students. This study spanned a 2-year period. The first objective looked at the relations between ORF and high-stakes reading tests. The second objective examined whether the slope on ORF could predict performance on specific high-stakes reading tests over and above the first level of ORF

performance. The final objective tested models, which included ORF in the first year, and predicted performance on high-stakes reading test in the second year, particularly in regards to the relation between ORF and comprehension. Baker et al. used DIBELS measures of ORF, which presented three benchmarks for the beginning, middle, and end of year, and the median score at each point, which was used as a performance score. The data collected included (a) ORF measures, gathered by assessment teams; (b) the Stanford Achievement Test (10^{th} ed.), a group-administered norm-referenced test of reading proficiency; and (c) the Oregon Statewide Reading Assessment. The researchers used growth curve analysis to test how well ORF trajectories predicted performance on the reading tests.

To address their first objective, Baker et al. (2008) made 13 correlations between ORF and high-stakes reading tests. The outcomes were consistent with what the researchers had predicted, namely, that there is a correlation between ORF and high-stakes reading tests. The second objective, whether slope on ORF could predict performance on specific high-stakes reading tests over and above the first level of ORF performance, was completed by including parameters for time and level adjustments. The result for this second objective was that ORF is a strong predictor of reading test scores. Results for the third objective were similar: ORF slope accounted for a statistically significant amount of the variance in predicting the high-stakes reading measures. Baker et al. claimed, "The most important finding in this study was the ORF slope added to the accuracy of predicting performance on specific high-stakes tests in Year 2, above information provided by level of performance alone" (p. 30). Baker et al. showed that

growth in ORF can be used to gauge how well students are developing overall reading proficiency.

In a study involving 55 urban middle school participants, Shippen et al. (2005) examined two reading programs, both of which used ORF as a major component of reading instruction, to determine whether students with poor reading skills demonstrated differential skill improvements in ORF, based upon the type of direct instruction reading interventions. The 22 female and 33 male African American participants ranged from 12 years 4 months to 14 years 6 months. Of the 55 students, 3 (5%) were identified with SLD, and 52 (95%) were general education students. All were performing 2 or more years below grade level in reading. The participants were given pre- and posttest measures using standardized reading tests and standardized ORF tests. Teachers were trained in using a scripted reading program that involved ORF instruction. The quasi-experimental design use repeated-measures MANOVA procedures to compare students from the two reading programs.

Results indicated that groups in both reading programs made significant gains in reading (Shippen et al., 2005). The researchers cautioned readers to be careful when interpreting the results because the sample size was small and there may have been a variation in fidelity of implementation across teachers. Nonetheless, outcomes from the study were positive.

Wood (2006), at the time of his study, commented:

> There are few studies on the use of oral reading fluency measure to predict performance on statewide reading tests, and these studies have involved only one

> grade level (usually third or fourth grade)….There are no studies that have compared the relation between oral reading fluency and performance on a statewide reading test for different grade levels or classrooms. (p. 88)

Thus, he conducted a cross-sectional study to examine variation in ORF and how this variation relates to performance on tests such as a state's high-stakes test. Using individuals nested within classrooms, as well as classrooms nested within grade levels, he used a hierarchical linear modeling, which was designed to analyze relations between variables in nested relationships. His study included 281 participants in Grades 3, 4, and 5. Some of the participants received special education services throughout the day but were in regular education classes for most of the day.

Wood (2006) used DIBELS to measure ORF and the Colorado Student Assessment Program (CSAP) to measure reading comprehension proficiency. Students were given three DIBELS benchmark tests, and a median score was recorded and used for comparison with the CSAP scores. The correlations between ORF and CSAP scores were significant within each grade: Grade 3, $r = .70$ ($t = 8.77$, $p < .001$); Grade 4, $r = .67$ ($t = 8.98$, $p < .001$; and Grade 5, $r = .75$ ($t = 11.11$, $p < .001$). These correlations supported the use of CBM ORF as indicators of performance on standards-based reading tests. This was true of all three grades, which suggested a relative consistency across intermediate grades. In addition, the findings suggested that ORF predicted CSAP reading performance, regardless of whether students were high-functioning or low-functioning readers. Wood concluded that ORF increased significantly in all three grades.

These findings are valuable contributions to the educational field for several reasons. For example, one contribution would be, as Wood (2006) stated:

> Many school districts are implementing benchmark assessments of oral reading fluency and using this information to identify at-risk students and to design instruction. However, there is little research on the conditions that contribute to variation in the effectiveness of oral reading fluency as a predictor of reading proficiency. Such conditions and the causes of this variation will be important to investigate if educators are to make appropriate decisions about how to use benchmark assessments of oral reading fluency. This study provides the first evidence that classroom level variables influence how informative oral reading fluency measures are in predicting performance on statewide reading proficiency tests. (p. 101)

Another contribution is the finding that even after including prior year CSAP performance in the regression equation, ORF was a significant predictor of performance on the reading proficiency test. Thus, schools can learn more about students from their ORF measures, with the result being improved identification of student needs, corresponding instructional planning, and the development of appropriate interventions for students with reading needs. Finally, a third important contribution is that this study indicated that ORF cut scores can predict whether students would actually pass or fail the CSAP. The ramifications of this finding is significant because schools can, once again, help to improve identification of student needs, develop corresponding instructional planning, and begin appropriate interventions for students with reading needs.

O'Connor, White, and Swanson (2007) focused their investigation on two methods aimed at improving the ORF of struggling readers in Grades 2 and 4. Their study was on students with and without diagnosed SLD, who also met their required criteria. The students were divided into three groups. Following a scientific-based procedure for improving ORF, the first group utilized repeated reading as one treatment intervention, and the second group utilized continuous reading as the other treatment intervention. Students in the third group, which was the control group, received no extra intervention beyond what they normally received in either their general education and special education classes, or both.

In O'Connor et al.'s (2007) study, repeated reading involved students receiving 15 minutes of additional instruction, during which time they would read each page of text three times. Continuous reading involved the students reading more pages from the same book, but without repeating pages. Data were collected three times: initially, at a midpoint, and at the end of the study. O'Connor et al. used a mixed model or hierarchical linear modeling with repeated measures to determine whether significant differences in level and growth became apparent between the conditions. Because of the number of comparisons, they set the alpha at .01, realizing the chance of Type II errors increased.

The results indicated the rate of growth for the two treatments was significantly faster than for the control group. However, O'Connor et al. (2007) did not see any differences emerge between the repeated reading and the continuous reading groups in intercept or growth estimates (all $p > .01$). Their results suggested that gains in ORF are unlikely to be achieved by poor readers without interventions simply because students

who need to spend the most amount of time practicing reading actually spend the least amount of time reading. According to O'Connor et al.,

> Our results do not rule out reciprocal causation between growth in fluency and comprehension; however, the fact that no comprehension instruction was included in the practice sessions increases the likelihood that improved fluency impacts the ability of poor readers to extract meaning from text. (p. 44)

Thus, their results indicated a powerful finding.

Chard et al. (2008) conducted a 4-year study of 668 Kindergarten and Grade 1 students identified as a -risk for later RD. The purpose of their study was to look at the development of student reading in schools that were implementing a multitiered model of interventions that included ORF and progress monitoring strategies to enhance the prevention of reading failure, provide remediation, and accelerate reading outcomes for at-risk students. The longitudinal nature of the study allowed Chard et al. to study the relationship between student characteristics identified early in each child's school career to later reading proficiency after a prevention-focused, multitiered model of interventions had been provided for the students. Their study included predictors of growth across school years. Their research questions dealt with the at-risk student. The first of three research questions included looking at the extent to which descriptor variables (e.g., home language, ethnicity, special education status, academic competence) predicted later success on standardized reading comprehension and vocabulary achievement tests and ORF slope. The second question looked at the extent to which early reading skills predicted standardized reading comprehension and vocabulary achievement test success

and ORF slope. The final research question asked to what extent early social behaviors predict standardized reading comprehension and vocabulary achievement tests and ORF. Participants from Oregon and Texas with diverse ethnic backgrounds were selected based upon their DIBELS (Good & Kaminski, 2002a) scores. Each participant ($N = 668$) was identified as needing strategic or intensive interventions in Kindergarten or early Grade 1. Each of the three research questions was examined within the parameters of the schools' implementation of multitiered, evidence-based reading practices where support was increased in direct response to student need.

Using the ORF measures of DIBELS and DORF (Good & Kaminski, 2002b), trained personnel administered the probes. Chard et al. (2008) conducted validity checks for each tester in order to maintain high reliability. The results of the probe administration indicated that ORF scores in the at-risk sample were close to the DIBELS benchmark scores. As the researchers looked at ORF growth, they fit a standard linear growth model to three ORF assessments: initial status slope, slope scaled in change in wcpm per month, and constant time-specific influence variance. The standard linear growth model did not fit particularly well, which Chard et al. reported was probably due to curvilinear individual trajectories because there was a slight deceleration from Grade 2 to Grade 3 in the mean growth curve. As part of the comprehensive study, they looked at the relationship between ORF and later performance on standardized tests of reading. The findings suggested that high scores on standardized tests of reading for at-risk students could be accredited to two possible sources, namely, one through ORF slope and one through passage comprehension, independent of ORF.

Another study that used DIBELS (Good & Kaminski, 2002a) as the ORF-based measures was completed by Gonzales, Vannest, and Reid (2008). Their study had implications for the usefulness of DIBELS for nongeneral education populations, specifically populations of students with emotional and behavioral issues in at-risk reading situations. They theorized that if researchers and educators want to improve academic and behavioral outcomes, then measuring proficiency in reading skills is essential, given the relationship among emotional, behavioral, and reading problems. The study included 145 Kindergarten and Grade 1 participants identified as at risk of emotional and behavioral disorders. DIBELS measures, including ORF rates, were collected by data collectors with 20 hours of formal training in the administration and scoring of DIBELS measures. Two separate hierarchical discriminant analyses were conducted to permit the effect of each variable to be studied uniquely.

Gonzales et al.'s (2008) study revealed that ORF and letter name fluency were the most efficient in predicting high-level reading ability and moderately predicted average and low levels of reading for Grade 1 students. Thus, the researchers indicated the rationale for looking at students at risk for both reading skills and emotional problems. They found, "The DIBELS are efficient and effective for early screening and identification of at-risk students before they become well entrenched in reading failure and on a path to negative emotional and behavioral outcomes" (p. 39).

In their longitudinal study involving 383 participants in Kindergarten through second grade, Kamps et al. (2003) confirmed that "disabilities are often formally identified late in the middle-elementary years, with precious time for early intervention

having been wasted….Thus, an important recent development has been the advent and use of early screening tools" (p. 2). Therefore, they selected to use DIBELS (Good & Kaminski, 2002a) over a 3-year period in order to compare Kindergarten to Grade 2 at-risk students' ORF growth and the effects of academic and behavioral risks influence on reading growth. The specific subtests of DIBELS used were letter naming, nonsense word fluency, and ORF. They used 1-minute timings because rate per minute is indicative of fluency, or the possible risk of academic failure. The results of the DIBELS scores "conceptually and empirically reflect a general progress trajectory toward learning to read" (Kamps et al., 2003, p. 7). The findings also demonstrated that letter naming and nonsense word fluency were significantly correlated to later ORF skills for all students. They declared this finding as empirically demonstrating that DIBELS skills represent a general trajectory toward reading proficiency" (p. 8).

Speece and Ritchey (2005) examined ORF in academically at-risk and non-at-risk Grade 1 students using growth curve analysis, which allowed the researchers to "view the development of oral reading fluency as a continuous rather than an incremental process" (p. 389). They wanted to look at patterns of growth in ORF and identify predictors of growth. Furthermore, they wanted to replicate the findings that children actually develop ORF differences early in their reading development, and they wanted to identify the variables that explain the variance in reading growth. Their study sample comprised 276 Grade 1students who were also part of a larger group involved in a study of RD classification. The students were identified as at-risk (AR) and not-at-risk (NAR), based on classroom performance. The researchers measured letter-sound fluency, defined as the

number of correctly identified letter sounds per minute, and ORF. Their findings demonstrated that by the end of Grade 1, the students who were at risk read less than half as many words per minute as their peers who were not at risk. Their findings also included that ORF was a predictor of reading growth into Grade 2 because the students with higher ORF had better growth and outcomes in Grade 2.

Looking at upper elementary school students and into middle school-aged students, Yovanoff et al. (2005) completed their study to investigate the importance of vocabulary and ORF among students in this age category. They recognized that instructional programs change as students progress from learning to read, to reading to learn. Thus, their expectation was that ORF rates would plateau as the students transitioned into middle school grades because of diminished formal reading instruction, the change in the function of reading, and the complexity of written texts at the middle school level.

For the purpose of their study, Yovanoff et al. (2005) acknowledged that many valid measures of ORF exist and that the ORF measure used in their study consisted of 1-minute read alouds at appropriate grade levels. At the end of the 1-minute read, errors were subtracted in order to get a final ORF score. Passages of 250 words each that had been developed for ORF measures were used for reading comprehension evaluation. For replication possibility, the ORF measures and the comprehension passages were divided into Forms A and B. In addition, to validate the use of the score on the district reading comprehension test as their dependent measure, they correlated Grade 6 performance on the district tests to concurrent performance on the statewide assessment. Yovanoff et al.

looked at the within-covariance of ORF scores, vocabulary scores, and comprehension scaled scores. The covariances were fitted to a multiple regression model for each grade level. Multiple group covariance structural equation modeling was used to test the invariance of the regression model relating vocabulary and ORF to reading comprehension.

The results of Yovanoff et al.'s (2005) study are numerous. First, the covariance structure of fluency, vocabulary, and comprehension was not invariant across Grades 4 through 8. ORF, although noted by the researchers as important, appeared to be less important in Grades 5 through 8 than in Grade 4. Second, ORF variance was consistent across grade level. This was indicative of low-performing students in middle school and instructional implications that need to be noted and addressed. In general, however, the researchers felt that ORF may become less important as a child's reading comprehension increases. Vocabulary instruction needs, however, remain.

Miller and Schwanenflugel (2008) constructed their study based upon the development of reading prosody as a dimension of ORF. The purpose of their study was to examine the development of prosodic text reading from Grades 1 to 2 and compare it to fluency and comprehension in Grade 3. The study sample comprised 92 participants in Grade 1 who completed general reading assessments, word reading skills assessments, ORF assessments, reading comprehension assessments, and reading prosody assessments. Prosodic features such as intersentential pause duration, phrase-final comma pause duration, pausal intrusion duration, number of pausal intrusions, sentence-final pitch, and intonation contour were identified for the study and defined. Prosodic change was

determined for each prosodic feature by means of a repeated-measure analysis of variance, and the means, standard deviations, and ranges for each prosodic variable were reported in the study. The results of Miller and Schwanenflugel's study indicated that the development of appropriate pitch features in reading prosody is indicative of good comprehension.

Kame'enui (as cited in Hasbrouck & Tindal, 2006) categorized four purposes for ORF: screening measures, diagnostic measures, progress-monitoring measures, and outcome measures. Hasbrouck and Tindal concurred with Kame'enui and suggested that ORF norms can help teachers to make important instructional decisions for students in the four identified categorical areas. Screening measures, frequently used at the beginning of the year, help to identify students who may require extra reading instruction. Diagnostic measures help teachers as they plan their instruction throughout the year. Progress-monitoring measures, used on a routine basis, provide measurable data, and indicated progress, or lack thereof. Finally, outcome-based measures demonstrate whether students have attained a predetermined level of reading achievement, such as mastery of an IEP goal. In the support of teachers making important instructional decisions, Hasbrouck and Tindal continued their argument for using ORF by stating:

> Using fluency norms to set appropriate goals for student improvement and to measure progress toward those goals is a powerful and efficient way for educators to make well-informed and timely decisions about the instructional needs of their students, particularly the lowest performing, struggling readers. (Hasbrouck & Tindal, 2006, p.642)

ORF: Another Point of View

Although many researchers have joined the bandwagon endorsing ORF as a means of increasing comprehension skills and monitoring reading progress, the theory is not without some controversy. Wilson, Martens, Arya, and Altwerger (2004) questioned the report of the NRP (NICHD, 2000). They developed a study to "determine the impact of phonics instruction on the strategies in which young readers choose to use, on how they comprehend, or on how they perceive the reading process" (p. 243). They looked at two explicit and systematic phonics commercial programs and one literature-based program in which students were taught strategies for comprehension. They reported that the results of their study were contrary to "what would be expected given the NRP's determinations" (p. 244), stating no statistical significant differences between the subgroups. However, their data indicated that constructing meaning from text became less important to the students using an explicit and systematic phonics program than to those students involved in a literature-based program. Several years later, Shelton, Altwerger, and Jordan (2009), pointed out that the NRP (NICHD, 2000), "*assumes*, but does not *establish* (with scientific evidence) a firm relationship between fluency and comprehension or overall reading proficiency" (p. 137).

A strong proponent of whole language, Goodman (as cited in Harste & Short, 1996) claimed, "Wait a minute, there's something wrong. Nobody in reading research is treating reading as language" (p. 512). Along this same line of thought, Flurkey (1997), a researcher who studied under the leadership of Goodman, provided an argument against

ORF as a viable instructional technique for teaching reading. Flurkey presented the paradox of researchers disagreeing on many issues, including, but not limited to, (a) having a clear definition of ORF, (b) how to determine word count for fluency, (c) whether or not to count errors as part of determining ORF, and (d) how to mark the threshold of ORF in number of words read correctly. Flurkey maintained that the theory of reading as rapid and accurate word identification fails because it is not treating reading text as language. He claimed that reading is more than the automaticity of recognizing words and the ability to use prosodic elements and that measuring these items is troubled by conceptual and practical problems.

One practical problem has to do with actually counting errors. In his study, Flurkey (1997) presented the same passage to students to read but used different researchers' definitions of errors. He found that word counts varied greatly, depending on which definition of errors was used. At one point, he proposed that a child's errors could possibly be greater than the total possible word count. Conceptually, the problem that Flurkey found had to do with evaluating the quality of unexpected responses and the purposeful slowing of the ORF rate in order to construct meaning from text. This slowing caused word counts to decrease, yet he claimed that reading proved to be more proficient because of the successful constructing of meaning from text. This is what Flurkey labeled "reading-as-transaction" and extends "the boundaries of Goodman's sociopsycholinguistic transactional model of the reading process inasmuch as it builds on his model to explicitly address the relationship between reading and time" (p. 386). Flurkey found reading to be not only a nonlinear action but also one that needs intratext

rate variability for there to be true comprehension. As a result of his study, he supported instructional techniques that focus on meaning-centered reading such as retrospective miscue analysis and comprehension.

Providing another point of view to the contribution of ORF on reading comprehension growth, Corn (2006) detailed her disappointing experience with ORF instruction. As an English language arts teacher working in a bilingual program at an elementary school, Corn experienced pressure from her administration to focus on reading rates and ORF. They closely watched her school's assessment results as part of their improvement plan resulting from the NCLB based upon the belief that ORF was a reliable predictor of success on the English Language Arts section of their high-stakes testing. Following a daily ORF routine using 1-minute probes, Corn felt that her students focused more on the speed of reading rather than on understanding what they were reading. Most of her students made minimal progress in increasing their reading speed, and even fewer students made progress on high-stakes testing. Corn related her frustration in using ORF as an instructional method when she believed that her students needed practice in decoding and comprehension.

Echoing some of Corn's (2006) sentiments was Marcell (2007a, 2007b), who described readers who display ORF skills as students who can read text with speed, without errors, and with appropriate prosody. However, Marcell declared that many of these students with proficient ORF rates could not retell story elements and suggested that the emphasis on stopwatch reading was responsible. Marcell (2007a) stated his concerns:

> If we continue to focus on fluency in such an isolated manner, we run the risk of actually creating word-callers – NASCAR readers, if you will, who care little about the scenery along the side of the road – missing the comprehension piece, which gives reading its meaning, through visualizing, predicting, connecting, and clarifying. (p. 18)

Marcell (2007b) agreed that reading an appropriate rate of words per minute frees up cognitive space, but he argued that ORF is not the complete picture. He suggested that "current research, in fact, challenges fluency's causal relationship to comprehension in terms of instruction" (2007b, p. 778).

Johns (2007) noted the possibility of progress monitoring resulting in two unintended consequences. This first consequence may be student disengagement and a more negative attitude and morale toward the reading process resulting from the stress a struggling student may feel when asked to perform a task such as taking an ORF probe over and over. This conjecture was based upon the notion that progress monitoring is occurring at the students' grade levels, and is therefore, too difficult for many students with RD. A second unintended consequence noted by Johns was that students who are monitored frequently may acquire the perception that the definition of a good reader is simply one who reads fast and accurately, forsaking the concepts of prosody and comprehension. Therefore, Johns cautioned educators to reexamine ORF instruction and ORF monitoring, and to have instruction reflect a more comprehensive model.

In response to the NCLB and the subsequent performance measure of AYP for schools, Shippen et al. (2006) completed a study that looked at students with disabilities

because this subgroup is the “most critical group to support” (p. 322). They compared two models of instruction that fit the requirements of the NCLB, including a model that utilized ORF as an instructional method for teaching comprehension, among students performing 2 or more years in reading below their peers. The participants were urban middle school students with mild disabilities, including SLD, behavior disorders, intellectual disabilities, speech and language deficits, other health impaired (OHI), and an orthopedic impairment. All participants were African American, with a gender make up of 64% male and 36% female.

Pre- and posttest standardized measures were administered, including a standardized oral ORF test. CBM were administered biweekly. Each measure administered was at the student’s instructional level, based upon the pretest ORF subtest and two baseline curriculum-based probes. A 2 x 3 repeated-measures MANOVA was conducted. The results of this study did not produce significant growth scores in reading for either model, including the ORF model. Shippen et al. (2006) declared that their findings provided problematic implications for schools. They considered the participants “the lowest performing students in the lowest performing schools, and they did not show marked progress in reading on either standardized or curriculum-based measures” (p. 326).

Critical Analysis of Related Literature

ORF: Comparisons and Contrasts

ORF is a topic of great interest to many researchers, as evidenced by the rich volume of research and literature. Much of the explored research was very involved,

incorporating intricate and detailed research techniques. Some of the explored research was broad by nature, covering theoretic concepts. Some of the studies were longitudinal, entailing several years, whereas others were short studies, spanning weeks. However accomplished, each study reported in this current study appeared to be valid, meeting the criteria for reliability in data collection, processes, procedures, and size of study. Each study included an explanation of its limitations. The studies were replicable and presented conclusions and summaries, and they appropriately conceptualized the totality of each. They focused on theory and examined specific areas of ORF that included the development of ORF in children (Speece & Ritchey, 2005); the relationship of ORF to reading comprehension (LaBerge & Samuel, 1974; Wilson et al., 2004); the effectiveness of ORF strategies (Kuhn, 2004; Therrien & Hughes, 2008; Therrien & Kubina, 2006); the effectiveness of ORF for students beyond the primary grades (Rasinski & Padak, 2005; Rasinski et al., 2005); and the monitoring of reading progress (L. S. Fuchs et al., 2004; Hosp & Fuchs, 2005; Kamps et al., 2003). ORF is, as L. S. Fuchs et al. claimed, "a complicated, multifaceted performance" (p. 239); in response, researchers conducted their studies from various angles. As of yet, researchers have not stood in agreement on a clear definition of ORF (Rasinski & Padak, 2005). They have used descriptors such as rate, automaticity, accuracy, and prosody as characteristics, but they have yet to derive a common definition.

For some researchers, the lack of a common definition has simply been noted as a statement of fact (Rasinski & Padak, 2005) but for others (Flurkey, 1997), it has been an issue of such importance as to negate the education benefits of ORF instruction.

Researchers have found ORF to improve reading and reading comprehension, but they have not necessarily agreed on the cause: Is it due to specific ORF instruction strategies, or it is because the students are involved in reading an increased amount of text (Kuhn & Stahl, 2000)? Some researchers have stressed the emphasis of ORF with children in primary school (Kuhn, 2004; Kuhn & Stahl, 2000), whereas others such as Rasinski and Padak (2005) and Rasinski et al. (2005) have maintained that intermediate, middle, and secondary students are in need of ORF instruction. Finally, some researchers have focused on ORF probes and tools as helpful in the special education classroom (Deno, 2003), whereas others have touted the advantages for ORF in the regular education classroom (Rasinski & Padak, 2005). Although different in the manner in which they approached ORF, all of the studies had the common goal of offering society the opportunity to make necessary changes in the area of reading instruction.

ORF: Component Characteristics

A second group of researchers provided a historical, theoretical, and analytical review of work on ORF. Kame'enui and Simmons (2001) likened ORF to the structure of DNA, explaining that although ORF is easily identified, and easily recognized when it is obviously missing, the simplicity and elegance of fluency are buried in the complexity of the process, much like DNA's simple yet complex characteristics. They stated the comparison in this way:

> In short, the DNA of reading fluency remains uncharted territory conceptually, theoretically, experimentally, pedagogically, and instructionally. Like Watson and Crick, we know the idea has to be right, but the ideation alone is insufficient to

> advance a society committed to the scientific study of ideas, particularly in reading. Collectively, we have much work to do to understand fully the features, mechanisms, and processes unique to reading fluency. (p. 206)

Wolf and Katzir-Cohen (2001) provided a rich, detailed history of ORF, as well as a review of current research, complete with varying definitions and multiple components. However, their main argument was for a consensus of terms and a working definition. They held that a definition is critical because of the implications for "how and who we diagnose and for how we construct and evaluate intervention. We argue strongly for a definition of fluency" (p. 233).

Deno (2003), Hasbrouck and Tindal (2006), and Safer and Fleischman (2005) explained ORF norms and provided a map of how to use ORF assessment information to guide instructional decisions. They presented logistical considerations such as time, ease of teaching the mechanics of ORF assessment, materials needed, and methods for measuring. The researchers also described progress monitoring in detail, both as a tool to show progress and as a tool for projecting future success.

Yet another component characteristic of ORF is that of prosody, which is more difficult to objectively measure and quantify (Vadasy & Sanders, 2008). Rasinski (2000) discussed the effect of reading expressiveness on understanding of text. Rasinski and Padak (2005) explained prosody in more detail, using descriptive words such as expression, pausing, emphasis, and enthusiasm. In even more technical terms, Rasinski (2004) described the necessity of prosody:

> The reader must parse the text into syntactically and semantically appropriate

> units. If readers read quickly and accurately but with no expression in their voices, if they place equal emphasis on every word and have no sense of phrasing, and if they ignore most punctuation, blowing through periods and other markers that indicate pauses, then it is unlikely that they will fully understand the text. (p. 46)

Later, Rasinski (2006) cautioned educators to remember that the aim of increasing ORF is not for the sake of speed reading, but for the purpose of meaningful and expressive oral interpretations that can lead to increased comprehension skills. Miller and Schwanenflugel (2008) presented a strong case for prosody and its impact on reading skills. A result of their study generated the following statement: "Thus, prosodic oral reading might signal that children have achieved fluency and are more capable of understanding what they read. Results of this study support the inclusion of prosody in formal definitions of oral reading fluency" (p. 339). Indeed, Conderman and Strobel (2008) included prosody as a descriptor in their definition of ORF. Sekeres and Gregg (2008) suggested that in poetry, words are chosen for their rhythm, rhymes, and repetition, and that these features contribute substantially to prosody in reading. Nichols, Rupley, and Rasinski (2009) placed responsibility on teachers to model expressive readings that show evidence of automaticity and prosody, and provide a scaffold to students who demonstrate the need for continued support.

Finally, in a candid discussion of the powerful nature of prosody as a component characteristic of ORF, when Rasinski and Lenhart (2008) looked at the relatively slow reading rates of President Franklin D. Roosevelt's December 7, 1941, declaration of war

speech, President John F. Kennedy's inaugural speech, and the Reverend Martin Luther King, Jr.'s, "I Have a Dream" speech, they reiterated the importance of prosodic elements in order to give meaning to text. Each speaker's rate was approximately equal to that of a Grade 2 student reading at the 50th percentile at the end of the year. Rasinski and Lenhart stated, "No one would argue that these three readings were not fluent. These speeches sent a nation to war, set the stage for the 1960s, and mobilized the Civil Rights movement" (p. 18).

ORF: Classroom Concepts

Common threads woven among the literature included methodologies, strategies, and practical implementations for the classroom. Specifically, Rasinski (2000) presented integrating poetry into the reading curriculum, setting up a reading theatre, utilizing strategies such as paired reading, echo reading, choral reading, and talking books. This idea was echoed by Faver (2008), who claimed that fluent and nonfluent readers have shown reading improvement through the use of repeated readings and classroom performances of poetry. Chard et al. (2009), Hudson et al. (2005), Kuhn (2004), Pikulski and Chard (2005), Therrien and Kubina (2006), and Vadasy and Sanders (2008) related the benefits of repeated readings for students with SLD as well as students without SLD. Vadasy and Sanders summarized the benefits for low-skilled readers as being able to develop vocabulary and comprehension skills in spite of the fact that they continue to struggle at the lexile and sublexical levels in word reading and decoding. Instructional components for repeated readings were presented in an easy-to- follow method. Another common thread throughout the literature with a direct impact on the classroom included

the use of probes. The ORF probes were identified as tools to distinguish the rate at which a child reads (Rasinski, 2000); monitor the reading progress of the child (Deno, 2003; Wallace et al., 2007); plan instruction (L. S. Fuchs et al., 2004; Hasbrouck & Tindal, 2006); and to result IEPs (Safer & Fleischman, 2005, SCSDoE, 2006).

ORF: Critical Missing Components

As complete and compelling as the research has appeared, it seems that there have been some vital areas of omission about the relationship between comprehension gains and ORF. Many questions have been presented, even as part of the inquiry statement remain:

1. How lasting are the effects of ORF on comprehension gains?
2. Are the comprehension gains isolated and related only to the practiced 1-minute passage, or do the effects of ORF transfer to unpracticed, unrehearsed passages?
3. Is there a noted difference in cold read and repeated reading ORF measures as predictors of gains in reading comprehension?
4. Are the effects of ORF the same on comprehension at an informational text level as they are on a literary text level?
5. Finally, what kind of perspective and balance should educators establish between striving to increase ORF scores and the higher goal of increasing reading competency?

As Hasbrouck and Tindal (2006) aptly stated, “Researchers still have much work to do to identify fully the features, mechanism, and processes involved in reading fluency”

(p. 643).

Summary

> Rasinski and Padak (2005) drew an expert conclusion when they stated:
>
> A plethora of evidence…demonstrates that many…students do not read well. They do not fully comprehend what they read, and this results in poor performance….Closing the achievement gap means helping these struggling readers gain the skills they need to become successful readers. (p. 34)

Although inquiries that existed prior to the literature review remain, belief statements were affirmed by a synthesis of current research. The first belief statement is that ORF, although missing from American classrooms for a sporadic amount of time, is a necessary component of reading. This was evidenced by research and presented in sections 1 and 2 of this study. A second belief statement is focused on the role of ORF on comprehension and that attention to ORF is merited in the classroom. The sheer quantity of research substantiating this statement stands in overwhelming support of this belief statement. However, in a very few studies, such as one by Wilson et al. (2004), information contradictory to the evidence presented in this study was discussed.

In addition, Corn (2006) communicated her personal experience with administrative school pressure to increase reading rates that she believed actually caused her to fail to meet the real needs of her students. These few separate situations, however, did not present enough evidence to dissuade this researcher from the tenet supporting attention to ORF in the classroom. The final belief statement is that ORF measurement can be a beneficial tool to teachers to help them to diagnose gaps in reading skills,

progress monitor reading growth, and predict outcome-based measures. Again, the research has validated using ORF as a multifunctional tool in the classroom.

From the perspective of a special education teacher who must follow mandates from the school district to write an IEP using ORF data for present levels of performance, goals, and objectives, and who must use ORF measures to monitor the progress of reading growth, the research appeared to be conclusive that ORF instruction increases reading comprehension skills. Using ORF measures will be, to quote Rasinski and Padak (2005), “helping these struggling readers gain the skills they need to become successful readers” (p. 34). However, the question remains as to which ORF measure, the cold read DORF or the repeated reading CBM ORF is a better predictor of reading comprehension gains.

Section 3: Research Method

The purpose of this quantitative correlation study was to examine the relationship between ORF and comprehension. Not every student can read with expertise. Students with SLD and those with RD struggle to comprehend the written word. According to Rasinski (2000, 2006), when students struggle with reading, all content areas in school are strained, and personal feelings of failure, inadequacy and low self-esteem may ensue. Students may abandon the practice of reading for pleasure simply because the task is difficult and not enjoyable. To address these concerns, this study intended to build on previous research (L. S. Fuchs et al., 2001; Hasbrouck & Tindal, 2006; LaBerge & Samuels, 1974; Partnership for Reading, 2001; Pikulski & Chard, 2005; Rasinski et al., 2005) that has reported a link between ORF and the acquisition of reading comprehension skills in order to expand the focus of ORF instruction in classrooms.

The intent of this study was to identify the relationship between gains in ORF and gains in reading comprehension among students with reading SLD and students with RD. The students with RD are in an RTI process as a provision for early intervention without labeling the students as learning disabled. To examine the relationship between ORF and reading comprehension, I chose a quantitative correlation and standard regression research design. The Pearson correlation was used to analyze the relationship between reading comprehension gains, as measured by the archived MAP reading data, and DORF cold reads. The Pearson correlation also was used to analyze the relationship between MAP reading comprehension gains and CBM ORF repeated readings.

In this study, I looked at two measures of ORF, DORF cold reads and CBM ORF repeated readings, to determine whether one measure was a better predictor of comprehension gains, as measured on the MAP test. Regression analysis was used to assess whether either cold reads or repeated readings were a better predictor of reading comprehension gains. In this study, I discussed the quantitative methods that were used. Specifically, I present the research design and study approach, the setting and sample, instrumentation and materials, reliability and validity, data collection, data analysis, and research questions and hypotheses. I conclude this section with a discussion of the measures that were taken to protect the rights of human subjects.

Research Design and Approach

A quasi-experimental control group design was implemented for this study. In quasi-experiments, groups are not randomly assigned, although they may be intact groups that are available to the researcher (Creswell, 2003). For the purpose of this study, archived data from two schools were used. Students in both schools were given a reading comprehension pretest. Weekly reading instruction was provided by special education teachers, and ORF data comprised of both cold read and repeated readings were collected. Data from a reading comprehension posttest were collected, and the Pearson correlation was used to analyze whether a relationship could be found between reading comprehension gains and ORF measures.

Justification of Research Design and Approach

There are three main approaches to a research design: qualitative, quantitative, and mixed methods. I considered all three approaches as this study evolved from the

problem statement to the review of the literature and then selected a quantitative quasi-experimental design because it met Creswell's (2003) criteria of a quantitative approach: one that uses hypotheses and questions for developing knowledge and an approach that "collects data on predetermined instruments that yield statistical data" (p. 18) and because random assignment was not used.

The decision to use a quantitative approach for this study was made following a comprehensive review of the literature and the conceptualization of the central research questions. The literature review indicated the overwhelming use of quantitative designs to examine the relationship between reading comprehension and ORF. The research questions that evolved from the literature review and the problem statement required numerical data. Thus, the decision to exclude qualitative and mixed method approaches was made based upon the rationale that the data that would answer the research questions would be in numerical form because they could not be answered through observations and interviews, described by Creswell as typical data collection methods associated with qualitative designs.

Logical Derivation

Creswell (2003) discussed two basic designs for the quantitative approach: survey and experimental. According to Creswell, a survey design is useful when studying trends, attitudes, or opinions of a population. An experimental design, on the other hand, tests the impact of a treatment. Gravetter and Wallnau (2005) discussed the correlational design as a correlation that describes a relationship between two variables. Finding a significant positive correlation does not mean that a researcher can interpret why the two variables

are related; the correlation merely describes the relationship (Gravetter & Wallnau, 2005). Finally, finding the better predictor is accomplished by looking for a best-fitting straight line between two variables (Gravetter & Wallnau, 2005). Thus, standard regression analysis and subsequent comparison of regression coefficients were used to determine the better predictor for increased reading comprehension for this study. Any relationship between ORF and comprehension measures would allow educators to predict expected comprehension gains among students with SLD and students with RD who receive intervention strategies to develop and monitor ORF.

Setting and Sample

Research Setting

During the 2003-2004 school year, the special education department of a specific county in South Carolina issued new mandates to its special education teachers that required all teachers to adapt to the new pedagogy of teaching reading by using ORF as the basis for their reading instruction. In addition, the county mandated that teachers develop IEPs based upon ORF data. Teachers were trained specifically to (a) use ORF measures to benchmark current levels of ORF rates using grade level measures, (b) progress monitor growth on instructional reading levels, (c) adjust instruction according to students' growth, (d) report findings to parents on progress reports, and (e) write goals and objectives on IEPs based upon ORF performances. These mandates and guidelines were in accordance with the school district's *IEP Process Resource Manual: Explicit Expectations* (SCSDoE, 2006) and based upon the state's interpretation of the IDEA (2004).

In addition to the previously mentioned mandates, RTI procedures were included as part of the specific school district's procedures. These RTI procedures were developed to provide for early interventions and to avoid labeling students at risk for school failure as learning disabled. RTI is a prereferral intervention to determine whether a child is responding to the intervening instruction. Linan-Thompson et al. (2007) described RTI as a preventive approach that includes the use of students' learning rates and levels of performance that often are measured by benchmark scores set by a norm group to make instructional decisions. RTI was explained in detail in Section 1.

Target Population

For this study, the target population comprised 467 students with RD in Grades 3 through 6 in a specific county in South Carolina. These students were identified either as students with SLD or students with RD and in an RTI process. I followed a single-stage sampling procedure to select the participants. This was an appropriate choice because it followed the guideline supported by Creswell (2003) that names of the participants should be accessible to the researcher.

The sample size for this study included 46 students who were enrolled in Grades 3 to 6 in two elementary schools in a specific county in South Carolina. The two schools included in the study were considered similar based upon the information from each school's AYP. The income and educational levels of the households were similar in both schools. Thirty-one students constituted my caseload, and the other 15 participants were taught by a special education teacher at an elementary school with comparable socioeconomic status in the same school district. The sample of students was

purposefully selected from two special education classes, in which the two teachers routinely progress monitored students on ORF; therefore, the sample was a nonprobability or convenience sample of 46 students. The sample size for this study was small; however, it was acceptable because of the plethora of empirical literature (L. S. Fuchs et al., 2001; Hasbrouck & Tindal, 2006; LaBerge & Samuels, 1974; Partnership for Reading, 2001; Pikulski & Chard, 2005; Rasinski et al., 2005) supporting the link between ORF and reading comprehension. In addition, the sample size follows other researchers' patterns. For example, Shippen et al. (2005) had only 55 participants, and Conderman and Strobel (2008) had 17 participants in their study. Therefore, the sample size was appropriate and defendable.

Fourteen girls and 32 boys participated in this study. The descriptive ethnic breakdown of the participants was 31 African American, 14 European American, and one Latino American student. The Latino American student also represented the only ESL participant. The students ranged in age from 9 to 14. Sixteen students were in Grade 3, 14 students in Grade 4, six students in Grade 5, and 10 students in Grade 6. All 46 students involved in the study met the 2008-2009 federal guidelines for free and reduced lunch, according to the income eligibility guidelines set by the U.S. Department of Agriculture (2009).

Of the 46 individuals involved in the study, 41 were identified as having an SLD in reading and had IEPs that addressed their RD. Of those 41 students, five students' primary disability was OHI, and their secondary disability was SLD. The remaining five of the total 46 students were in the RTI process because they had been identified by either

their regular education teachers or by the school intervention team as students with RD. The students in the RTI process were receiving additional education support or interventions in reading instruction through their schools' special education departments. In addition to having been identified as SLD or RD, 16 students also were identified as requiring speech services according to their IEPs. This demographic information is summarized in Table 1.

Table 1

Demographic Information for Students: Attributes and Grade Levels

Student attributes	Grade level			
	Grade 3	Grade 4	Grade 5	Grade 6
Primary disability/Response to intervention (RTI)				
Specific learning disability (SLD)	7	10	2	6
Other health impaired (OHI)	0	1	1	0
SLD with speech/language	7	1	1	2
OHI with speech/language	1	1	1	0
RTI	0	1	1	1
RTI with speech/language	1	1	0	0
Gender				
Female	7	3	1	3
Male	9	11	5	7
Ethnicity				
African American	12	10	3	6
Caucasian	4	3	3	4
Hispanic	0	1	0	0

Instrumentation and Materials

The three measurement instruments used in this study were the NWEA's MAP reading test, DORF, and CBM ORF. The cooperating teacher and I were both trained in the administration of ORF probes for the purpose of collecting data. Following are descriptions of the three instruments, what they measured, and how the measurements were collected. Raw data will be available by request.

MAP Reading Test

The MAP reading test is an intact instrument designed to provide accurate, reliable, and valid information about the growth in specific reading skills of a student, independent of grade level and across time. The MAP test is aligned to South Carolina's state standards and address reading, math, and language. "MAP are state-aligned tests that reflect students' knowledge and growth over time. They can be adapted to students' individual achievement level, giving teacher information about what each student has learned and is ready to learn next" (Dessoff, 2008, pp. 43-44). Teachers use the normative data to determine exactly where a child is performing with respect to other students in the same grade level across the United States, regardless of whether that student is high functioning or low functioning.

The MAP test is an individualized, computer-based standardized achievement test that reports reading scores in three categories: (a) understanding and using informational text, (b) understanding and using literary text, and (c) building vocabulary. These three areas comprise the total reading comprehension on the MAP test. For the purpose of this study, I did not integrate the vocabulary portion of the test, choosing instead to focus only on the two specific areas of information and literary text comprehension. This decision was based on the research correlating the relationship of comprehension to ORF. The decision was also related to the scant evidence on the relationship between vocabulary and fluency.

There are subskills in each of the three areas, and for each subskill, a continuum identifies the depth of understanding and comprehension for each student in that

particular area. For example, there is a continuum for the specific skill locating information. Locating information may refer to an emerging skill of finding specific information in a short passage of one to three sentences, or locating information may refer to a short passage of one to three sentences with varying degrees of difficulty in sentence structure. Locating information may refer to a midrange ability of locating information in passages of five to 25 sentences with sentence construction that includes prepositions, compound subjects, objects, or subordinate clauses. Finally, locating information may refer to a high-range ability that includes locating information in a passage in which the majority of sentences are compound or incomplete and contain compound subjects, objects, or subordinate clauses.

DORF

The DORF (Good & Kaminski, 2002b) is a CBM that was developed for two purposes: (a) to establish the benchmark of the student's instructional reading level, and (b) to progress monitor the student's ORF rate. DORF benchmarks passages are grade-level probes that compare students to their peers. For the purpose of this study, probes were defined as 1-minute reading passages used to determine ORF rates (Safer & Fleischman, 2005). The DORF benchmarks passages are given three times a year to correspond with the MAP test schedule. The progress monitoring DORF passages, which are referred to as cold read probes, are texts appropriate for each student's instructional level. Cold read probes are reading passages that have not been previously read by the student (Conderman & Strobel, 2006). The probes are numbered and do not increase in difficulty to a degree that demands the passages be presented in a certain order. The

passages are “calibrated for the goal level of reading for each grade level” (Good & Kaminski, 2002a, p. 30), and “the readability [is at] the end of the grade or the beginning of the next grade” (Good & Kaminski, 2002b, p. 1). For example, the target readabilities for the Grade 3 DORF scores retrieved during this study were 2.8, 2.9, 3.0, or 3.1.

Although the DIBELS administration manual does not regulate any particular order for the passages to be given, according to Good and Kaminski (2002b), a described process is used to assign the position for each probe. The process includes the examination of the readability of each probe, the division of the school year into thirds, and a stratified random order for progress monitoring. Good and Kaminski stated, “Any differences are small in magnitude. Overall, the passages were developed so that they were homogenous as possible in readability” (p. 9). In summary, according to Kim and White (2008), DORF is appropriate for regular education students, students with learning disabilities, and students involved in an RTI process.

CBM ORF

CBM ORF was the third testing instrument used in this study. CBM ORF generates an ORF rate similar to DORF; contrary to DORF, though, this instrument provides a repeated reading ORF rate using 1-minute probes. For this study, the students were familiar with the vocabulary and textual meaning of the passage. CBM ORF measures were calculated from the instructional materials used in class. The data were collected from a peer-reviewed curriculum adopted by the school district for special education and RTI reading instruction. Because the reading curriculum was taught on the instructional level of each student, the CBM ORF measures reflected the instructional

level of the student rather than the grade level of the student. These repeated reading CBM ORF probes increased in difficulty as the study progressed because the students advanced further along in the reading textbook.

The predictor variable for this study was the observed gains in ORF as measured by the CBM ORF and DORF. The criterion variable was the measured change in reading comprehension scores as analyzed on the MAP tests developed by the NWEA (n.d.). Table 2 shows the protocols used for data retrieval, the frequency of administration, and the purpose for each type of data.

Table 2

Data Retrieved, Frequency of Administration, and Purpose of Data

Retrieved protocol data	Frequency of administration	Purpose of data
MAP		
Understanding and using literary text	1 time, winter 2009	Pretest
Understanding and using informational text	1 time, winter 2009	Pretest
Total reading comprehension	1 time, winter 2009	Pretest DIBELS ORF
Benchmark probes	1 time, winter 2009	Benchmark
Progress Monitoring Probes	1 time per week for10 weeks	Progress Monitoring
CBM ORF	1 time per week for10 weeks	Progress Monitoring
MAP		
Understanding and using literary text	1 time, spring 2009	Posttest
Understanding and using informational text	1 time, spring 2009	Posttest
Total reading comprehension	1 time, spring 2009	Posttest

Testing and Scoring Processes

MAP

The MAP test is given in this specific South Carolina school district three times per year, namely, in the fall, winter, and spring. For the purpose of this study, archived data were used from the winter 2009 MAP reading tests as a pretest during the week of February 9, 2009, and the spring 2009 MAP reading results as the posttest scores during

the week of April 20, 2009. During each test administration, the student was granted online access to the test, and the instrument recognized the grade level of the student and immediately presented questions at that grade level. Based on the responses from the student, the computer adjusted the level of difficulty by either increasing or decreasing the level of the reading passages and questions.

Test scores were then calculated and multiple layers of data became available in the form of RIT scores, which evaluated the difficulty of test items in order to estimate student achievement (NWEA, 2006). The MAP RIT scores created an equal-interval scale. The RIT scores were independent of the age or grade level of the student; they reflected the instructional level at which the student was currently performing. Scores were retrieved through the NWEA website and the school district's Testview program, which was available on the school district's Intranet website. The NWEA (2008b) likened the RIT scores to a yardstick, providing the ability to measure how much growth a student makes. Because the score is independent of age and grade, it reflects the instructional level of the student. "This may be the first indication that teaching the same thing to all students in a given lesson may not be very effective" (NWEA, 2008b, p. 1, ¶ 8). The RIT scores provide a means for a teacher to use the normative data information to visualize both the growth of a student over a period of time and the instructional differences the teacher has within the class.

The RIT scores were used to measure how a student performed on the curriculum spectrum and to identify the particular range of difficulty the student achieved in a specific area (e.g. locating information), as mentioned previously. The teacher score

report provided both a RIT score for the student's total reading comprehension, and an RIT score for the following strands: (a) understanding and using literary texts, (b) understanding and using informational texts, and (c) building vocabulary. The teacher score report also included the grade level of the student, the test type (for this study, it was Reading Survey with Goals), the test date; the standard error; an RIT range for total reading comprehension, a national percentile, a percentile range, and a Lexile range. An example of a teacher score report is located in Appendix A.

DORF

First, a DORF reading benchmark was established for each student during the same week as the winter 2009 MAP reading test. The student was tested by reading three benchmark probes for 1 minute each. Following the specific procedures based upon the National Center on Student Progress Monitoring (n.d.), the instructional level was established by the percentage of words read, minus the percentage of errors made. In a clarifying e-mail from the special education coordinator for the school district involved in this study (personal communication, April 23, 2009), specific steps were provided to determine the student's instructional level based upon the results of the DORF benchmark probes. The specific steps presented in the e-mail are in Appendix B.

Following the establishment of the benchmark, the instructor administered weekly DORF cold read passages over a 10-week period for each student to progress monitor each student's ORF rate. This routine procedure provided the archived date for this study. The student read a passage aloud for 1 minute while the instructor tallied the number of errors and the total number of words read. At the end of 1 minute, the errors were

subtracted from the total number of words read to obtain the wcpm score. The wcpm is now considered the student's ORF rate (Deno, 2003; L. S. Fuchs et al., 2004).

CBM ORF

The instructor administered a weekly CBM ORF passage to obtain each student's ORF rate (Deno, 2003; Fuchs, Fuchs, & Compton, 2004). The CBM ORF probes are reading passages that have been read previously by the student as part of the daily reading lesson. The student had specific and direct instruction in the content meaning and vocabulary embedded throughout the passage. The following is a typical instructional sequence:

1. The student was an active part of a first reading of the passage in a group of two to seven students.
2. The student was an active part of answering oral comprehension questions about the passage as part of class discussion.
3. The student read the passage aloud individually with a peer partner for 1 minute. The peer kept track of the number of words read and errors made, establishing an unofficial ORF rate by indicating the wcpm.
4. The student reviewed the textual meaning by answering comprehension questions in writing. If needed, the student took the opportunity to request additional support from peers and teacher while responding to written questions.
5. On the next day of instruction, the student read the passage silently.

6. On the day of CBM ORF data collection, the student read the passage aloud as the teacher timed the reading and counted both the words read correctly and the errors made. The teacher used the data to establish the official ORF rate by indicating the wcpm. This score served as the student's repeated reading ORF rate and indicated the student's overall reading competence (Hasbrouck & Tindal, 2006).

Reliability and Validity

"The validity and reliability of performance measures are important if tests are to be used in educational decision-making, as well as in the study of growth" (Shin, Espin, Deno, & McConnell, 2004, p. 137). Instrumentation materials are considered reliable when they yield stable and consistent results (Creswell, 2003; Gravetter & Wallnau, 2005). Instrumentation materials are considered valid when they accurately measure what they purport (Creswell, 2003; Gravetter & Wallnau, 2005),

MAP Reading Test

The MAP test, which was developed by the NWEA, is reliable in providing pretest and posttest data on reading comprehension. The MAP test meets the rigorous standard for both test-retest reliability, with most coefficients in the mid .80s to the low .90s (NWEA, 2004). According to the Pearson product-moment correlation coefficient (*r*), the minimum acceptable correlation is considered.80, and a correlation of 1.00 is considered a perfect correlation (Gravetter & Wallnau, 2005, NWEA, 2004). However, the MAP's reliability is even more rigorous because it uses a combination of test-retest and parallel forms of reliability, where both are spread across 7 to 12 months, rather than

the typical 2 to 3 weeks. The NWEA looks at $r = .85$ as a reasonable measure. The internal consistency of reliability is an important factor for the MAP test. To reduce the limitations associated with typical internal consistency, the NWEA calculates the marginal reliability coefficient in a manner that yields results that are nearly identical to coefficient alpha. Therefore, the MAP test stands as a reliable instrument to provide pretest and posttest data in the area of reading comprehension.

Validity also is an important factor in the MAP test. According to the NWEA (2004), the NWEA carefully maps existing content standards from districts or states into a test blueprint to assure content validity. Test items are chosen based upon their match to the content standards and the difficulty level of the test being created. Thus, the NWEA works diligently to integrate individual state standards into the MAP reading test. The NWEA aligns the test to individual states, including South Carolina, by selecting test questions based upon how well the question matches the South Carolina standards.

The NWEA uses alignment studies and statistical techniques such as linear regression, quadratic regression, and Rasch status-on-standard (SOS) modeling. The NWEA is presently using an alignment study technique called the distributional method, developed by Cronin, Bowe, and Kingsbury (as cited in NWEA, 2007b). The distributional method produces cut-score estimates and state test pass/fail predictions that are equivalent to those generated by statistical methods. The NWEA also works to select items with a uniform distribution of difficulty within a goal area, category, or strand. In South Carolina, these strands are referred to as understanding and using informational text, understanding and using literary text, and building vocabulary. The NWEA also

documented validity in the form of concurrent validity and expressed the validity as a Pearson correlation coefficient. Again, a strong concurrent validity is indicated when the correlations are in the mid- .80s (NWEA, 2007).

DORF

DIBELS and DORF measures are considered reliable and valid, as substantiated by Elliot, Lee, and Tollefson (2001). According to the Technical Adequacy section of the DIBELS Data System from the University of Oregon (2002), Shaw and Shaw (2002), and Kourea, Cartledge, and Musti-Rao (2007), the test-retest reliabilities ranged from .92 to .97 for elementary students; alternate form reliability ranged from .89 to .94, and after studying eight separate criterion-related validity studies, the reported coefficients ranged from .52 to .91.

CBM ORF

CBMs are considered by many researchers highly reliable and valid. For example, Marston (as cited in Shin et al., 2004) found the reliability coefficient for CBM to be approximately .90. Later, Marston et al. (2007) claimed that CBMs are reliable and valid, with coefficient ranges from .90 to .97. The highly stable coefficients are a strong indication of reliability (Marston et al., 2007). Marston continued his discussion by affirming that the validity data exhibit a significant correlation with the criteria measures. Deno (2003) explained that criterion validity, with high correlations of .65 to .85, help educators to draw conclusions about whether students would reach mandated levels of performance on benchmark tests. With brevity, L. S. Fuchs and Fuchs (n.d.) simply declared, “CBM demonstrates strong reliability and validity” (p. 1).

Data Collection and Analysis

The MAP test, DORF, and CBM ORF were administered to 46 students, 41 with SLD and 5 in the RTI process. The sequence of data retrieved for this study was as follows: (a) the winter MAP 2009 pretest, (b) the DORF benchmarks, (c) DORF and CBM ORF progress monitoring, and (d) the spring MAP 2009 posttest. All data used for this study were retrieved from archived sources: (a) NWEA website for MAP, (b) the school district's Testview site on the Intranet for MAP, (c) AIMSweb for DORF for students with IEPs, and (d) Excel spreadsheets for DORF for students in the RTI progress and for all CBM ORF data. No new procedures or instruments were used in the study; all three instruments were part of the routine procedures for the school district and the two individual schools.

The researcher obtained permission to conduct the study from the appropriate stakeholders and review boards. This included permission from the school district and the two participating school principals to use the routinely collected data from each participant. The researcher wrote a letter to the deputy superintendent of the school district to explain the reasons for the study and describe the required data necessary for the completion of this study. Upon obtaining permission from the school district, the researcher wrote a similar letter to the two participating school principals to explain the reasons for the study and describe the data required for the completion of this study. Each principal signed a data use agreement.

Parent permission was not necessary for two reasons: (a) The data necessary for this study used instruments, materials, and protocols that were already in place within the

schools without the intrusion of new procedures and activities, and (b) no student was individually identified because all data were deidentified throughout the study. After receiving permission from the school district and the two principals, the researcher applied for and was granted approval from Walden University's Institutional Review Board (IRB approval # 09-16-09-0335085).

The first data retrieved were from the winter 2009 MAP reading test, given during the week of February 9, 2009. The data reflected student achievement in two comprehension strands (understanding and using literary text and understanding and using informational text), as well as total reading comprehension. The data were used as the pretest for this study. Also retrieved during the week of February 9, 2009, were the midyear DORF benchmarks for each student as part of the pretest measurement.

The second set of data retrieved were DORF and CBM ORF measures that had been collected during the 10-week period between February 9, 2009, and April 20, 2009. This researcher and a cooperating teacher administered each of the two fluency CBM measures every week during the 10 weeks between the winter 2009 MAP pretest and the spring 2009 MAP posttest. The two teachers were trained to use ORF as the focus of their classroom reading instruction, to collect ORF data using CBM instruments, and to store the data in either AIMSweb or Excel spreadsheets. These ORF measures had been collected and maintained in a manner routinely followed by all special education teachers in the Study County School District throughout the 10 weeks leading up to the spring 2009 MAP test. The final set of data retrieved was from the spring 2009 MAP reading

test, given during the week of April 20, 2009. These data were used as the posttest for this study.

All gain scores in comprehension, as measured on the MAP reading test, were obtained by finding the difference between the pretest and posttest scores. Gain scores in ORF, as measured by the DORF and CBM ORF protocols, were obtained by finding the difference between the median scores of the first 5 weeks and the median scores of the second 5 weeks of the study. February 16, 2009, to April 20, 2009 spans 11 weeks, but no instruction occurred during the school district's spring break period. The Pearson correlation analyzed variables to determine whether there was a relationship between MAP reading comprehension gains and CBM ORF repeated readings. Regression analysis was used to determine whether either cold reads or repeated readings were a better predictor of reading comprehension gains.

Data Analysis

The statistical procedure that summarized, organized, and simplified the data used in this study was descriptive statistics. The descriptive statistics addressed the four research questions in regard to the relationship between gains in comprehension in both literary and informational texts and gains in ORF. They also served to summarize whether repeated readings or cold reads were a better predictor in gains in comprehension. Following is a discussion of the use of standard regression analyses as they applied to the research questions.

The Pearson correlation and standard regression analyses were used to test the seven null hypotheses. According to Gravetter and Wallnau (2005), "The statistical

technique for finding the best-fitting straight line for a set of data is called regression, and the resulting straight line is called the regression line" (p. 451). Multiple regression involves the prediction of a single criterion variable from more than one predictor variable. When more than one predictor variable is included in the regression analysis, the regression equation can be represented as

$$\acute{Y} = b_1X_1 + b_2X_2 + \ldots.+ b_kX_k + a$$

when there are k predictor variables and a corresponding slope for each predictor variable (b). When compared, the standardized slopes can indicate the importance of the predictors to the prediction of Y. Multiple regression analyses assume that data for both the predictor and criterion variables are on a continuous scale.

Research Question 1

For Research Question 1 and Null Hypotheses 1 and 2, multiple linear regression was utilized with student gains in reading comprehension, as related to the understanding and using of literary text, as the criterion variable, and the gains in ORF using CBM ORF and DORF progress monitoring protocols as the predictor variables. The regression equation takes the form

$$\acute{Y} = b_1X_1 + b_2X_2 + a$$

where $\acute{Y}$ is the predicted gains in comprehension and using of literary text and X_1 and X_2 represent gains in reading fluency according to CBM (X_1) and DORF (X_2) protocol. If either $b_1 + b_2$ differs significantly from 0, the respective null hypothesis is rejected, and the relationship coefficient between the predictor and criterion variable is considered significant.

Research Question 2

For Research Question 2 and Null Hypotheses 3 and 4, multiple linear regression was utilized with student gains in reading comprehension, as related to the understanding and using of informational text, as the criterion variable, and the gains in ORF using CBM ORF and DORF progress monitoring protocols as the predictor variables. The regression equation takes the form

$$\acute{Y} = b_1X_1 + b_2X_2 + a$$

where $\acute{Y}$ is the predicted gain in comprehension and using of informational text and X_1 and X_2 represent gains in ORF according to CBM (X_1) and DORF (X_2) protocol. If either $b_1 + b_2$ differ significantly from 0, the respective null hypothesis is rejected, and the relationship coefficient between the predictor and criterion variable is considered significant.

Research Question 3

For Research Question 3 and Null Hypotheses 5 and 6, multiple linear regression was utilized with student gains in total reading comprehension as the criterion variable, and the gains in ORF using CBM ORF and DORF progress monitoring protocols as the predictor variables. Both predictor and criterion variables are measured on a continuous scale. The regression equation takes the form

$$\acute{Y} = b_1X_1 + b_2X_2 + a$$

where $\acute{Y}$ is the predicted gain in total reading comprehension and X_1 and X_2 represent gains in reading fluency according to CBM (X_1) and DORF (X_2) protocol. If either $b_1 + b_2$ differ significantly from 0, the respective null hypothesis is rejected, and

the relationship coefficient between the predictor and criterion variable is considered significant.

Research Question 4

For Research Question 4 and Null Hypothesis 7, the magnitude of the standardized regression coefficients ($\beta_1 + \beta_2$) was compared to determine whether the CBM ORF protocol (X_1) or the DORF protocol (X_2) was the better predictor of total reading comprehension.

Protection of Participants

All efforts were made to protect the participants. At no time during this study were specific names of participants used. All data were from the archived school system database and were collected through routine data collection procedures. No new procedures or protocols were used. Prior to conducting the study, I received permission from the deputy superintendent for the school district, the school district's special education director, the two administrators at the participating elementary schools, and the participating teacher. Parental permission was neither sought nor needed, and all participants were unaware of being part of this study because all data were routinely collected by the school district and special education teachers. Because parental permission was not sought, each of the two participating principals signed a data use agreement. The reliability and validity of data collection instruments and methods minimized researcher bias.

As mentioned previously, all data were deidentified. Each student was assigned a random four-digit identification number so that data from each source were matched to

students. This process was completed by the participating teacher and me. The participating teacher deidentified all data from her school. Because test data were password protected and I did not have the ability to retrieve them, the participating teacher printed out each student's winter 2009 and spring 2009 MAP tests scores, as well as the ORF scores on the DORF and CBM-ORF. Then, before presenting the data, the participating teacher deidentified all data by blackening out names on the printouts and assigning random four-digit numbers to all data from each student to ensure the privacy of each participant. In a similar manner, I assigned a random four-digit identification number to each of the students. I did not need to have a hard copy of the students' data, but simply transferred the data from the winter 2009 and spring 2009 MAP test scores and ORF scores from the DORF and CBM ORF directly from the district's Testview site to an Excel spreadsheet.

All documentation was kept in a locked filing cabinet that was and remains housed in my office and on two different password-protected computers. Only I had access to the key for the filing cabinet and knew the password to the two computers. Walden University's IRB provided a formal review to ensure that all participants had their human rights protected. On May 3, 2009, I completed the class, Protecting Human Research Participants, presented by the National Institutes of Health.

Role of the Researcher

I have been an educator for 29 years, and have spent the past 22 years as a special education teacher. I am classified by the state of South Carolina as highly qualified. I recently earned national board certification in the area of literacy. In the fall of 2008, I

was a member of the 2008 United States and China Forum on Reading and Literacy, which met for 11 days in various cities and villages in China. As part of the forum, I had the opportunity to dialogue with teachers from China and the United States on the subject of ORF and comprehension. I have taught for 8 years in one of the schools involved in the study. In addition to teaching special education classes, my professional roles include being the department chairperson for the special education classes in her building for the past 6 years and being a school district reading curriculum instructor for district special education teachers.

I assumed several roles throughout the study. The first role was designer of the study. Other roles were data collector, analyzer, and author of this study. I established a professional relationship with the participating teacher at a second school, but did not visit the school, meet the cooperating teacher, or get to know any of the participants enrolled in the school. I had, however, established a relationship with all the participants on my specific caseload. In spite of the relationship I had with the students, every effort was taken to ensure complete neutrality during this study.

Summary

Section 3 presented the research method of the study, beginning with a review of the purpose of the study and an explanation of the research design, which included both the justification and the logical derivation of the research design selected. The setting and sample were discussed. MAP, DORF, and CBM ORF were identified as the measurement instruments, and the reliability and validity of each instrument was reviewed. The data collection process, use of archived data, and data analysis procedures were examined. A

detailed discussion of the protection of participants and the role of the researcher concluded Section 3. Section 4 presents the study's data analysis and findings.

Section 4: Data Analysis

The purpose of this quantitative study was to examine the relationship between ORF and reading comprehension in students with SLD and RD in Grades 3 through 6. The primary purpose of this study was to determine whether ORF instruction is related to reading comprehension gains; the secondary purpose was to identify which protocol (CBM ORF or DORF) is a better predictor of reading comprehension gains of students with RD and SLD. The study was a quasi-experimental, ex-post facto design using archived data from the 2009 school year. This design was selected to examine the relationship between two variables over a period of 10 consecutive instructional weeks.

Data from the winter 2009 MAP test were used as the pretest, and data from the spring 2009 MAP test were used as the posttest to determine reading comprehension gains in three categories: using and understanding literary texts, using and understanding informational texts, and total reading comprehension. The winter 2009 pretest was given during the week of February 9, 2009, and the spring 2009 posttest was given during the week of April 20, 2009. The data from the DORF probes were used as benchmarks and weekly cold read ORF progress monitoring data. The benchmarks were given during the same week as the MAP pretest. The data from the CBM ORF were used as weekly repeated reading fluency progress monitoring data. Both fluency protocols, DORF and CBM ORF, were given weekly for 10 weeks between the pre- and posttests. All fluency data had been housed in the AIMSweb database.

Section 4 begins with a discussion of the descriptive statistics from the archived data, followed by an explanation of their relationship to the research questions and hypotheses. This section concludes with a summary of the results from the data.

Data Analysis

All data used for this quantitative study were archived; they were routinely collected and stored by the participating schools. No new procedures or protocols were created or used during this study. The data retrieved were the following: (a) winter 2009 MAP reading test scores, (b) spring 2009 MAP reading test scores, (c) weekly CBM ORF scores for 10 weeks, and (d) weekly DORF scores for 10 weeks. The statistical software used for data analysis was the Predictive Analytics SoftWare v.18.0. Because the primary purpose of this study was to investigate the relationship between ORF and reading comprehension, I used linear regression as the statistical method to describe that relationship.

Descriptive statistics for each of the variables included in this study are reported in Table 3. The table includes the number of participants, the calculated mean scores, and the standard deviation for the three areas of the reading MAP test (using and understanding literary texts, using and understanding informational texts, and total reading comprehension) and the two fluency measures (CBM ORF and DORF). The scores on the MAP test were standardized, and the data were screened for univariate outliers following the criteria used by Tabachnick and Fidell (2007). Using their criteria that any standard scores greater than +3.29 or less than -3.29 should be considered an outlier, no univariate outliers were determined on any of the six MAP test sections of

data. Therefore, all MAP data for each participant were included in the data analysis. Fluency data from the CBM ORF and DORF protocols were first screened for outliers by the teachers, and then the teachers stored all data as per school directives; all archived fluency data were included in the analysis.

Table 3

Descriptive Statistics

	M	*SD*
MAP		
Literary text gains	8.87	10.057
Informational text gains	6.20	9.727
Total reading gains	7.35	7.755
ORF		
DORF gains	37.26	12.355
CBM ORF gains	33.50	15.048

Note. $N = 46$

Comprehension and Fluency

Research question 1. The first analysis this researcher ran used data retrieved from the MAP pre- and posttests and from DORF and CBM ORF protocols. Regression and the Pearson correlation were used for hypothesis testing to examine the relationship between student gains in comprehension, as related to the understanding and using of literary text, and student gains in ORF. This was to answer Research Question 1: What is the relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF? The null and alternative hypotheses were as follows:

H_{01}: There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

H_{02}: There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to DORF progress monitoring protocol.

$H_{a1:}$ There is a significant relationship between student gains in comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{a2:}$ There is a significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to DORF progress monitoring protocol.

Results of the regression analysis showed that the effect of fluency instruction was not significant on the MAP gains in Using and Understanding Literary Text. Although the Pearson correlation approached significance, $r = .293$, $p < .5$, neither of the dependent variables was significant. Null Hypothesis 1 was not rejected.

For Null Hypothesis 2, results of the regression analysis showed that the effect of fluency instruction was not significant on the MAP gains in Using and Understanding Literary Text, and the Pearson correlation between DORF gains and MAP gains in Using and Understanding Literary Text was not significant. Null Hypothesis 2 was not rejected.

Research question 2. The second regression test used data retrieved from the MAP pre- and posttests and from the CBM ORF and DORF protocols. The regression analysis and the Pearson correlation were used for hypothesis testing to examine the relationship between student gains in comprehension, as related to the understanding and using of informational text, and student gains in ORF to answer Research Question 2:

What is the relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF? The two null hypotheses were as follows:

$H_{03:}$ There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{04:}$ There is no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to the DORF progress monitoring protocol.

$H_{a3:}$ There is a significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{a4:}$ There is a significant relationship between student gains in reading comprehension as related to the understanding and using of informational text, and student gains in ORF assessed according to the DORF progress monitoring protocol.

Results of the regression analysis showed that the effect of ORF instruction was not significant on the MAP gains in Using and Understanding Informational Text. Results of the Pearson correlation did not indicate a significant correlation between CBM ORF gains and MAP gains in Using and Understanding Informational Text. Therefore, Null Hypothesis 3 was not rejected.

For Null Hypothesis 4, the results of the regression analysis showed that the effect of ORF instruction was not significant on the MAP gains in Using and Understanding

Informational Text. The Pearson correlation also did not show a significant correlation between DORF gains and MAP gains in using and understanding informational text. Therefore, Null Hypothesis 4 was not rejected.

Research question 3. The third correlation this researcher analyzed used data retrieved from the MAP pre- and posttests for total reading comprehension and from the CBM ORF and DORF protocols. Regression analysis and the Pearson correlation were used for hypothesis testing to examine the relationship between student gains in comprehension, as related to the total reading comprehension scores, and student gains in ORF to answer Research Question 3: What is the relationship between student gains in total reading comprehension and student gains in ORF? The two null hypotheses were as follows:

$H_{05:}$ There is no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

$H_{06:}$ There is no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the DORF progress monitoring protocol.

$H_{a5:}$ There is a significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the CBM ORF progress monitoring protocol.

$H_{a6:}$ There is a significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the DORF progress monitoring protocol.

Results of the Pearson correlation did not indicate a significant correlation between CBM ORF gains and MAP gains in total reading comprehension. Therefore, the Null Hypothesis 5 was not rejected.

For Null Hypothesis 6, again, results of the regression analysis showed that the effect of ORF instruction was not significant on the MAP gains in total reading comprehension, and the Pearson correlation did not show a significant correlation between DORF gains and MAP in total reading comprehension. Therefore, Null Hypothesis 6 was not rejected.

Predictive Fluency Protocols

Research question 4. The fourth research question that I analyzed used data retrieved from the CBM ORF and DORF protocols. Regression was used for hypothesis testing to answer Research Question 4: Which protocol for the progress monitoring of oral reading fluency is the better predictor of gains in total reading comprehension, the CBM protocol or the DORF protocol? Null Hypothesis 7 stated that there is no better predictor of gains in total reading comprehension between the DORF protocol and the CBM ORF protocol. Alternative Hypothesis 7 stated that there is a better predictor of gains in total reading comprehension between the DORF protocol and the CBM ORF protocol.

To identify whether there was a better predictor of reading comprehension gains, a regression line needed to be found using ORF data. Therefore, the 10-week study was divided into two parts: the first 5 weeks and the second 5 weeks. Following the research practices of Baker et al. (2008), Hasbrouck and Tindal (2005), and Wood (2006) for each participant, two median cold read DORF scores were found, one for the first 5 weeks of the study and one for the second 5 weeks of the study. Then the difference between the two median ORF scores was determined. This number, that is, the difference between the median DORF scores for the first 5 weeks of the study and the median DORF scores for the second 5 weeks of the study, was defined as the gain in the DORF cold read scores for each student. The exact procedure was repeated for repeated readings using the CBM ORF protocol. For each participant, two median repeated readings from CBM ORF scores were found, one for the first 5 weeks of the study and one for the second 5 weeks of the study. Then the difference between the two median ORF scores was determined. The difference between the median CBM ORF scores for the first 5 weeks of the study and the median CBM ORF scores for the second 5 weeks of the study was defined as the gain in the CBM ORF repeated readings scores for each student. Results of the regression analysis showed that neither the DORF protocol nor the CBM ORF protocol was a significant predictor of gains in total reading comprehension. Therefore, Null Hypothesis 7 was not rejected.

Conclusion

This quantitative study considered and examined the relationship between ORF and reading comprehension in students with SLD and RD in Grades 3 through 6. The

primary purpose of this study was to determine whether ORF instruction is related to reading comprehension gains; the secondary purpose was to identify which protocol, CBM ORF or DORF, is a better predictor of reading comprehension gains of students with RD and SLD. Although there was noted growth in reading comprehension, as measured by the MAP test, and noted growth in ORF as measured by the CBM ORF and DORF protocols, regression analysis and the Pearson correlation indicated that they were not related.

In Section 4, I presented and analyzed the retrieved data to respond to the research questions that guided this study. The findings were as follows:

1. There was no significant relationship between student gains in reading comprehension as related to the understanding and using of literary text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol, although the CBM ORF gain approached significance.
2. There was no significant relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed according to DORF progress monitoring protocol.
3. There was no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to CBM ORF progress monitoring protocol.

4. There was no significant relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed according to the DORF progress monitoring protocol.
5. There was no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to CBM ORF progress monitoring protocol.
6. There was no significant relationship between student gains in total reading comprehension and student gains in ORF assessed according to the DORF progress monitoring protocol.
7. Neither the CBM ORF nor the DORF protocol predicted any better than the other.

Section 5 presents a general overview of the study, which includes why and how the study was done; reviews the research questions that were addressed; and draws conclusions based upon the data analysis for all four research questions. Implications for social change relevant to students, teachers, administrators, and legislators are included. Finally, recommendations for further action and further studies are suggested for the purpose of generating new research ideas and questions, and continuing the search to find the best means of teaching struggling readers to read with proficiency.

Section 5: Summary, Conclusions, and Recommendations

This study was an examination of the relationship of ORF instruction on the reading comprehension for students with RD and SLD. Section 5 begins with an overview of why and how the study was completed, the issues that were addressed, and a brief summary of the findings. It continues with an interpretation of the findings and the relationship of the findings to research on ORF. Section 5 concludes with implications for social change as they relate to reading instruction, recommendations for action, and recommendations for further study.

Overview

This study was conceptualized from a sense of need. There is a need for students with any type of RD to become better readers to be successful members of society. For struggling readers to become fluent readers, educators need to carefully evaluate new ideas, strategies, and ideologies. An abundance of current and historic research has provided an intellectually comprehensive foundation for a new pedagogy, indicating that ORF instruction is to be an intricate part of reading curricula. The NRP (NICHD 2000), identified ORF as one of the critical components or skills necessary for reading instruction. Since that proclamation, many researchers have substantiated the identification of ORF as an essential element in reading instruction (L. S. Fuchs et al., 2001; Ming & Dukes, 2008; Rasinski et al., 2005). However, ORF is not being consistently taught to the degree that many researchers believe that it should be (Foorman, 2007; L. S. Fuchs et al., 2001; Griffith & Rasinski, 2004; Kuhn & Stahl, 2000; Rasinski & Padak, 2005). School districts across the nation are mandating the use ORF

measures to create and result IEP goals, monitor the progress of students on a weekly basis, and report progress to parents using fluency measures. The revelation of this contradiction, juxtaposed with current mandates, led to broad inquiries that became the framework for the issues that this study addressed: What are the effects of ORF on reading comprehension? Is there a relationship between the two? What parts of comprehension are affected, if any? How do we measure ORF? What is ORF? What does ORF sound like? These questions and issues directed the course and scope of this study and evolved into the following research questions: (a) Is there a relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF? (b) Is there a relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF? (c) Is there a relationship between student gains in total reading comprehension and student gains in ORF? and (d)Which protocol for progress monitoring of ORF is the better predictor of gains in total reading comprehension, the CBM protocol or the DORF protocol?

Using archived data, I retrieved pretest and posttest scores from the MAP reading comprehension test and fluency scores from cold reads (DORF) and repeated readings (CBM ORF) for students in Grades 3 to 6. The study spanned 10 instructional weeks. After retrieving the archived data I conducted a statistical analysis using the Pearson correlation to determine whether there was a relationship between ORF instruction and reading comprehension gains in literary text, informational text, and total reading

comprehension. Standard regression was used to determine whether there was a better predictor of comprehension, namely, CBM ORF or DORF.

In this study, the data analysis revealed no significant relationship between fluency and reading comprehension gains in literary text, informational text, and total reading comprehension. After the statistical analysis, the findings revealed that neither the CBM ORF nor the DORF was a better predictor of reading comprehension gains. Consequently, none of the seven hypotheses was rejected.

Interpretation of the Findings

The findings of the study are now discussed in more detail. This segment of Section 5 includes conclusions drawn from the findings and addresses the research questions. I also relate the findings to the empirical literature.

Research Question 1

The two null hypotheses stated that there was no relationship between student gains in reading comprehension, as related to the understanding and using of literary text, and student gains in ORF assessed by either the CBM ORF or DORF protocol. For Null Hypothesis 1, the correlation did not represent a relationship between gains in literary text and student gains in ORF assessed according to CBM ORF progress monitoring protocol. Therefore, Null Hypothesis 1 was not rejected. For Null Hypothesis 2, the correlation did not represent a relationship between gains in literary text and student gains in ORF assessed according to DORF progress monitoring protocol. Therefore, Null Hypothesis 2 is not rejected. These results may support the findings of Corn (2006); Flurkey (1997), (Goodman, in press), Johns (2007), Marcell (2007a, 2007b), Shelton et

al. (2009), Shippen et al. (2006), and Wilson et al. (2004), all of whom questioned the relationship between ORF and gains in reading comprehension.

Research Question 2

The two null hypotheses stated that there was no relationship between student gains in reading comprehension, as related to the understanding and using of informational text, and student gains in ORF assessed by either the CBM ORF or DORF protocol. For Null Hypothesis 3, the correlation did not represent a relationship between gains in informational text and student gains in ORF assessed according to CBM ORF progress monitoring protocol. Null Hypothesis 3 was not rejected. For Null Hypothesis 4, the correlation did not represent a relationship between gains in informational text and student gains in ORF assessed according to DORF progress monitoring protocol. Null Hypothesis 4 was not rejected. These results may also support the findings of Corn (2006), Flurkey (1997), (Goodman, in press), Johns (2007), Marcell (2007, 2007b), Shelton et al. (2009), Shippen et al. (2006), and Wilson et al. (2004), all of whom questioned the relationship between ORF and gains in reading comprehension.

Research Question 3

The two null hypotheses stated that there was no significant relationship between student gains in reading comprehension, as related to total reading comprehension, and student gains in ORF assessed by either the CBM ORF or DORF protocol. For Null Hypothesis 5, the correlation did not represent a relationship between gains in total reading and student gains in ORF assessed according to CBM ORF progress monitoring protocol. Null Hypothesis 5 was not rejected. For Null Hypothesis 6, the correlation did

not represent a relationship between gains in total reading and student gains in ORF assessed according to DORF progress monitoring protocol. Null Hypothesis 6 was not rejected. These results may support the findings of the researchers listed in Research Questions 1 and 2.

Research Question 4

The null hypothesis stated that there was no better predictor of gains in total reading comprehension between the DORF protocol and the CBM ORF protocol. Results of the regression analysis indicated neither protocol, DORF nor the CBM ORF, was a significant predictor of gains in total reading comprehension. Therefore, Null Hypothesis 7 was not rejected.

These results may open the door for future research. Frequently, researchers search for a gap in the current research that can open a door for recommendations for further research, a vital part of the design of a researcher's study. Some researchers (Rasinski, 2006; Therrien & Hughes, 2008) have focused their research on repeated readings CBMs, whereas other researchers (Good & Kaminski, 2002b) have focused their research on cold reads CBMs. However, I found no research that has discussed the concurrent use of repeated reading and cold reads; it was simply one or the other. If, through studies, a better predictor could be found, then instruction time might be more appropriately managed in classrooms that currently require both assessment protocols.

Implications for Social Change

The demand for social change will result in students with SLD and RD becoming better readers to be more successful members of society. The educational issue that accompanies this demand for social change is the ability to identify the appropriate process for creating and applying new ideas, strategies, and ideologies in the classroom. An abundance of current research (Hasbrouck & Tindal, 2006; Pikulski & Chard, 2005; Rasinski et al., 2005; Reis et al., 2008) and historic research (Allington, 1983; LaBerge & Samuels, 1974) has provided an intellectually comprehensive foundation for a new pedagogy, indicating that ORF instruction should be an intricate part of reading curricula. Although a few researchers have disagreed with this new pedagogy, the majority of researchers have acknowledged the great value of ORF instruction. To complicate the issue further, ORF is not being consistently taught to the degree that the majority of researchers believe that it should be, and yet school districts mandate the use ORF measures to create and result IEP goals, monitor the progress of students on a weekly basis, and report progress to parents using fluency measures in order to be compliant with NCLB guidelines.

The results of the hypotheses testing in this study did not support this conceptual framework. The findings simply indicated that for this particular study, no relationship existed between ORF instruction in reading resulting in ORF rate increase and increased reading comprehension in literary text, informational text, or total reading.

Focusing energy on ORF and ORF scores alone is what led Pikulski and Chard (2005) to suggest that ORF in and of itself is not valuable. Hasbrouck and Tidal (2006)

warned educators to recognize the important role of ORF in skill acquisition, measurement of progress, assessment of instructional needs, and consequent decision making while keeping ORF in the right perspective. They stipulated that raising a student's ORF rate should not be the main goal of reading instruction. They maintained that a balance must be found and preserved to keep instructional strategies in the correct perspective. Perhaps the most positive contribution this study has to offer is a reiteration of the warning Hasbrouck and Tindal provided. This study offers several contributions for the continuation of support for students who struggle with the reading process. First, educators should be cognizant of current research on fluency. Second, educators should measure progress of their students, not just the mastery of a task. They should assess instructional needs of their students and make consequent decisions based upon the data collected. Progress monitoring, in the form of CBM, provides weekly information to educators. When the data show that a student is not improving at a rate one would expect, the teacher can change instructional strategies and continue to monitor the student's progress. However, perhaps weekly monitoring of both cold reads and repeated readings is not necessary. In the case of this study, one protocol did not necessarily provide more valuable information than the other. Perhaps the time spent on one of the protocols could be spent on additional instruction. Third, educators need to keep fluency in the right perspective. The caveats of Corn (2006), Flurkey (1997), (Goodman, in press), Johns (2007), Marcell (2007a, 2007b), Shelton et al. (2009), Shippen et al. (2006), and Wilson et al. (2004) should not be ignored, but incorporated into fluency-centered classrooms. Speed reading is not ORF, nor the desired outcome. Counting errors must be consistent

and realistic. ORF should not be the isolated focus of a reading curriculum, missing the comprehension piece, which gives reading its meaning, through visualizing, predicting, connecting, and clarifying. Finally, perhaps missing a weekly data collection moment for a more enjoyable reading experience every once in a while is appropriate.

The American educational society needs to decide whether it is appropriate to embrace ORF as a means of teaching and diagnosing reading comprehension or to pose a logical argument against it. This decision can only happen when knowledge expands and becomes power. Part of that expansion of knowledge involves the finding from this study that presents its own paradox: A relationship between ORF and increases in reading comprehension was not found, yet student growth in both ORF and comprehension was evident. Therefore, it is apparent that much work needs to be done to conceptualize the complexity of the features, mechanisms, and process of ORF. For example, agreements should be reached among educators about (a) the definition and properties of ORF, (b) the mechanics of counting oral reading errors, and (c) the nature of balancing ORF instruction with comprehension instruction in a classroom. These are important steps toward societal change and improved reading levels for some of the country's most needy students.

Recommendations for Action

The first recommendation for action is that district, state, and federal policymakers consider the theoretic framework of ORF instruction, current research, and the results of current studies such as this particular study as they examine the new pedagogy that is driving reading instruction. The second recommendation is that school

districts encourage and support professional development to address the findings as presented in Section 2 of this document in order to inform teachers of current ideologies, pedagogical trends, and practical suggestions for positive outcomes of classroom fluency instruction. Third, I recommend that individual schools and teachers use classroom ORF data to evaluate their own progress when using ORF instruction to increase reading comprehension for the purpose of monitoring reading progress in ensure that no child gets left behind. The fourth recommendation for action is that when ORF curricula are mandated, school districts provide ongoing and more intensive training on the collection of CBM ORF and DORF data, paying close attention to error calculations. The fifth recommendation evolving from this study is that teachers be allowed and encouraged to include other reading instruction techniques to enhance ORF instruction. Finally, the sixth recommendation for action is that when fluency instruction is incorporated as part of the reading curriculum, educators ensure that a balance is found and preserved in order to keep instructional strategies in the correct perspective.

Recommendations for Further Study

As the mandatory use of ORF continues to intensify and school accountability increases for all student populations to succeed, including students with SLD and RD, the researcher suggests that future studies address the following recommendations in the search for variables that define the ways and means of increasing reading comprehension: Future researchers could replicate this study and other similar studies to obtain a broader view of the findings. Studies could focus solely on the comparison of repeated reading CBMs and cold read CBMs to find the better CBM predictor of reading comprehension

gains. Using fall to spring MAP scores rather than midyear scores is recommended because fall to spring scores yield individual growth target scores. Future researchers could use a standardized test other than MAP to determine reading comprehension. Researchers could include a larger sample size to obtain a larger view of the potential relationship between the variables. Future studies could also examine the training opportunities given to the collectors of data to ensure consistency and accuracy with CBM measures.

Finally, I recommend further investigation into the effects of ORF on reading comprehension gains. Much time, effort, and revenue are being used to establish ORF instruction and data collection procedures in school districts and classrooms across the county. If this is best practice, then the time, effort, and revenue being spent are effective, and teachers need to incorporate the findings of research into their personal belief systems and be effective reading instructors. If, however, this is an educational bandwagon, then policymakers need to slow down the mandatory pressures of classroom use and begin to look at a broader view of reading instruction because the time, effort, and revenue being spent are ineffective. Finally, it is paramount for teachers to be informed and to incorporate the findings of research into their personal belief systems in order to be effective instructors of reading.

Summary

This study was designed to look at ORF and its effect on reading comprehension gains for students with SLD and RD. Although this researcher did not find a relationship between ORF and reading comprehension gains, nor a better CBM predictor of reading

gains, the study certainly suggests that the quest is not over. Research must continue in order to help struggling readers become powerful readers. Future studies in this area are necessary and of great value. There is value and significance in educators questioning what we do, how we do it, and knowing why it is done. This study is a reminder that answers are not simple in education and that the search sometimes is as valuable as the questions and answers.

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Teacher Report - Reading Spring 2009

School: [redacted] Elementary ([redacted] County School District)
Class: 016016228 [redacted] HOMEROOM4 0897040001
Teacher: [redacted]
Test: Reading Survey w/ Goals 2-5 SC V5

Student ID	Name	Grd	Test Type	Test Date	RIT	Std Err	RIT Range	%ile	%ile Range	Lexile Range	Goal Performance: Literary Texts	Goal Performance: Informational Texts	Goal Performance: Building Vocabulary
6406384458	[redacted]	4	S/G	Apr 29	158	3.6	154-162	1	1-1	BR	151-164	156-169	147-160
7679078858	[redacted]	4	S/G	Apr 29	182	3.5	179-186	5	4-8	177-327	166-178	180-193	182-194
2442614979	[redacted]	4	S/G	Apr 29	186	3.3	183-189	9	6-12	251-401	185-198	180-192	175-187
5120149391	[redacted]	4	S/G	Apr 29	190	3.3	187-193	13	10-18	329-479	176-189	187-198	190-202
4387609559	[redacted]	4	S/G	Apr 28	191	3.2	188-194	14	11-18	338-488	187-198	184-196	184-196
5780285764	[redacted]	4	S/G	Apr 29	194	3.3	191-197	18	14-24	395-545	186-198	189-201	190-200
9043748609	[redacted]	4	S/G	Apr 29	195	3.4	192-198	20	15-26	411-561	197-209	193-205	178-190
3541839163	[redacted]	4	S/G	Apr 29	198	3.4	195-201	26	20-34	465-615	196-208	180-194	198-210
-0010013446	[redacted]	4	S/G	May 4	198	3.5	195-202	26	20-36	471-621	203-215	187-200	186-197
-0010019450	[redacted]	4	S/G	Apr 29	201	3.6	197-205	34	26-45	524-674	194-206	195-208	196-209
7036477598	[redacted]	4	S/G	Apr 28	201	3.3	198-204	34	24-42	512-662	191-203	199-210	195-206
7447805904	[redacted]	4	S/G	Apr 29	202	3.3	199-205	36	29-48	544-694	194-205	198-211	198-209
4585990577	[redacted]	4	S/G	Apr 29	203	3.3	200-206	39	29-48	546-696	193-205	203-214	193-205
6818636365	[redacted]	4	S/G	Apr 29	203	3.4	200-206	39	31-48	557-707	197-209	200-212	195-206
6950823614	[redacted]	4	S/G	Apr 29	208	3.4	205-211	54	45-67	653-803	203-214	208-219	197-209
5680338696	[redacted]	4	S/G	Apr 29	211	3.3	208-214	64	54-75	703-853	199-212	210-222	206-217
5965862628	[redacted]	4	S/G	Apr 29	215	3.3	212-218	75	64-83	764-914	206-218	209-220	211-223
7579105306	[redacted]	4	S/G	Apr 29	220	3.3	217-223	87	81-92	860-1010	211-223	221-234	209-221
-0010013446	[redacted]	4	S/G	May 1	***19	Proctor terminated without option to resume							

Totals For: Reading Survey w/ Goals 2-5 SC V5

			Literary Texts	Informational Texts	Building Vocabulary
Students:	18				
Mean RIT:	197.6	Mean:	197.0	199.4	196.5
Std Dev:	13.8	Std Dev:	14.4	14.9	14.7
Median RIT:	199	Median:	200	200	199

Tests shown in gray are excluded from summary statistics. Either the test occurred outside the testing window for a term, had an invalid score, was a repeat test for a student within a term, or was a MAP for Primary Grades test segment.

*** Test score was invalid. Retesting is recommended.

Appendix B: Steps for Establishing Instructional Level

1. The instructor should begin at the grade level of the student and administer three DORF benchmark probes.
2. If the student reads between ten and 50 correct words in 1 minute but the percentage of words read correctly is less than 85%-90% correct, the instructor should select the next lower level of text and try three new passages.
3. If the student reads more than 50 correct words in 1 minute, the instructor should continue to select higher levels of text in which the student reads between 10 and 50 words correct in 1 minute, but the reading level of the text is not higher than the student's grade-appropriate level.
4. The instructor should use DORF to maintain the student on this level of text for the purpose of progress monitoring during the entire school year.
5. The instructor should store the DORF data in AIMSweb or Excel as determined by IEP or RTI status.

Curriculum Vitae

Renee Nouvelle, M.Ed.

Education

2010 Doctor of Education, Teacher Leadership, Walden University, Minneapolis, MN

1994 M.Ed., Curriculum, Indiana Wesleyan, Marion, IN

1976 B.A., Elementary Education, Mount Vernon Nazarene College, Mt. Vernon, OH

Relevant Professional Experience

1986-Present Special Education Teacher

1982-1983 Title One Teacher

1976-1982 Regular Education Teacher

Community Service

2009-Present Smile of a Child Non-profit group

2007-Present Tri-County Autism Camp CPI Trainer

2002-Present Member and Volunteer Seacoast Community Outreach

Licenses and Certifications

- National Board Certification, Certified EMC/Literacy-Reading
- South Carolina State Board of Education, Certified, Elementary Special Education
- South Carolina, Certified, Highly Qualified Educator

Professional Presentations in Study County School District

2008 Forum member: 2008 US-China Educational Forum for Literacy and Reading

2006 Requested speaker at the 2006 Summer Writing Institute

2005 "Understanding Learning Disabilities"

2004 "How to Help the Students with Disabilities Compete in a Science Fair"

2003 "Touch Math Procedures"

2003 Guest Speaker: "Quest Success Story"

Honors and Rewards

2010 Cambridge Who's Who

2008 Recommended Member, 2008 US-China Educational Forum for Literacy and Reading

2007 Recipient: CEC "International Yes! I Can" Award

2007 XXXXX County Honored Educator

2006 Recommended Member, South Carolina Education Oversight Committee Task Force

Nominated for School Teacher of the Year 2003, 2005, 2008, 2010

2001 XXXXX County Honored Educator

2000 Nominated for Disney's American Teacher Award, Teacher of the Year

1995 Award: Outstanding Professional Award, IWU M. Ed Program

Leadership Positions Held in Study County School District

2010 Special Education Liaison

2006 South Carolina Education Oversight Committee Task Force

2006-Present SRA Trainer for Study County School District

2006-Present Intervention Team Member/Leader

2005-2006 Master Teacher – ELA

2004-Present CPI Trainer for Study County School District

2004-Present Department Head/Lead Teacher

2004-2005 Interim Assistant for XXX High School Special Education Department

2003 Quest Coach

Professional Affiliations

2002-Present International Reading Association

2002-Present Palmetto State Association

2002-Present XXXXX Reading Council

2002-Present Council for Exceptional Children

1995-Present Phi Delta Kappa