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Effects of a three-pronged intervention on oral reading fluency and reading achievement: a case study

Christina Calcese

The Effects of a Three-Pronged Intervention on Oral Reading Fluency and Reading Achievement: A Case Study

By

Christina Calcese

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Table of Contents

Abstract

The purpose of this case study was to examine the effects of a three-pronged literacy intervention incorporating strategies and instruction in word identification, decoding by syllable, and oral reading practice on oral reading fluency and overall reading achievement. The participant was an eight year old male student struggling in reading achievement, particularly in oral reading fluency. The intervention followed a two day rotation utilizing a gradual release of responsibility instructional model. Several elements of the intervention incorporated the use of instructional technology. Multiple forms of data were collected, including preintervention data, pretest to posttest data, qualitative data, and ongoing progress monitoring. These data measured oral reading rate and accuracy, reading comprehension, word identification, and word attack. Statistically significant progress was found in all literacy areas noted except for the pretest to posttest oral reading fluency rate. Recommendations include emphasizing successive readings of the same text, using voice recording technology, emphasizing the parent-teacher relationship, and decreasing the participant's reliance upon external reinforcement.

Chapter 1

Introduction

The purpose of this case study was to examine the effects of a three-pronged literacy intervention incorporating strategies and instruction in word identification, decoding by syllable, and oral reading practice on oral reading fluency and overall reading achievement. In this chapter, I will provide an introduction to the student who was the focus of the case study, briefly connect the interventions to Wisconsin's Common Core State Standards (CCSS; Wisconsin Department of Public Instruction, 2012), and outline a glossary of terms used throughout the following five chapters.

Participant in the Study

In case study research, a problem or difficulty for one individual is identified, and the researcher develops an intervention and works with the participant to implement the intervention and measure its effectiveness. This section provides background information on the participant. When the study commenced, Josh (a pseudonym, used to protect the confidentiality of the participant) was eight years old and had just completed second grade. The study took place over five weeks in the summer between Josh's second and third grade years of schooling. During the fifth week of the study, Josh turned nine years old. He identifies as Black/African American.

By the end of 2nd grade, Josh had been referred to a special education evaluation team three different times to determine if he qualified for special education services. He did not qualify for services on any of the three occasions under the Individuals with Disabilities Education Act (IDEA, 2004). According to his parent, he was referred by his general education teacher all three times. The parent noted weaknesses in sight vocabulary, study habits, reading

comprehension, reading accuracy, and writing. She also expressed concerns about his spelling abilities and overall motivation.

While Josh did not meet criteria to qualify for special education services under IDEA, he has been evaluated in accordance with the law, which incorporates the Response to Intervention (RtI; Martin, 2011) model of identification for additional support, including referral for special education services. RtI addresses a long-standing problem in special education law. Previously, students had to fall severely behind their on-level peers to be evaluated and/or qualify for special education services. With RtI, however, students are continually monitored for achievement, and those who are at risk of falling behind receive a second tier of support that is more intensive and research based. This case study supports RtI because Josh received research-based intervention augmenting the general education curriculum to address his specific needs.

According to a Woodcock Reading Mastery Test (WRMT-III; Woodcock, 2011) administered prior to the onset of the intervention period, Josh had difficulty with all areas of reading, most notably oral reading fluency, in which he was performing in the 0.2 percentile. He also struggled with word identification, performing in the 5.0 percentile. His relative strengths were in Word Attack, Passage Comprehension, and Listening Comprehension; all standard scores on those respective subtests approached the mean score. I decided to focus the intervention on improving oral reading fluency and overall reading achievement by targeting Josh's difficulties with word identification and oral reading fluency, as well as expanding on his relative strength in word attack.

I observed Josh to be a very bright, energetic child. He was quick to grasp new concepts and engaged well in tasks that combined a number of sensory stimuli, such as electronic games incorporating sounds, graphics, and physical activity. He was polite, good natured, and eager to

share knowledge and try new activities. It was quickly evident that he was very hyperactive, although he had no medical diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). It was difficult for Josh to sit still or attend to tasks that did not involve him moving about. He also displayed a tendency to be impatient, struggling to persist with tasks longer than about seven minutes at a time. It was therefore appropriate that I design my interventions to capitalize on his energy and use it to progress his reading, rather than try to stifle it. The following glossary will identify and define the vocabulary necessary to understand the interventions I used, as well as interventions studied by others, to increase reading skills.

Glossary

This glossary will define terms commonly used throughout this study that readers may or may not be familiar with. In this glossary, all definitions are adapted from Temple, Ogle, Crawford and Freppon (2011).

Alphabetic Principle	The understanding that words are composed of letters that make sounds; using those letter-sound correspondences to say words.
Cognitive Disability	A categorization of disability under the Individuals with Disabilities Education Act (2004); students who qualify must have an intelligence-quotient score two or more standard deviations below the mean, and adaptive skills ratings two or more standard deviations below the mean.
Decoding	Deciphering an unknown word. Phonemic decoding refers to deciphering the word by stringing together the sounds (phonemes) in the word; contextual decoding refers to using the context of the story or text to aid in deciphering the word.
Encoding	Writing a word one does not automatically know how to spell by applying the alphabetic principle.
Grapheme	The smallest unit of written language, e.g., a letter
High-Frequency Words	The most commonly read words in a language which should be mastered as sight words.
High Stakes Tests	Standardized tests that affect more than just providing information about present levels of performance. For

	instance, high stakes test can affect grade promotion, graduation, or the funding a school receives based on its proficiency scores.
Nonsense Words	Made-up words not part of the English language; used to assess reading of common spelling patterns and/or decoding skills.
Oral Reading Fluency	How a student reads aloud. Involves rate, often measured by words per minute (WPM) or correct words per minute (CWPM), accuracy, often measured by a percentage of words read correctly as a proportion of the total number of words, and prosody, a measure of inflection and expression.
Phoneme	The smallest unit of sound in spoken language.
Phonemic Awareness	The ability to hear, manipulate, and identify phonemes
Phonics	See: *The Alphabetic Principle*
Phonological Awareness	Recognition that words are made up of sound units
Pseudoword	See: *Nonsense Words*
Response to Intervention	(RTI) A three-tiered support and intervention model of teaching, learning, and encouraging positive behavior. The RTI model, when implemented correctly, all students are evaluated for the need of additional implantation of support and intervention, and that all students receive such intervention to meet their needs.
Schema	Background knowledge or prior knowledge.
Sight Vocabulary	The words a reader automatically identifies without needing to decode.
Sight Words	High-frequency words a student has or is expected to commit to sight vocabulary.
Word Attack	What a reader does when s/he comes to an unfamiliar word; usually refers to phonemic and/or contextual decoding.
Word Identification	The area of literacy pertaining to automatic recognition of words, also known as *sight word identification* and *word recognition.*

Common Core State Standards

The state in which this study took place adopted the Common Core State Standards (CCSS) in 2010. The CCSS delineate the knowledge and skills students should have by the end of each grade level. The goal of implementing interventions in the areas of word identification, syllabic decoding, and oral fluency practice was strongly aligned to the CCSS. Specifically, they were aligned to the CCSS Reading Foundations standards for second grade, incorporating reading fluency with respect to rate, accuracy, and expression; use of context clues to assist phonemic decoding; distinguishing long vowel and short vowel sounds, as well as familiarity with vowel-teams, and decoding two-syllable words using common syllable patterns.

Conclusion

During the intervention Josh practiced automatic recognition of high-frequency words using word sorts and a sight word application on a tablet computer. He engaged in a decoding to encoding procedures, and he practiced reading and rereading appropriately leveled passages. This study explored the effectiveness of these interventions on oral reading fluency and overall reading achievement. The following chapter details the research gathered and utilized to develop the case study.

Chapter 2

Review of Literature

Strong literacy skills are the foundation of students having the opportunity to experience success in school. The purpose of this study was to explore the effects of a three-pronged approach incorporating strategies in sight word identification, decoding and word attack, and oral reading fluency practice, on oral reading fluency and overall reading achievement. The first section of this chapter explores a series of research studies examining comprehensive reading interventions in elementary schools. The second section discusses the relationship between, and importance of, oral reading fluency skills for reading comprehension. Section three describes specific interventions supporting word identification and decoding-by-syllable skills. The final section explores reading interventions studied specifically in the context of students with challenging behaviors. Overall, the research presented in this chapter supports the development of a reading intervention for a struggling second-grade student with attention and hyperactivity-centered challenging behaviors. The intervention involves instruction in word identification, syllabic decoding, and extensive oral reading fluency practice.

Comprehensive Reading Interventions

A series of research studies underscores the importance of individualizing reading interventions for struggling readers in the early elementary grades. The researchers reviewed in this section point out that highly generalized approaches to increasing literacy skills for some students with reading delays compounded with disabilities in speech and language, for instance, are ineffective for those students' needs (Lukin & Estraviz, 2010). Alternately, O'Connor, Fulmer, Harty and Bell (2005) found that students who received individualized and 'layered' interventions from trained teachers made significant reading gains in a very short period of time.

Those findings are supported by MacDonald and Figueredo (2010), who found that the rate of growth for kindergarteners who received an individual tutoring intervention surpassed their non-tutored peers. Their study investigated the effects of an early literacy intervention called *Kindergarten Early Literacy Tutoring* (KELT) on oral language and emergent literacy skills in a high-poverty, urban school district in Canada. The KELT program focused individual tutoring around individual student needs, emphasizing oral language development and its significance for emergent literacy. The independent variable in the study was the application of the KELT program, in which students spent one half of the day in regular kindergarten and the other half with their KELT tutor. A control group spent one half of the day in regular kindergarten and was not in school for the other half. The dependent variables were six-fold: oral language, concepts of print, phonemic awareness, letter-sound knowledge, letter sound correspondence, and word knowledge.

The sample was composed of students from four urban schools in East-Central Canada. The schools were selected for evidence of delays in students' early literacy skills acquisition, such as high poverty levels and low standardized test scores. Students identified for intervention were recognized as 'at risk' in early literacy skills at the end of four-year old kindergarten; the control group, by default, was comprised of students who did not participate in the KELT program. Twenty-seven male students and 24 female students made up the intervention group, while 21 male students and 24 female students comprised the control group. Twenty-six students in the intervention group were identified as having acquired English as a Second Language (ESL), while eight students in the control group were identified as having acquired English as a Second Language.

The KELT program was premised upon the belief that intervention must be individualized and specific. Tutors worked with their students every day, for half of the day, for the entire year. The tutors received information allowing them to align their interventions with the general kindergarten curriculum. Daily procedures included kinesthetic activities, vocabulary development, schematic activation, story reading (using read-aloud, shared reading, and independent reading strategies), and writing activities (following the I do, we do, you do instructional design). The programming schedule included a balance of learning-through-play and direct instruction.

Outcomes were measured using a variety of assessments to gauge growth among each of the dependent variables in a pre-post test format. Oral language was assessed using a receptive language skill assessment from the *Bookshop Reading Program* (Crevola & Vineis, 2004). The assessment for print concepts was developed as a combination of a measure from the Bookshop Reading Program and the *Concepts about Print* assessment (Clay, 2004). Phonemic awareness was measured using the phonemic awareness/word segmentation subtest of the Bookshop Reading Program, which also supplied the measures of Letter-Sound Knowledge and Letter-Sound Correspondence. Word Knowledge was measured using a modified assessment developed from the Kindergarten Teacher's Resource Book, designed to assess automatic recognition of the 12 most commonly used words in the English language (a, I, it, the, and, in, of, to he, is, that, was).

On all assessments, the students' measures on each subtest grew at rates higher than the control groups' measures. On the Print Concepts assessment, the intervention and control groups initially scored at the same level, and on the posttest the students in the intervention group far outscored the control group. On the Word Knowledge subtest, the students in the intervention

group scored below the students in the control group, and far outscored the students in the control group on the posttest; this pattern was mirrored on the Letter-Sound Knowledge subtest. On both the Phonemic Awareness and Letter-Sound Correspondence assessments, the students in the intervention group outscored the control group on both pre and posttests, but a linear analysis suggests that on both assessments the rate of growth was higher for the KELT group. On the Oral Language subtest, the KELT group scored below the control group on both the pre and posttest, but again, the rate of growth for the KELT group was higher than that of the control.

This study lends considerable evidence to the body of research suggesting that individual tutoring programs can have drastic impact in closing the achievement gap between students performing on level and below level. It also points to the necessity of early intervention for students considered ‘at risk’ in literacy skills, and underscores the possibilities for quick gains in early schooling. Finally, the study highlights the importance of maximizing instructional time and using all time efficiently.

In many areas of the United States, both urban and rural, so many students are so severely underperforming in reading achievement that any individual tutoring at all, much less half-day tutoring, is highly unrealistic. A study conducted by O’Connor, Fulmer, Harty and Bell (2005) developed a systemic intervention model covering multiple grade levels that used layers of reading support and targeted professional development for teachers to individualize reading interventions. The study explored the effects of professional development for teachers and multiple layers of reading support and intervention for students on overall reading achievement between kindergarten and third grade, in a longitudinal design. The independent variable was a three-pronged intervention comprised of professional development for teachers, ongoing progress monitoring, and ‘layering’ of reading supports and interventions. The dependent

variables were measures of reading achievement, including receptive vocabulary, segmenting, word identification, word attack, passage comprehension, and reading fluency. The study was controlled for with a group of students who did not receive the intervention. Data was collected over a four-year intervention period.

Participants included both educators and students. Two schools were selected: the first school from an industrial New England city that drew a predominantly low socio-economic status student population, and the second school in an urban setting affiliated with a university. The second school required parents to pay tuition for their children's attendance, and most parents were highly educated. Demographics of the first school were 12% Black/African-American, 2% Hispanic/Latino, 3% American Indian, and 83% Caucasian/White. 15%-16% of the students in the school's third grade class received special education services. The demographics of the second school were 15% African American, 57% Caucasian/White, and 28% were identified as "Other." Eight percent of the students in third grade qualified for special education. Across both schools, only three students were identified as speaking a non-English first language. Both schools' principals and all the teachers (including general education, special education, remediation, and speech teachers) were also participants. The intervention groups were comprised of all students in kindergarten and first grade; the control groups were comprised of all students in grades 2 and 3 when the study commenced.

Teachers in this study implemented changes for the intervention group in a staggered method over the four years the study was conducted. Control data were collected in the first year from the students in the control groups who did not participate in the intervention. The study was layered in multiple ways. In the first layer, teachers received professional development, and kindergarteners received additional reading intervention, but first graders did not. When the

kindergarteners continued into first, second, and third grade, they became eligible for more layers of intervention, and the group was termed Layer 2. The professional development layer consisted of 32 hours of professional development at points throughout the academic year. The sessions emphasized the research base for the content, and the content included components of reading specific to grade levels. Phonemic awareness, phonics, and vocabulary were emphasized in kindergarten and first grade; word recognition and fluency were emphasized in first and second grades; multisyllabic word reading and comprehension were emphasized in grades two and three. The teachers themselves were involved in developing the instructional strategies portions of the professional development. In the second layer, direct interventions were wrapped around students to meet their literacy needs. Students who were in kindergarten, identified as having the most difficulty with letter-sound associations, and students in first through third grades who scored 0.75 or more standard deviations below the mean on the *Woodcock Reading Mastery Tests-Revised* (WRMT-R; Woodcock, 1998), were considered for additional interventions. The pre and postmeasures used were three subtests of the WRMT-R: Word Identification, Word Attack, and Passage Comprehension. The researchers also measured receptive vocabulary pre and postintervention using the *Peabody Picture Vocabulary Test*, third edition (PPVT-III; Dunn, Dunn & Dunn, 1997.)

Student achievement outcomes for Layer 1 versus Layer 2 versus the control groups were statistically significant for all measures in grades one through three, with the exception of receptive language in second and third grade, which was not statistically significant. Students in Layer 1 outscored the control groups in second grade in all areas. Students in Layer 2 outscored the control groups in all areas in all grades, with the exception of Word Identification in second grade. The effect sizes for all reading areas in Layer 1 were in the small to moderate range.

Effect sizes for Layer 2 were reported in the moderate range. There was no significant difference in the effects of the interventions, regardless of layer, between the high socioeconomic status (SES) school and the low SES school.

Findings confirm the researchers' hypothesis that early, consistent, and continuous intervention for struggling readers in kindergarten through third grade improves their overall reading outcomes. The implication for the necessity of providing high-quality professional development for teachers is profound and supports more recent research linking teacher quality and student achievement. The researchers also noted how effective interventions can quickly catch a student up to speed: only five students consistently underperformed their peers. Lastly, the study disproves a commonly held myth about differentiation of instruction: that focusing on students who struggle the most will limit opportunities for the highest-performing students. The researchers found improvements among all levels and 'risk-statuses' of students.

Alternatively, Lukin and Estraviz (2010) found that applying a large-scale intervention for struggling readers without focusing on individual nuances between readers was ineffective for students with *Severe Receptive Language Impairment* (SLRI). The researchers hypothesized that traditional reading intervention programs would not meet the needs of students with SLRI because they typically assume a level of oral language proficiency to make reading gains that students with SLRI may not yet have acquired. The independent variable was the Reading Recovery intervention program; the dependent variables were comprised of: 1) the length of time a student spent in the program; 2) book level attained at program exit; and 3) teacher reports on reading level.

The sample consisted of six students identified as having SLRI. The researchers used existing data as the control in the study: results of the Reading Recovery program's effectiveness

were stored in Queensland's *Reading Recovery Annual Report* (Queensland Department of Education Training and the Arts, 2004). The six-student sample was comprised of students who had diagnoses of *Speech Language Impairment* (SLI) as determined by four criteria: a) a history of difficulty with speech and language; b) impact of SLI on academic performance and inadequate response to intervention; c) standard scores on formal assessment measures for language development that were two or more standard deviations below the mean; and 4) elimination of exclusionary factors. The only students who were included in the study were those whose difficulties with language were both severe and receptive.

During the period of intervention, the students participated in traditional implementation of the Reading Recovery program, which meant they attended four individual sessions with trained teachers per week. The researchers explained that the program focuses on reading comprehension and expressive writing. The program includes leveled books and dictated texts for students at the pre-primer level. Reading Recovery also focuses on direct instruction in comprehension strategies.

Each of the six students stayed in the reading recovery program for different lengths of time: 18 weeks, 19 weeks, two students at 20 weeks, 26 weeks, and 27 weeks. Outcomes were measured against the state average of 17.8 weeks spent within the program, exiting at book level 16. The researchers found that the student who stayed in the program for 18 weeks moved up five levels; the student who stayed for 19 weeks moved up six levels; the students who stayed for 20 weeks moved up seven levels and eight levels respectively; the student who stayed for 26 weeks moved up 16 levels; and the student who stayed for 27 weeks moved up 18 levels. Teacher reports indicated that those students who had made significant gains did not sustain the level of improvement in reading achievement once exited from the intervention. The researchers

concluded that students with SLRI stayed longer in the reading recovery program to make less growth in reading achievement as indicated by book exit level and teacher reports. The researchers inferred that for students with SLRI, the traditional model presented in the Reading Recovery intervention program was insufficient. They noted the need for meta-linguistic emphasis, the inclusion of phonological awareness to precede phonemic awareness, and oral language activities to balance comprehension and construction.

A review of these studies highlights the importance of ensuring that reading instruction is individualized, intentional, and differentiated. The study by O'Connor, Fulmer, Harty and Bell (2005) emphasizes the role of teacher training and professional development in implementation of reading intervention, underscoring the intentionality of interventional design: trained to identify and monitor student strengths and weaknesses across the spectrum of reading, from phonological awareness all the way to comprehension, the teachers were able to individualize and layer interventions, progressively becoming more individualized depending upon student need. The results addressed the needs of all students as individuals while simultaneously maximizing efficiency in the whole-school setting over multiple grade levels. The students in the KELT program, conversely, were all privileged to have several hours of individualized instruction in a one-to-one setting each day of the summer session; they significantly outperformed their peers, who received no individualized support outside the regular classroom setting, which assumes basic differentiation of instruction. Likewise, the students with SLRI in the study by Lukin and Estraviz (2010) did not respond adequately to the broad Reading Recovery intervention applied to all struggling students in the study. The students with SLRI required further individualization in reading remediation, including an emphasis on oral language fundamentals. For the purposes of this research study, the above review provides a research base

for designing an intervention that is highly intentional and responsive to the individual student's needs, delivered in an individual tutoring session format.

Fluency for Comprehension

Comprehension – that is, reading for meaning and understanding – has long been described as 'the reason for reading.' Phonological awareness, phonemic awareness, the alphabetic principal, automatic word identification, oral reading fluency, and vocabulary are all elements of reading that, when mastered, enable reading comprehension. A number of studies have explored oral reading fluency in the context of reading comprehension, and the effects of interventions aimed at increasing oral reading fluency on reading comprehension. This section will review a continuum of studies, moving from the examination of the relationship between fluency and comprehension, to the predictive value of fluency for comprehension, to the effect of direct instruction of fluency on comprehension. Finally, the section will review a study that isolated fluency instruction as a variable within reading intervention itself.

A study by Wise et al. (2010) was conducted to address how different measures of oral reading fluency relate to reading comprehension in second grade students. As a secondary research question, the researchers asked to what extent the patterns of relationships between oral reading fluency and reading comprehension differed between two samples of second grade students who exhibited different skill levels in oral reading fluency. All students were recruited for another reading intervention study; this study only analyzed data collected from the partnering studies with regard to different measures of oral reading fluency and reading comprehension. The independent variable was the type oral reading fluency measure examined: nonsense-word oral reading fluency, real-word oral reading fluency, or oral reading fluency of

connected text. The dependent variable was the relationship of that measure to a reading comprehension measure.

The researchers created two samples based upon the students' oral reading fluency skill sets: those who were struggling with both simple words and simple nonsense words (ORFD) and students who exhibited difficulty only with oral reading fluency in connected text (CTD). The precise origins of these acronyms were not identified by the authors. They hypothesized that within the ORFD sample, because students still had to rely heavily on decoding skills to identify words, the nonsense-word oral reading fluency measure would have the strongest relationship with reading comprehension. Within the CTD sample, the researchers hypothesized that oral reading fluency of connected text would have the strongest relationship with reading comprehension.

The ORFD sample was comprised of 146 students from Atlanta, Boston, and Toronto, who were recruited for a study of the effectiveness of a phonological awareness intervention. Sixty of the participants were female; 86 were male; 76 were Black/African-American; and 71 were White/Caucasian. The CTD sample was comprised of 949 students who were recruited from urban Georgia (*n*=671) and suburban New Jersey (*n*=338). Of that group 455 were female and 494 were male. The racial/ethnic makeup of the sample was varied: the majority was Black/African American (*n*=457); followed by Hispanic/Latino (*n*=242); White/Caucasian (*n*=189); Asian (*n*=38); and Other (*n*=23).

The study included data from three assessments. The *Test of Word Reading Efficiency* (TOWRE; Torgeson, Wagner, & Rashotte, 1999) measured Sight Word Efficiency (real-word identification) and Phonemic Decoding (nonsense-word identification.). The Fluency subtest on the *Gray Oral Reading Test* (GORT-IV; Wiederholt & Bryant, 2001) measured accuracy and

rate in connected text. Reading comprehension was measured using the *Wechsler Individual Achievement Test* (WIAT; Weschler, 1992).

In the ORFD sample, the correlation (*r*) of both nonsense-word fluency and oral reading in connected text was .45, and the real-word fluency correlation was .57, indicating a strong positive relationship with reading comprehension. In the CTD sample, the correlation between comprehension and nonsense-word fluency was .73; between comprehension and oral reading fluency in connected text was .80, and the real-word fluency was .83. Thus, in the ORFD sample, all measures were strongly and positively correlated, and in the CTD sample, all measures were very strongly positively correlated. Results indicated that real-word oral reading fluency was most strongly related to reading comprehension regardless of skill level of oral reading fluency. The study underscores the necessity of classroom teachers and reading interventions to place emphasis on sight word identification when developing fluency for comprehension skills. However, given the strengths of the decoding and connected text measures, the study yields further evidence that no element of fluency instruction or reading instruction can be taught in isolation if reading comprehension gains are to be meaningful.

While the above research studied only the relationship between oral reading fluency and reading comprehension, a study by Baker et al. (2008) addressed the extent to which *Oral Reading Fluency* (ORF) is a predictor of overall reading proficiency in high poverty, low-performing schools. The researchers investigated three principle questions. First, they examined the presence or lack of a relationship at all between ORF and high-stakes reading tests. They hypothesized a moderate to strong correlation. Second, after controlling for initial oral reading proficiency level at late first/early second grade, they questioned whether ORF growth can be a statistically significant predictor of reading performance on high-stakes tests. The researchers

predicted that the rate of growth would be a significant predictor of reading proficiency. Third, they investigated the durability of the predictive quality of ORF – that is, was the predictive quality of ORF to reading proficiency on high-stakes test in the first year of the study maintained for the second year of the study? The researchers hypothesized the predictive quality of ORF would remain consistent in the second year. In the first and third questions, the independent variable was performance on oral reading fluency, and the dependent variable was reading proficiency on high-stakes testing. On the second question, the independent variable was the rate of growth on oral reading proficiency, and the dependent variable was the reading proficiency on high-stakes tests.

Students profiled in the study attended Oregon schools that had secured *Oregon Reading First* grant funding from the U.S. Department of Education. These schools were from sixteen school districts. Half the schools were located in large urban centers; one-fourth of the schools were located in midsize cities, and one-fourth located in rural areas. All students supported by the grant met eligibility criteria for poverty level and difficulty with reading progress. The study analyzed data from all students in the Oregon Reading First program, which covered eligible students in kindergarten through third grade in all participating schools.

Implementation of the Oregon Reading First program involved a mandate of at least 90 minutes per day of scientifically research-based reading instruction for kindergarten through third-grade students. A minimum of 30 minutes per day of small group, differentiated and direct reading instruction was an additional component. Participating schools were required to implement reading programs that covered five major elements of reading instruction (phonemic awareness, phonics, fluency, vocabulary and comprehension) and were required to implement Response to Intervention to identify and provide further supports for struggling students within

the program. A literacy coach was assigned to each participating school to monitor and support teachers. For the measures used to collect and analyze data, the researchers used the Oral Reading Fluency score from the *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS; Good & Kaminsky, 2002). The high-stakes tests they used for comparison were the *Stanford Achievement Test* (SAT-10; Harcourt Assessment, 2002), an assessment of overall reading proficiency, and the *Oregon Statewide Reading Assessment* (OSRA; Oregon Department of Education, 2000). The OSRA is a test of overall reading performance aligned to the Oregon State Standards for reading. Data were collected by school based assessment teams on each participating school's campus.

Researchers calculated thirteen correlations to answer their first research question. Correlations between ORF and the SAT-10 ranged between .72-.82, indicating strong correlation. On the OSRA, correlations ranged between .58-.68, indicating moderately strong correlations. For the second research question, the researchers conducted several regression analysis tests and best-fit models, and all six models effectively predicted reading achievement on the OSRA at the end of third grade. Furthermore, the R-squared value on the SAT-10 was .76, indicating strong predictive quality. All tests were statistically significant at the 99% confidence interval. To address the third research question – consistency between first and second grade, and second and third grade predictive values over two years of the study – the researchers found that the best fitting models in grades one and two, and grades two and three, included the same predictors. In both models, the ORF growth accounted for a statistically significant amount of variance in predicting reading proficiency on the high stakes test, although it contributed more in first-to-second grade consistency than in second-to-third grade consistency.

While a great deal of debate surrounds the implications of high-stakes tests, there can be no question about the necessity of standardizing student achievement and holding educators accountable for student learning. Schools that are making positive gains against the odds of the relationship of poverty and student achievement, but may not be making adequate yearly progress under No Child Left Behind, can glean important data points from this study: to close the reading gap quickly, focus on oral reading fluency; to predict the rate of student achievement increases, examine current growth levels of oral reading fluency. Furthermore, classroom teachers often notice discrepancies between their qualitative evidence of what students know and are able to do, versus standardized test scores. Direct instruction in oral reading fluency can be a way to close the 'data gap,' particularly when standardized test scores under-represent what students are capable of – in the case of high stakes testing, with potentially disastrous consequences.

Ruetzel and Hollingsworth (1993) went beyond studying the relationship and predictive value between oral reading fluency and reading comprehension to explore the effects of direct fluency intervention on reading comprehension. The study, in fact, was highly significant to the field of instructional design as a whole, because it studied the effects of an intervention designed around the gradual release of responsibility model, incorporating a teacher modeling, guided practice, and independent practice format. That model is currently widely recognized as best practice in the process of teaching and learning. The researchers, citing a lack of studies showing the results of direct fluency training on reading comprehension, examined the effects of using the *Oral Recitation Lesson* (ORL) fluency training model on the reading comprehension of second-grade students. The independent variable was the implementation of the ORL fluency intervention, controlled for by a placebo group (RR) who were instructed using a then-traditional

Round Robin oral reading approach. The dependent variable was gain in reading comprehension as measured in a pre test posttest format.

The entire sample consisted of seventy-eight second grade students recruited from two elementary schools. The sample was representative of the socioeconomic status of the entire community in a midsize Rocky Mountain city. A majority of students were Caucasian from middle and lower class backgrounds, although Black/African American, Latino, Asian, and American Indian students were also represented. The mean score for nationally norm-referenced tests of reading achievement for the sample group was just slightly below the national mean. The students were randomly assigned to treatment and control groups. Both groups were administered the *Iowa Test of Basic Skills* for reading (ITBS) and there was no statistically significant difference between their performances.

Four teachers participated in the study and were randomly assigned to treatment and control groups. The teachers participated in in-service trainings in procedures for both the RR and ORL groups, as well as district-wide trainings for the district-adopted Houghton Mifflin curriculum. Throughout the intervention period, both treatment and control group teachers were randomly monitored to ensure procedural fidelity. The study was blind in that neither teachers nor students were aware of whether they were in treatment or control groups; the same literature books for fluency practice were used in both treatment and control classrooms. All teachers emphasized the alphabetic principle and phonemic decoding in their fluency work. They divided their classes into three differentiated ability-level groups. Each lesson was thirty minutes in duration and each ability group worked closely with the teacher for ten minutes. The total intervention time was four months.

The RR group received then-traditional Round-Robin or ‘popcorn’ style oral reading practice. This group followed a five-day reading rotation each week: on day one, the students were introduced to a new literature book and read the book aloud; on day two they reread the book; day three involved a new literature book and reading which was reread on day four; and on day five, the students read any book selected by the teacher.

The ORL group was an incarnation of the gradual release of responsibility model. The teacher modeled fluent reading; students read aloud in small groups or in partners, and then students read independently. During teacher modeling phase, expressiveness and prosody were emphasized. Students were encouraged to make text-to-self connections, make predictions, and recognize elements of literature. Following the read-aloud, the teacher modeled how to summarize the book and reviewed vocabulary. During the small-group reading, students were instructed to emphasize and practice specific components of fluency, including sings, stresses, and stops. In small groups, the teacher drew attention to miscues. During individual reading, the teacher met with students for a recitation. At the end of the intervention period all students were administered the ITBS reading subtests as a posttest. The researchers also created an informal measure of oral reading fluency. They read the fable “The Fox and the Grapes” while teachers kept a running record and calculated errors-per-minute (EPM).

On the EPM (fluency measure), students in the ORL group outperformed the RR group by 20 percentile points. On the ITBS reading comprehension subtest, the mean score for the ORL group was compared to the mean score of the comprehension group, which was 40.9, translating to 22-23 percentile rank points. This study thus yields major credibility to the ‘gradual release of responsibility’ model of lesson design, particularly for the objective of fluency for comprehension. Since the 1993 numerous studies have gone on to evaluate the

effectiveness of the I Do/We Do/You Do model emphasizing teacher modeling, small group or guided practice, and independent practice. The model is effective for classroom and tutor-based instruction and has been adopted by teacher training programs and professional development of in-service teachers throughout the nation.

The final study in this section attempts to further isolate fluency as a variable for its effect on reading comprehension by implementing a fluency intervention and adding a comprehension component to one of the treatment groups. The purpose of a study by Patton, Crosby, Houchins, and Jolivette (2010) was to compare the effects of a supplemental reading fluency intervention *without* a comprehension component, and a supplemental reading fluency intervention *with* a comprehension component, on the oral reading fluency and reading comprehension skills of first, second, and third grade students. The researchers utilized the *Great Leaps Reading Program* (GLR; Campbell, 1995). The independent variable in this study was the type of intervention: students received the GLR program as either a fluency intervention or a fluency intervention with a comprehension component. The dependent variables were the differences in reading fluency and comprehension pre-to-post test. The researchers measured these differences using four subtests of the *Woodcock-Johnson-Revised III* (WJ-R III; Shrank, McGrew, & Woodcock, 2001): letter-word identification; word attack; reading fluency; and passage comprehension. They also used the the *Test of Word Reading Efficiency* (TOWRE) Sight Word Efficiency and Phonemic Decoding Efficiency subtests (Torgesen, Wagner, & Rashotte, 1999) to measure reading fluency in terms of sight word identification and efficiency of decoding skills on phonetically regular nonsense words.

The study was conducted in a large, urban school district in the Southeastern United States. No information was provided as to why the particular school district and elementary

school within the district were selected. The elementary school enrolled 532 students, 99% of them African American/Black. 49% of the student body was male and 51% female; six percent received special education services, and 77% received free or reduced lunch. As a whole, students in the elementary school were performing at or above the level of their peers in the state on statewide assessments.

Students were selected from the school's four first grade classes, three second grade classes, and four third grade classes. All students in those grades received consent forms and eighty-six of the 167 students returned them. Students were excluded from the study if they scored below the kindergarten level or above the third grade level on the Passage Comprehension subtest of the WJ-R III. Sixty-eight students were eligible to participate in the study, and at the end of the intervention, data were analyzed for the fifty-nine students who were still enrolled in the school. Students were randomly assigned to one of two treatment groups.

Paraprofessionals were trained to provide the intervention. Four paraprofessionals were selected for participation; no information was provided as to why or how they were selected. All four were Black/African American; three were female, and one was male. Ages ranged from 28-55 years of age. The paraprofessionals were trained for a total of eight hours, broken into two four-hour sessions, in the GLR program procedures for phonics, word recognition, and comprehension questions. All paraprofessionals, regardless of which intervention they provided, received identical training. Training included lecture and role-play formats. Paraprofessionals were randomly assigned to one of two intervention programs.

The first intervention received the singular GLR fluency intervention, which uses repeated readings to increase fluency. Each session lasted ten minutes and covered a phonics activity, a sight words activity, and a story-reading activity. Each session was delivered in a one-

to-one capacity by the paraprofessional. The entire intervention was composed of sixteen phonics activities, thirty-one sight words activities, and forty-seven story-reading activities. For the phonics activity, the student was given one minute to complete grapheme-phoneme identification exercise involving 44-48 graphemes. If the student made two errors or fewer, s/he was considered to have made a 'great leap' and would move to the next activity. The word recognition activity consisted of rapid identification of 48-60 high frequency words in one minute; again, two or fewer errors resulted in a 'great leap.' The story-reading activity involved reading a story aloud in one minute; stories progressed from thirty-five words to sixty-nine words. Two or fewer errors in one minute earned the student a 'great leap.'

The second intervention group received the same intervention as the first group with the addition of a comprehension component. The paraprofessionals taught the students a modified version of the *Reread-Adapt, and Answer-Comprehend* strategy (RAAC; Therrien, Gormley, & Kubina, 2006). Each student was asked three oral questions based on the story: two explicit questions and one inferential question related to the main idea of the text. Each paraprofessional used a prompt sheet with the following five steps: 1) orally read the question and answer choices; 2) allow student thirty seconds to orally select an answer; 3) if the student answered incorrectly, prompt him/her to try again, referencing a specific line of text; 4) orally re-read question and answer choices; 5) if the answer is still incorrect, provide correct response.

On the reading fluency measure, students in the first intervention scored lower on their posttest than pretest by 2.3 points, while students in the second group made a gain of 0.40, which was not considered statistically significant. On the Passage Comprehension measure, students in treatment group one made a statistically significant gain, while students in the second group saw their scores decline. On the Broad Reading subtest, treatment group one made a statistically

significant gain, while treatment group two again saw its scores drop. On the Sight Words measure, both groups made significant growth, although treatment group one saw a higher increase pre-to-post test than group two, while group two saw a higher pre-to-post test gain on phonemic decoding than group one.

Results suggest that teaching comprehension skills in the early elementary grades may be counterproductive to total reading growth when fundamental skills are lacking. At the very least, the findings indicate that the RAAC strategy is an ineffective intervention during this stage in literacy development. Teachers and interventionists should pay particular attention to the level of cognitive development of their students prior to adding an explicit comprehension element to a researched fluency program. The results yield further evidence to support the premise posited in the first section of this review of literature, that is that teachers, tutors and interventionists make individual instructional plans for individual student needs.

The findings in the preceding four studies underscore the importance of supporting students in developing strong fluency skills in the early grades. In the later elementary years and beyond, texts typically become more challenging and students are expected to very quickly undergo an educational rite of passage: the transition from learning to read to reading to learn. Without having internalized a natural flow of quickly and accurately identifying written words, as evidenced by appropriate proficiency levels in oral reading fluency, the skills needed to be successful in any academic pursuit by the late elementary grades are significantly compromised. As Patton, Crosby, Houchins and Jolivette (2010) found, expecting students to demonstrate higher-order comprehension skills when fluency skills are lacking can confuse the task of reading even further. Establishing interventions aimed at increasing oral reading fluency may be

expected to, almost by default, also increase reading comprehension, while targeting fluency as the bridge from decoding words to comprehending connected text.

The Roles of Word-Attack and Word-Reading in Oral Reading Fluency

Since reading fluency is an essential foundational skill for reading with comprehension, several studies have examined effective means of increasing fluency skills for struggling readers. These studies suggest that in, addition to practicing oral reading fluency, certain decoding strategies and word identification strategies can move readers forward quickly. Diliberton, Beattie, Flowers, and Algozzine (2009) explored the effects of direct, explicit, and systemic instruction in syllabication skills on overall reading achievement. Broadly, they studied whether such syllable skills instruction, as applied with phonetically regular low-frequency and nonsense words for encoding and decoding would lead to overall reading gains. Specifically, they studied the difference in effect between the direct, systemic and explicit syllable skills instruction as a supplemental intervention with students who have high-incidence disabilities and/or students at risk for reading failure, versus students with high incidence disabilities and/or students at risk for reading failure who did not receive the supplemental syllabication intervention. The independent variable was the supplemental intervention in syllable skills. The dependent variable was overall reading achievement, determined by four measures: 1) letter-word identification as measured by the *Woodcock-Johnson Test of Achievement III* (WJ-III, Woodcock, McGrew, & Mather, 2001), 2) word attack as measured by the *WJ-III,* 3) passage comprehension as measured by the WJ-III, and 4) fluency as measured by the *Reading Fluency Progress Monitor* (Read Naturally, 2006).

The sample was selected from a central North Carolina school district specifically because of the district-wide implementation of middle-school reading remediation classes for struggling readers. Schools that participated were volunteered for the research by teachers and

principals. The total sample consisted of 83 students: 26 sixth graders, 31 7th graders, and 26 8th graders. Twenty-two of the total participants identified as African American, 10 identified as Latino, and 51 identified as White. The total sample was comprised of 54 males and 35 females. Forty-one participants were considered to be students with high incidence disabilities, including 22 with a diagnosis of having a specific learning disability; seven identified as having an Other Health Impairment for Attention-Deficit-Hyperactivity-Disorder, 12 identified as having a mild cognitive disability, and one as having an emotional-behavioral disability. Four students were identified as English-Language Learners, and 37 students were considered 'at risk' for reading failure. The participants were randomly divided into treatment and control groups based upon class period. The treatment group consisted of 21 sixth graders, 11 seventh graders, and 13 eighth graders. The control group consisted of five sixth graders, 20 seventh graders, and 14 eighth graders.

All students, regardless of treatment or control groups, received a core reading intervention called the *Corrective Reading Decoding Program* (CRDP; Engelmann, Hanner & Johnson, 1999) taught by certified teachers trained in the program. In addition, two-thirds of the participants participated in the *Success Maker* (Pearson Education, Inc; 2008-2009) intervention program. All teachers were certified in all programs they taught, including the supplemental syllabication program. The supplemental intervention spanned six months, and both treatment and control groups received the same amount of total instructional time. Furthermore, both treatment and control groups received the same core curriculum reading remediation program. The treatment group also received the *supplemental syllabication program* (SSIC).

The students received between three and five lessons in the CRDP per week. Those who also received the Success Maker program received it for 15 minutes daily. The CDRP program

focuses on developing decoding and fluency skills. Each lesson is divided into four parts, emphasizing word attack, oral group reading with a comprehension element, paired reading with a comprehension element, and independent comprehension and decoding skills work. The Success Maker program involves fifteen minutes of independent reading comprehension practice, which is automatically adjusted for skills and ability within the electronic format. Precisely how the program adjusts for initial skill level was not detailed by the authors.

The supplemental intervention was comprised of 60 mini-lessons. Each mini-lesson emphasized fifteen practice words: ten for reading, and five for spelling. Each of the four components in the program emphasized explicit syllable skills and knowledge, including metasyllabic vocabulary, syllable patterns, and syllabication steps and rules. Specifically, students were taught to recognize closed syllables, open syllables, vowel-consonant-*e* syllables, vowel team syllables, *r*-controlled syllables, and consonant-*le* syllables; prefixes and suffixes; syllabication division rules and patterns; and diagraphs and blends. Each lesson was composed of the same format: group review, introduction of new material, word reading (nonsense and low-frequency words), and written spelling (using nonsense and low-frequency words.)

Results for all groups were measured using the WJ-III Letter-Word Identification, Word Attack, Passage Comprehension, and the Reading Fluency Progress Monitor. Before and during the research, the researchers collected procedural reliability data, monitoring implementation fidelity. The data was analyzed using the ANOVR statistical method to streamline multiple measures of variance, and used the significance level $P<.05$.

The researchers found that the supplemental intervention yielded statistically significant results for all dependent measures. In an analysis of pictorial and graphical data presented by the researchers, with respect to the variables word identification, word attack, and comprehension, in

all cases the treatment group had a lower pretest mean, and a higher posttest mean, than the control group. These data suggests the intervention was effective.

The results of this study have important implications for the teacher of students with high incidence disabilities who are struggling readers. They support direct, explicit, and systemic teaching of syllable skills and syllabication. While many teachers are familiar with teaching students the 'chunking' technique (teaching children to read words by breaking them into syllable chunks), this study suggests even more explicit syllabication instruction yields more desirable results. Because the intervention was supplemental to an additional intervention, we can infer that comprehensive, balanced literacy intervention with emphasis in syllabication is highly instructive for struggling readers who also have high incidence disabilities. The positive impact of the syllabication instruction was extended to word identification and passage comprehension, and particularly to word attack. The impact on comprehension is particularly important for readers with delayed fluency skills, who may be orally and cognitively ready for more complex comprehension strategy, but lack the word skills necessary to comprehend higher-level text independently.

While the above research specifically studied syllabication and chunking skills in relation to overall reading progress, Cummings, Dewey, Latimer, and Good (2011) examined the relationship between the initial score and rate of growth on one measure of the alphabetic principle, *Nonsense Word Fluency* (NWF) and overall first grade reading progress as measured by Oral Reading Fluency (ORF.) The researchers hypothesized that the initial NWF score would be predictive of the initial ORF score; that NRF progress would be predictive of ORF progress over the course of first grade; and that students who employed unitization skills, or decoding in syllable chunks, to decode the nonsense words would ultimately have the highest ORF scores at

the end of first grade. The independent variable was the initial NWF score, rate of NWF progress, and final NWF score. The dependent variable was the initial ORF score, rate of ORF progress, and final ORF score. NWF and ORF are components of the Dynamic Indicators of Basic Early Literacy Skills (DIBELS).

The researchers gathered a large sample and from the large sample they choose a smaller sample. To study the relationship between NWF and ORF over the course of the school year, the researchers used the data collected from the large sample. To study the specific impact of utilizing unitization as a strategy with NWF and the relationship between the resulting NWF score and the ORF score, the researchers used the data collected from the small sample. The large sample was comprised of first grade students across 12 school districts in the West and Midwest which had already been recruited for participation in a larger study. All districts were located in rural or small urban communities. Demographic data for all 12 districts indicate that the students in the districts were predominately White and that over 30% of the students in the districts qualified for free/reduced lunch. A total of 3,150 first grade students were included in the final large sample, representing all first grade students who began and completed the school year in the districts. The small sample was chosen from a district close to the researchers' headquarters in the Pacific Northwest. 66 first graders were included in the small sample, whose student body was 72% White, 17% American Indian or Alaskan Native, and 8% Latino. 58% of the district's student body qualified for free/reduced lunch.

The DIBELS assessment was administered to participants three times over the course of the school year, in the fall, winter, and spring. Data for the small sample were collected from the winter assessment. Data collected included NWF, NWF code-type, and ORF. NWF is a measure of alphabetic skills: students read pseudowords following either the vowel-consonant (VC)

pattern or the consonant-vowel-consonant (CVC) pattern. Students read these words for 60 seconds, and the final raw score is the number of letter-sound relationships read correctly. NWF code-type was the measure the researchers collected from the small sample to determine the decoding strategy participants were using. The data collectors categorized the students' pseudoword decoding into one of five categories: unit (syllabic decoding); sound (phonemic decoding); recode (the student phonemically decodes the word and then repeats the word, blending the phonemes together); partial blend (the student decodes part of the word and blends it with a portion of automatically identified word reading); and error (incorrect decoding). ORF is a measure of reading fluency and accuracy; in a 60-second period, the researcher recorded both the raw number of words read correctly and words read in error.

The correlation between NWF and ORF for fall, winter, and spring was positive and strong (*r* was between .69 and .82). For every one-point gain from fall to spring on NWF, the researchers found ORF scores to increase one-half-word. Overall, the researchers found that NWF gain predicts spring ORF, but the strength of the predictive quality dropped off slightly for students who had the highest initial NWF scores. With respect to code type, the researchers' hypothesis was confirmed: students who used the unit strategy scored approximately 11 points higher on their spring ORF scores than students who did not. In addition, students who unitized made fewer errors on spring ORF.

Implications gleaned from these data are significant. The data confirm that continued instruction in the alphabetic principle is important to overall gain in fluency achievement. In addition, syllabic and unit-based instruction is the most efficient means to increased fluency. Because reading fluency is often understood as the vehicle from decoding to comprehension, and comprehension is understood as the 'reason for reading,' the study underscores the use of

strategic and explicit syllabication instruction in quick and efficient decoding to improve oral reading fluency.

The two studies in this section support the development of fluency interventions that continue to build on essential word work: that is, late-stage decoding and encoding by explicit syllabication instruction, sight words and nonsense word identification.

Reading Intervention and Difficult Behavior

The most carefully designed plans to support struggling readers, encompassing repeated reading and fluency practice, teacher modeling, balanced literacy, and continued emphasis on the fundamentals of word work, designed intentionally to meet specific needs of specific students, may go awry when student behaviors interfere with the teaching and learning process. This section reviews three studies, each of which examined a reading intervention either designed in conjunction with a behavior intervention, or specifically to minimize the impact of counterproductive behaviors.

A study by Oakes, Mathur and Lane (2010) examined the effects of a fluency-building intervention on the oral reading fluency (ORF) of students who exhibited patterns of difficult behavior and were struggling readers. The fluency intervention was implemented as part of a tier-2 reading intervention that also included an emphasis on phonics. The independent variable was the secondary fluency intervention, a three-phased program comprised of cycling a student through a combined reading accuracy and behavioral support model, adding a fluency-building component, and returning to the accuracy and behavioral support model. The dependent variable was the growth in oral reading fluency as measured by the ORF score on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002).

Nine second-grade students participated in the secondary intervention: six boys and three girls between the ages of 7.3 and 8.5 at the onset of the study. Four were White; four were Latino/Hispanic; and one was Black/African-American. Two of the students scored within one-two standard deviations below on the mean on intelligence (as measured by the *Wechsler Intelligence Scale for Children* (WISC-IV; Wechsler, 2003); however, they did not qualify for a cognitive disabilities special education program because they did not score two or more standard deviations below the mean. The other seven students scored within the average range for intelligence on the WISC-IV. One student was identified as an English Language Learner (ELL). All students were identified as either at risk for reading delay or both at risk for reading delay and exhibiting persistent challenging behaviors. Educator-participants included three classroom teachers and the reading specialist at the school.

The researchers conducted the study in a large suburban Southwestern city in the United States. 40% of the student population was identified as Latino/Hispanic; 23% identified as English-Language Learners, and 56% received free and reduced lunch. Of the student population, 22% qualified for special education services at the onset of the study. English-language learners were immersed in an English Language Development program (ELD) and the district used a three-tiered Response to Intervention (RtI) model, allowing the researchers to examine the effectiveness of the secondary fluency intervention among a population already receiving high-quality, differentiated instruction. Tier 1 for reading intervention was a scientifically researched reading curriculum utilizing a small-group remediation model within the larger classroom setting. Students who were moved into Tier 2 received interventions from reading specialists, Title I teachers, and special education teachers. Tier 3 was identified as referral for special education services. In terms of student behaviors, however, there was no

school-wide or district-wide *Positive Behavior Intervention and Support* (PBIS) implementation, although individual classroom teachers constructed their own management systems.

All second-grade students took the DIBELS assessment during the first week of second grade. The assessment yielded cut scores delineating low-intervention, strategic intervention, or intensive intervention groups. Students in the intensive intervention group were monitored weekly for the first five weeks of school. Students who had scored initially in the intensive intervention group, and then made inadequate progress in oral reading fluency during the first five weeks, were invited to participate in the study, provided the primary reading program was delivered with 80% fidelity and the students did not meet any exclusionary factors. Exclusionary factors included involvement in a special education program, making adequate growth to meet second grade reading benchmarks by the end of the second grade, or having received Tier 2 interventions in first grade. Based upon these qualifiers and exclusionary factors, ten students qualified for participation in the study and nine of those ten families opted in. Of the nine student participants, four were identified as having challenging behavior patterns that identified them as "at risk" for developing more elevated behaviors. The 'at risk' status was denoted by a seven-item screening measure called the Student Risk Screening Scale (SRSS; Drummond, 194).

Two components comprised the primary reading program. The first utilized the *Harcourt Trophies* series for 45 minutes, four times per week. The *Harcourt Trophies* component involved vocabulary practice and skill development, choral reading, and partner reading. The second component of the primary program was instruction in phonemic awareness and phonics using the *Fundations: Wilson Language Basics for K-3* (Wilson, 2002), which emphasized print concepts, phonological and phonemic awareness, decoding, vocabulary, and spelling. All students received

the primary program; the study was controlled for, then, based upon those students who did not receive the secondary fluency intervention.

The secondary intervention used the reading accuracy program of *Fundations* with the addition of a ten-minute read-aloud per session. Students who participated in the secondary intervention were taught by the reading specialist for 30 minutes, four times per week. The first phase of the intervention incorporated drill practice, reviewing and manipulating previously taught sounds using sound tiles; echo and find activities, where students would quickly locate a sound or word, and dictation, where students would encode sounds and words using small whiteboards. The first phase also included behavioral support. Expectations were directly and systemically taught. These expectations included modeling and practicing good learning behavior, such as getting materials ready, responding appropriately to teacher and peers, participating fully and appropriately, and following along. Students self-monitored behavior using tally points as directed by the teacher.

The second phase of the fluency intervention added a fluency building component to the first phase. The fluency building component involved reading leveled passages aloud and self-monitoring for speed and accuracy. The overall progress monitoring system covered 10 completed timings. After completion of the 10 timings, the students were moved to phase three, which cycled back to the components of the first phase.

Results from the primary program indicated that five of the nine students' oral reading fluency trends were decreasing, and all those who were increasing were increasing at a rate of less than 0.74 correct words per week. During the first phase of the secondary intervention, four students' scores indicated positive trends and three remained stable, but two students continued to demonstrate decreasing trends. During second phase of the fluency intervention, when the

fluency building component was added, four students began to make strong or moderate increases on ORF as determined by effect statistics, while there was limited to no effect size for five. However, six students demonstrated an increasing linear trend. During the final phase, however, eight of the nine students made large positive gains in trends, increasing between one and five correct words per week. All students' mean ORF scores increased during the secondary intervention during each phase. The researchers determined that to close the reading gap between these students and their on-level peers, and to reach second grade benchmarks by the end of second grade, the students would need to make average gains of two correct words per week. Eight of the nine students met this goal, which the researchers determined meant the intervention was successful not only statistically, but meaningfully enough for the students to access the rest of the second grade curriculum. Another important finding was that the students who were considered 'at risk' for elevated behavior patterns made as much or more growth on ORF as compared to the mean.

This study lends a great deal of credibility to the model of concurrently teaching appropriate social and learning behaviors with academic intervention. Implicit in the model is teaching students early on to self monitor, both in terms of their academic and behavioral gains. The students in this study self-monitored oral reading fluency growth and positive behaviors utilizing the tally system. The researchers noted the impact of having a menu of options for strategic intervention available at the Tier 2 level, allowing teachers to selectively combine interventions for optimal effect.

A second study utilized the potential of incentives as a tool for increasing reading achievement in struggling readers. Noell, Gansle and Witt (1998) conducted a study regarding the effects of contingent positive reinforcements for gains in oral reading fluency on overall

growth in oral reading fluency across three text passages of increasing complexity. The independent variable was a reading fluency intervention which followed a format of teacher modeling and student practice combined with a reward system. The dependent variable was Oral Reading Fluency (ORF) as measured by Words Correct per Minute (WCPM).

Three nine-year-old boys were the subjects of the study. All had a medical diagnosis of attention-deficit-hyperactivity-disorder (ADHD), and all three were enrolled in a three-week academic summer program for children with ADHD. The students were entering fourth grade; all had intelligence quotients within the average range, and all the boys' parents had expressed concern with progress in reading achievement.

The researchers selected 21 passages at each the second, third, and fourth grade levels from the *Harcourt Brace Jovanonich Treasury of Literature*. Readability was determined from the Flesch-Kincaid readability index. The overall format of intervention implementation was premised upon the establishment of baseline data, application of contingent reward for gain in WCPM, reward, modeling, and practice until mastery sufficient for an increase in reading level was achieved. Participants were instructed to do their best job at reading aloud a passage starting at the second grade level. The passage reading was timed and all words read incorrectly or words read in excess of three seconds were marked as incorrect. The participant was provided with a contingent reward (a token for a later reward) if, during the following session, his median WCPM increased with no increase in errors. For the modeling section, the tutor would model fluent oral reading at a rate 20% faster than the student's median score from the previous session. The student would then practice the same passage once prior to the next assessment. Three passages were completed following this model in each session.

The three students made a combined increase in their mean reading rate of 59% from the baseline data to the final assessment. Precise WCPM data for each student were not supplied by the authors. The data suggest that contingent reinforcements may be effective not only for increased positive behavior, but for increased reading achievement, when coupled with the established best-practices of teacher modeling and guided student practice. Interventionists and teachers may choose to exercise caution, however, in group settings where rewards for achievement may be public where there is no control for initial skill sets, ability levels, and cognitive abilities.

Another study, or a review of an action research project, detailed the gains made by a student with profound attention-deficit-hyperactivity disorder when the researcher changed the interventions from traditional, book-and-paper based activities to interventions designed on a then-revolutionary tablet computer, the iPad. An action research study undertaken by a pre-service teacher at Southeastern Oklahoma State University, written in conjunction with the student's research advisor and the cooperating school district's superintendent, analyzed the effects of supplying a wide range of reading interventions to a 5th grade student who had a diagnosis of Attention-Deficit-Hyperactivity Disorder (ADHD). The interventions were implemented via use of an iPAD (McClanahan, Williams, Kennedy, & Tate, 2012). The independent variable was the use of the iPAD to facilitate the interventions, and the dependent variables were the student's gains in word recognition and comprehension. The researchers also included a host of qualitative data collated from the pre-service teacher's field notes.

The student participant in the study was a 5th-grader reading on a 2nd grade level. The student attended a very small school in a rural school district that did not provide pull out classes for students who received special education services. The researchers' investigations into the

student's schooling led them to believe the accommodations and modifications listed in his *Individualized Education Plan* (IEP) were implemented inconsistently, particularly for accommodations requiring advanced planning, differentiated instruction, or behavioral supports. A review of records indicated that the student had made approximately one grade level of reading growth in second grade, and had made no reading growth since. The researchers noted that the student did not receive parental support in literacy and did not take medication for his medically diagnosed ADHD.

During her first meeting with the student, the pre-service teacher observed an inability to focus so profound she feared none of her traditional interventions would be effective. As a reward for completing an intervention, she allowed the student to play a game on her iPad. She observed that he remained perfectly still and focused for ten minutes while using the iPad, and petitioned her research advisor and the superintendent of the school district to allow interventions to be implanted using the device. Consent was obtained, and interventions went forth.

The pre-service teacher used an *Informal Reading Inventory* (IRI) to assess the student's skills in various areas of literacy. She designed interventions around those skills, and used the IRI again as a post-test to measure growth. During the pre-assessment, she found the 2nd grade level to be his instructional level. His prosody was poor; he paid little attention to punctuation during oral reading, and did not attempt to decode unfamiliar words. He correctly recognized beginning word sounds and then either skipped the rest of the word or guessed incorrectly. He did not recall detail, struggled to answer inferential questions, and sequenced his retelling incorrectly.

The interventions were implemented in individual tutoring sessions once a week for six weeks. The length of each session was not recorded. The pre-service teacher decided to emphasize word recognition strategies, recognizing and decoding compound words, using context clues, sequencing, identifying cause and effect, and making inferences. She used a variety of applications for the iPad from educational websites, including FlashCards+ (Zwick, 2012), Compound Boogie[1], Vocabulary Builder (Innovative Net Learning, 2011), ABC Alphabet Phonics (Ability Software, 2011), and Stories2go[2]. These applications allowed her to help the student build his sight vocabulary by focusing on specific sight words and compound words; to work on compound word identification by choosing a compound word quickly from a group of words; to read stories and sequence them; to use new vocabulary words in a variety of ways; and to hear phonemes and then select the appropriate grapheme for each phoneme. She also downloaded electronic stories and taught the student to code the text using the iPad, and recorded his oral reading on the device, which allowed him to listen and analyze his own voice.

The student made both qualitative and quantitative reading gains across the literacy spectrum at the end of the six sessions. The second grade level on the IRI became his independent reading level and the third grade level became his instructional reading level. Prior to interventions, the third grade level had been his frustration level; his frustration level post-intervention was the fourth-grade level. At the second grade level, the student increased his word recognition score from 96% to 100% and his comprehension score from 75% to 100%. On the third grade level, his word recognition increased from 88% to 98%, and his comprehension increased from 75% to 90%. Field notes and a qualitative report yielded important observations: when the student listened to himself reading from the recording, he asked to read the story again

[1] This mobile application cited by McClanahan, et al. appears to have been discontinued and could not be retrieved.
[2] This mobile application cited by McClanahan, et al. appears to have been discontinued and could not be retrieved.

because he wanted to “make it make sense.” When taught to code the text, he noted “If I would have learned how to do these things when I first started school, I wouldn’t have had such a hard time!”

An important implication for this study is that it underscores the significance of having an asset-based approach to students who struggle with focus. In this case, the pre-service teacher turned the student’s ‘deficits’ into ‘assets’ by capitalizing on his interest in technology and gaming to make an entire years’ worth of gains in six weeks. Such growth indicates that the student was thirsty for learning and capable of doing anything his peers without disabilities could do, given appropriate instruction. While the findings support increased individualized access to technology for struggling readers, the implications are limited by budgetary concerns and professional development for teachers in the ever-evolving field of educational technology.

Conclusion

The progression of research outlined in this chapter provides a connected, scaffolded basis for the construction of an intervention meant to increase fluency as a vehicle for comprehension that incorporates fundamental word work and behavioral skills support. The research base established by MacDonald and Figueredo (2010) evidences the importance of developing literacy interventions that are holistic and balanced, touching on all the skills and knowledge needed for students to successfully read and write. These skills include phonemic and phonological awareness, phonics and the alphabetic principle, word identification, fluency, vocabulary, and comprehension. The study also provided evidence that intentional and individualized tutoring can be instrumental in helping struggling students catch up to their on-level peers. O’Connor et al. (2005) added two dimensions of support to the balanced literacy intervention model. First, they incorporated the role of teacher training in student outcomes;

second, they made the study longitudinal, tracking the same students over multiple years of study. Further credibility was lent to the notion that effective intervention must be largely based on individual need and response by Lukin and Estraviz (2010), who found that all students do not benefit from universally applied intervention.

That body of research regarding effective and individualized intervention was extended by the researchers who respectively found that reading fluency is related to reading comprehension, predicts reading comprehension, and affects reading comprehension (Baker et al., 2008; Reutzel & Hollingsworth, 1993; Wise et.al., 2010). The final study in the area of fluency for comprehension, however, found that attempting to concurrently provide explicit instruction in reading fluency and in reading comprehension was counterproductive to broad reading achievement (Patton et al., 2010). While reading comprehension is the reason for reading, these researchers found that oral reading fluency was truly the vehicle for inferring and constructing meaning in connected text. Such a finding, when considered in the context of balanced literacy, underscores the necessity of directing focus on fluency *for* comprehension while continuing to provide instruction in the fundamentals of word work, such as decoding skills and word identification. The emphasis on word work continues to be developed by the research related to oral reading fluency where the authors found that a combination of recognizing word parts (decoding by syllable) and recognizing the instant letter-sound correspondences of sounds in nonsense words increases fluency and comprehension (Diliberto et al., 2009). Finally, the research by Oaks et al. (2010) found that teaching students to self-monitor reading and social behavior led to increases in reading fluency achievement, while a study by Noell et al. (1998) found that a contingent rewards program, when combined with reading intervention, yielded greater reading gains than the reading intervention alone. Finally, the action

research study by McClanahan et al. (2010) provided an evidence base for the inclusion of new technology in reading intervention, and supported the benefits of such technological inclusion for students who specifically struggled with attention, focus and/or hyperactivity. Overall, a review of the literature examined here supports that, for a student whose primary reading difficulty in the early grades was fluency, the development of an intervention focused on word work and practice, with the inclusion of support in productive social and reading behaviors, to develop fluency and overall reading achievement.

Chapter 3

Procedures

The purpose of this case study was to examine the effects of a three-pronged literacy intervention incorporating strategies and instruction in word identification, decoding by syllable, and oral reading practice on oral reading fluency and overall reading achievement. This chapter provides an overview of the participant's literacy needs and skill levels at the onset of the intervention, the background of the interventionist, the context of intervention (setting and materials), a description of procedures used, and an explanation of data collection methods.

Participant and Interventionist

In case study research, one individual is the sole participant in the study. The student in this study was Josh (name changed to protect confidentiality), an eight-year old African American child entering the third grade. Josh turned nine during the fourth week of the intervention period. Josh was retained in five-year-old kindergarten based on his teacher's recommendation. He was thrice evaluated for special education services, but never qualified for services under the Individuals with Disabilities Education Act (IDEA, 2004). According to his parent, he was referred by his general education teacher all three times. The parent noted weaknesses in sight vocabulary, study habits, reading comprehension, reading accuracy, and writing. She also expressed concerns about his spelling abilities and overall motivation.

I observed Josh to be a very bright student who was quick to grasp new concepts and eager to share and build upon prior knowledge. He was very energetic, often to the point of hyperactivity, though he did not have a medical diagnosis of Attention Deficit Hyperactivity Disorder. He frequently got out of his seat and walked around the room, fidgeted with whatever was available for him to play with, took off his shoes and put them back on, played with his juice

or water bottle, and scrunched up pieces of paper to toss them in the wastepaper basket, as though playing basketball. As previously noted, it was important to use his energy productively, rather than admonish him for his playfulness. Simultaneously, I knew I must hold him to high expectations for his behavior, reinforcing positive behaviors leading to academic growth, and discouraging inappropriate behaviors such as imitating bodily function noises, rolling on the floor, and throwing crumpled up paper.

Josh was assessed using the *Woodcock Reading Mastery Test* (WRMT-III; Woodcock, 2011) one week prior to the intervention period. The assessment indicated a severe delay in oral reading fluency; his percentile rank was 0.2. His oral reading fluency score was more than two standard deviations below the mean score. His relative strengths were in Word Attack, Passage Comprehension, and Listening Comprehension. His standard scores on those subtests were 95, 88, and 92 respectively; in other words, his scores approached the mean on those subtests. It was therefore appropriate to focus intervention on oral reading fluency to increase Josh's overall reading achievement.

The interventionist taught special education at the middle and high school levels in a cross-categorical position for two years in the school district where Josh attended school. She was completing a graduate degree in special education at the time of the intervention period, and had finished three graduate level courses in assessment and instruction in literacy.

Setting

The study took place in a large urban city in the Upper Midwest region of the United States. The student attended a public elementary school in the city. The school district was annually identified for improvement under No Child Left Behind (NCLB) at the most severe

levels the law identifies. Josh's school was predominantly Black/African American (85%), and 92% of the students were identified as coming from economically disadvantaged backgrounds. Despite the overall academic performance of the school district, Josh's individual school was relatively high performing. Over 60% of the students in the school scored proficient or advanced proficient in reading on the state's assessment in 2011.

The university affiliated with this study operated several tutoring-based literacy centers in economically disadvantaged areas of the city. One week prior to the onset of the intervention period, Josh was enrolled in an affiliated literacy tutoring center at a Community Learning Center (CLC) in a Section 8 housing development project. All intervention assessments and sessions took place within the CLC. The intervention period took place in the summer, when school was not in session. Twelve 90-minute intervention sessions were implemented over a five week period from late June through early August. There were two sessions during weeks one, two, and four, and three sessions during weeks three and five. The variability was due to instances Josh was not in attendance.

Materials

A variety of assessment and instructional materials were utilized throughout the intervention period. The site facilitator of the CLC administered the WRMT (Woodcock, 2011), I used to inform decisions about the intervention content and procedures. As a pre-and-post assessment, I used the *Qualitative Reading Inventory* (QRI-5; Leslie & Caldwell, 2011). The QRI-5 provides information about word identification, pre-reading strategies, accuracy and rate (measures of ORF), and passage comprehension. To assess decoding strategies, the researcher used the *Dr. Seuss Nonsense Word Assessment* (Dr. Seuss; Santa & Hoien, 1999). The assessment measures student reading of one-syllable non-words of the consonant-vowel-

consonant (CVC) syllable type, allowing the assessor to gauge student knowledge of beginning sounds, ending sounds, and vowel sounds.

Most reading practice passages/books were selected from the appropriate levels of the *Reading A to Z* curriculum (RAZ; Reading A to Z, 2012). In addition, comprehension quizzes and fluency assessment passages were adopted from the curriculum. Reading A to Z is a widely used instructional reading program incorporating phonics and word work, fluency, vocabulary, and reading comprehension. The curriculum is aligned to the *Common Core State Standards* (CCSS, Wisconsin Department of Public Instruction, 2012). All teachers in the school district Josh attended had access to Reading A to Z materials, so their use augmented classroom instruction. In addition, the materials have practice books and corresponding fluency practice assessments, ensuring easy alignment of practice and assessment for the purposes of the study.

I incorporated additional phonics exercises from Grace's (2007) *Phonics and Spelling through Phoneme Grapheme Mapping*, which allow students to practice phoneme segmentation, syllable-counting and sorting, and phoneme-to-grapheme encoding. Several word sorts were adapted from *Words Their Way: Word Sorts for Syllables and Affixes Spellers* (Johnston, Invernizzi, Bear & Templeton, 2009).

Another feature of the total intervention package was the use of the first-generation iPad by Apple. The researcher investigated applications for reading intervention and selected applications conducive to increasing oral reading fluency. Numerous sight word applications were available for download. I selected the application by App-Zoo (2010), *Sight Words,* because it used primer through first grade words from the *Dolch* sight word list (Dolch, 1948) and contained sound and graphic features to energize young readers. Activities included both word reading and phoneme-to-grapheme spelling activities, and the application automatically

stored a repository of mastered sight words. The *Simplex Spelling Phonics 2 Syllables – Spell to Read* application (Pyxwise, 2012) used a combination of phonics lessons, spelling/word patterns, syllabication, encoding, and context clues to teach high-frequency words. Lastly, a set of leveled *Fluency Applications* (Fluency; Bugbrained, 2012) provided passages aligned to the Common Core standards for grade level. Each passage was accompanied by four activities emphasizing expression, accuracy, rate, and smoothness.

Overview of Procedures

Intervention sessions followed the same daily pattern, with the exception that each practice text was cycled through two sessions. Each session incorporated a three-pronged approach to increasing reading fluency: sight word identification, decoding and encoding by syllable, and oral reading fluency practice. Several sessions incorporated a reading comprehension 'check,' although comprehension was not the focus of the intervention. The rationale for such checks and an occasional comprehension activity was to ensure the meaningfulness of the intervention as a whole, considering that comprehension is the 'reason for reading' (Temple et al, 2011). Table 3.1 outlines the typical construction of a two-day cycle during the intervention period.

Table 3.1

Layout of Two Day Intervention Cycle

Section	Activities	
	Day One	Day Two
Word Attack 20 Min.	Phoneme-grapheme mapping	Simplex Spelling Encoding
Word Identification 20 Min.	Sight Words application	Word Sorts
Fluency Practice 35 Min.	Model reading Echo Reading Independent Reading	Repeated Reading Fluency application
Comprehension 15 Min.	Finding Main Idea/Details Sequencing Events Making Inferences	Comprehension Quiz

Table 3.1 displays the organization of the two-day intervention cycle. The following descriptions narrate the details of each activity listed in Table 3.1.

Word Attack

Word attack activities reinforce students' use of decoding skills and using context clues to decipher words or nonsense words with which they are unfamiliar. Phoneme-grapheme mapping is a phoneme and/or syllable counting procedure and an encoding procedure (Grace, 2007). The lessons involve direct instruction in regular phonics and syllable rules, followed by practice. I provided Josh with a tutorial on the concept. For instance, if we were mapping consonant-vowel-consonant syllables (CVC), I explained the pattern and the vowel type (long or short). I modeled how to encode the word by segmenting the individual phonemes and writing

the corresponding graphemes in each box. For instance, in the word "chin," I modeled first encoding the "ch" sound by placing "ch" in one box, then the "i" sound in the next, and finally, the "n" sound in the third box. The lessons themselves were based on difficulty with word attack patterns that I noticed during oral reading practice and assessment. Josh had particular difficulty with vowel team blends and vowel diagraphs. Some lessons focused on syllable types (open or closed) and sounds within syllables, which included the vowel-team blend syllable (a closed syllable with a vowel team in the middle); *r*-controlled syllables (syllables where the vowel sound is indiscriminate because it is controlled by the *r* sound); and hard versus soft consonants and consonant teams (sk and ck; hard and soft *g* and *c*). We also used a syllable sorting grid to segment words into syllables and write the spelling of each syllable in a different box (Grace, 2007).

The Simplex Spelling application used Dolch sight words and direct practice with syllable types. We used the lessons that involved compound words, the schwa sound (an indiscriminate vowel sound that sounds like *uh* or *ah*), the short *i* sound, and silent letters. Each lesson had a tutorial. Then it provided spelling words with boxes to put letters in, and a set of letters. The application had an option to use the word in a sentence for context. When Josh struggled with a word, the application broke the word into the number of phonemes. When he tapped those boxes, the application made the sound the graphemes represented for additional phoneme-to-grapheme practice (Pyxwise, 2012).

Word Identification

Word identification exercises provide a myriad of quick, repeated exposures to the most commonly used words in the English language**.** The *Sight Words* application simply provided

lists of Dolch (1948) sight words by grade level. A word was presented. If Josh read it correctly in under three seconds, he was allowed to check it off. Once he checked the word, celebratory music played.

Word sorts involved making cards of a number of words emphasizing the vocabulary or skills Josh was practicing, and sorting them into piles. Word sorts provide a myriad of quick, repeated exposures to words to increase automatic identification of the word. We practiced many types of word sorts. Some word sorts were based on syllable or phonics rule type, such as words with the schwa sound. Others required josh to sort by *le, el,* and *al* syllable endings. Some were simply to sort by type of word – noun, verb or adjective, or to categorize (animal, place, etc.). Some word sorts were based on compound words, with Josh sorting compound words into words sharing a common word part.

Oral Reading Fluency and the Gradual Release of Responsibility

Oral reading fluency practice involved listening, reading, and successive reading activities**.** The gradual release of responsibility refers to the I do/We do/You do model of instruction discussed in the study by Ruetzel and Hollingsworth (1993). The premise, extended to reading fluency, involves teacher modeling of fluent reading (I do), reading together at the same time (we do), and having the child read by himself (you do). Reading with the teacher is sometimes referred to as choral reading. During choral reading, the researcher kept up a reasonable pace and read expressively, encouraging Josh to practice reading at an appropriate pace. During independent reading, when Josh read out loud by himself, I was sure to address every decoding error. Instead of ‘echo’ correction, which is saying the word in error correctly and having the student repeat it, I strived to cue the student toward the correction and make him apply a rule to increase the likelihood of success the next time he encountered the word or a

similar word. For instance, I explicitly taught Josh long versus short vowel sounds, and encouraged him to correct a word by cueing him with “long a” or “short i.” I also taught him the rule “silent e makes the vowel say its name,” “bossy r,” “soft/hard g” or “c,” “tion says shun,” “ight says “ite,” and “igh says I.” I named the rule and encouraged Josh to apply the rule to correct the word. These techniques were introduced in *Teach Like A Champion* (Lemov, 2010). I also cued him to errors by using inflection for words read incorrectly. For instance, if Josh erred reading a word, I repeated his pronunciation and raised my voice in the end as in a question, or asked if the word made sense in context. When he balked at reading words he did not know, I asked him if there was a part of the word he recognized.

Most texts and passages were taken from the RAZ curriculum. We started with RAZ level F owing to Josh’s significant deficits in fluency (level F is the first level for which RAZ recommends beginning to monitor fluency and provides fluency assessment passages). However, the first day of the cycle we used a book from the National Geographic *Windows on Literacy* program (Buckley, 2003), owing to difficulty accessing the RAZ website. On day one of the rotation, we read a RAZ book following the gradual release of responsibility model. I recorded Josh’s voice on my mobile phone as he read the independent portion of the reading. The following day, Josh listened to himself reading the book and follow along with his finger. To engage metacognitively with the goal of increasing his ORF, he would suggest what he could do during the next reading to improve; then, he would read again. I also timed GOOD! the repeated readings and kept a tally of miscues, providing immediate feedback to him on his accuracy and rate improvement.

The Reading Fluency application (Bugbrained, 2012a, 2012b) involved short exercises focusing on different areas of fluency within the same short passage. Josh evaluated the voice

reading on the application for accuracy and practice increasing rate, smoothness, and expression by reading sentences in phrases, which were color-coded by the application. In other words, phrases within sentences were written in different colors to indicate where it was appropriate for the reader to pause.

Comprehension

Fifteen minutes were allotted in each session for comprehension activities and additional exercises related to the texts of the day. After the gradual release of responsibility sequence, Josh completed one brief activity to facilitate comprehension. He completed a graphic organizer, distilling the main idea of the book and the supporting details; he sequenced events in a story, or he made inferences by combining his background knowledge with what was explicit in the text. On the days of repeated readings, he took a five-question comprehension quiz answering both implicit and explicit comprehension questions. All comprehension quizzes were adopted directly from the RAZ curriculum associated with each book.

Reinforcement

A final component of the intervention was the use of reinforcement. Josh was given three minutes of free choice time on the iPad contingent upon his focus during that portion of the session. To earn the iPad play time, Josh needed to follow all instructions the first time and could not engage in any inappropriate behaviors, such has taking off his shoes or articles of clothing, throwing items, destroying items, or playing on the floor. Throughout each section of the session, Josh was permitted to stand up and move around the room provided he was still paying attention, or asked appropriately for a break first. Additionally, each RAZ level increase was awarded a certificate of achievement. Noell et al. (1998) found that the use of contingent and tangible rewards increased both positive behaviors and positive reading trends in students who

struggled with oral reading fluency, as passage difficulty increased. After my initial session with Josh, it was evident by both his behavior and his frustration associated with increasing text difficulty that the use of external reinforcement may be necessary to facilitate his engagement with practice and persistence with challenging content.

Methods of Data Collection

Data in this study can be grouped into four main categories: the data used to determine intervention composition and placement; the data used to measure overall growth by pretest and posttest; the ongoing, formative assessments collected throughout the intervention period; and the qualitative data gleaned from the researcher's observations and field notes.

A previously administered WRMT-III (Woodcock, 2011) was used to determine areas of greatest need for intervention and initial levels for text and word selection. The clusters analyzed were Total Reading, Basic Skills, and Reading Comprehension. The subtests used were Oral Reading Fluency, Word Identification, Word Comprehension, Listening Comprehension, Passage Comprehension, and Word Attack.

The primary assessment used to measure overall growth was the QRI. To assess word identification and to estimate the entry passage, the student reads lists of words leveled from pre-primer 1 through high school. Words are scored as identified automatically, identified, or not identified. Each list, with the exception of the primer lists, consists of 20 words. When a student fails to identify six or more words in a single list, the assessor ceases the word identification portion of the assessment. The assessor considers the level of the final list the student's 'frustration level' for word identification. The assessor selects a passage from the preceding level for the remainder of the inventory. The assessor then selects a passage in either expository or narrative genre from the appropriate level; narrative text is preferred to minimize compounding

variables, such as prior knowledge or experience with multiple text structures. The assessor measures schema by asking three background knowledge questions and having the student make a prediction about the nature of the text. The student then reads the passage aloud while the assessor times the reading and notes miscues. Miscues are later categorized as either meaning-changing or non-meaning-changing. When reading is completed, the student is asked to retell the story as though the assessor had never heard it before, while the assessor counts the number of ideas recalled. Finally, the student answers a set of implicit and explicit comprehension questions. Implicit text questions require the student to make inferences about ideas the author may have implied, but did not state explicitly. Explicit text questions assess the student's ability to recall information stated directly in the text. Additional measures of pre-and-post data were collected using the two subtests of the WJ-III and the Dr. Seuss Word assessment.

Two major forms of ongoing assessment were used for progress monitoring and determination of levels throughout the intervention period. The first was a daily fluency passage assessment taken from RAZ. RAZ provides many fluency assessment passages for each RAZ level. Josh was instructed to read carefully the words on the page aloud while I noted miscues and recorded his time. Each level has a benchmark. For the initial level F through H (the level we ended on), the target words per minute (WPM) was 50 and the accuracy target was 90% total accuracy. When Josh reached both those targets on an assessment passage within an additional level, he was moved up a RAZ level for the next day's practice book and assessment passage. The second ongoing assessment was a five-question comprehension quiz to accompany each RAZ book. Questions assessed both explicit and implicit understanding and were presented in a multiple-choice format.

Qualitative data was gleaned from observations and recordings of student behavior, reading behavior, student talk and discussion, recordings of reading, and engagement in task. Qualitative data was recorded on a cellular recording device during reading practice, and noted in a daily journal of field notes by the researcher.

Conclusion

A review of the literature combined with information gleaned from Josh's WRMT scores, provided the foundation for the development of the set of interventions outlined in this chapter. The interventions were supported by a wide variety of assessment and instructional resources. Assessment was intentional and multi-faceted, supporting the student's growth and ensuring text selection was kept within the student's zone of proximal development. The participant, Josh, was an incredibly bright, capable, and hyperactive child whose oral reading fluency deficiency was interfering with his observed ability to quickly grasp new concepts and his relative strengths in reading and listening comprehension, as texts are expected to increase in complexity in third grade and beyond. Providing a fluency intervention within levels in which Josh could currently comprehend with relative ease was considered to be crucial for his ongoing success in school. The following chapters will present and discuss findings of the effectiveness of the interventions and suggestions for Josh's continued development as a fluent reader.

Chapter 4

Findings

The purpose of this case study was to examine the effects of a three-pronged literacy intervention incorporating strategies and instruction in word identification, decoding by syllable, and oral reading practice on oral reading fluency and overall reading achievement. A wide body of research exists to support the importance of oral reading fluency for reading with understanding (Wise et al., 2010; Patton et al., 2010; Therrien et al., 2006). In addition, explicit syllabication instruction, the guided release of responsibility model, behavioral reinforcement, and reading behavioral skills coaching have effectively moved students forward in their oral reading fluency progress and broad reading skills (Dilberto et. al, 2009; Oaks et al, 2010).

Josh participated in a total of twelve interventions sessions (two assessment sessions and ten instructional sessions) focused around these three areas of support: word identification, decoding, and fluency practice. In addition, Josh's comprehension was monitored, positive behaviors were reinforced, and, to encourage Josh's engagement with lessons and mitigate negative impacts of his hyperactive behaviors, instructional technology was utilized. In the previous chapter, the procedures and methods of data collection were detailed. This chapter will present the results of the data collected at the beginning, throughout, and at the end of the intervention period, as well as qualitative observations about Josh's progress.

Diagnostic and Pretest Data: Findings

Both diagnostic and pretest data were collected prior to the start of interventions. Diagnostic data is used to determine a student's present level of performance. It may also be referred to as 'placement' data, and assists teachers and interventionists to choose appropriate text levels for a student, and determine the content of lessons and interventions.

Josh was assessed prior to the onset of the intervention period using the *Woodcock Reading Mastery Test* (WRMT-III, 2011) clusters Total Reading, Basic Skills, and Reading Comprehension. The results of the WRMT are displayed in Tables 4.1 and 4.2.

Table 4.1

WRMT Scores by Subtest

Subtest	Standard Score	Confidence Interval (90%)	Percentile Rank	Descriptive Category
Word Identification	76	70-82	5.0	Extremely Difficult
Word Attack	95	87-103	37.0	Manageable
Word Comprehension	81	75-87	10.0	Very Difficult
Passage Comprehension	88	80-96	21.0	Difficult
Listening Comprehension	92	83-101	30.0	Difficult
Oral Reading Fluency	56	49-63	0.2	Nearly Impossible

Table 4.2

WRMT Scores by Cluster

Cluster	Standard Score	Confidence Interval (90%)	Percentile Rank	Descriptive Category
Basic Skills	84	79-89	14.0	Very Difficult
Reading Comprehension	84	78-90	14.0	Very Difficult
Total Reading	76	72-80	5.0	Extremely Difficult

Josh's results indicated that he had a relative strength in Word Attack, or his ability to decode nonsense words. Word Attack differs from Word Comprehension in that Word Comprehension measures a student's vocabulary. Word attack refers to technical skills. There is

no context involved, because the words are not real. Assessing word attack measures a student's ability to decode and read common spelling patterns. Word comprehension measures a student's ability to read and understand real words. His standard score of 95 approached the mean standard score of 100. It was apparent that his oral reading fluency skills were profoundly underdeveloped, particularly in relation to his comprehension. His listening comprehension and reading comprehension skill levels, in terms of the WRMT descriptive category, paralleled one another. His listening and reading comprehension skills were significantly stronger than his oral reading fluency skills. However, given the severity of the difficulty with oral reading, I surmised that as text complexity increased in third grade and beyond, oral reading fluency would interfere with text comprehension. He struggled a great deal, as well, with word identification.

The WRMT was administered to Josh by the CLC site facilitator prior to onset of intervention. On the first session day of the intervention period, I administered three additional assessments, including the *Dr. Seuss Words* assessment. The Dr. Seuss assessment is used to assess reading of the most common word patterns and spelling patterns, as well as their ability to decode simple unfamiliar words (Dr. Seuss words are all nonsense words). Table 4.3 presents the results of this assessment. Level 1 of the assessment breaks words into CVC-family groups, while level 2 lists words from mixed CVC-families. During the initial assessment, Josh was so frustrated by the end of the first level that we did not attempt level 2.

Table 4.3

Reading Dr. Seuss Words Results

Word Family	Percentage Correct
Short a word families	60%
Short i word families	80%
Short o word families	60%
Short e word families	100%
Short u word families	60%

The target for proficiency on the Dr. Seuss assessment (an informal assessment) is 90%. From this assessment, it appeared Josh had mastered the short *e* word families and was approaching proficiency in the short *i* word family. The data showed Josh had difficulty with the "ck" diagraph. In eight of thirteen opportunities, he pronounced the 'ck' diagraph as 'sk.' While Josh's word attack skills were manageable as indicated on the WRMT, concerns were still evident, and explicit instruction in syllable skills, vowel blends, and phonologically regular patterns would benefit his oral reading fluency.

Finally, I assessed Josh during the first session using the *Qualitative Reading Inventory*-5 (QRI; Leslie & Caldwell, 2011) as a pretest. Results are displayed in Table 4.4.

Table 4.4

QRI-5 Results

QRI Level	Pre-Primer 1	Pre-Primer 2/3	Primer	1	2
Word ID: % Automatic	100	85	90	75	45
Word ID: % Total	100	90	95	75	50
Passage Name	n/a	n/a	A Trip	Mouse/House	n/a
Passage Type	n/a	n/a	Narrative	Narrative	n/a
Pre-reading: Concepts Familiar (%)	n/a	n/a	78	33	n/a
Total Accuracy (%)	n/a	n/a	93	86	n/a
Total Acceptability (Non-meaning changing miscues)	n/a	n/a	95	93	n/a
Retelling: % Number Ideas Correct	n/a	n/a	55	18	n/a
Comprehension Questions: # Explicit Correct	n/a	n/a	4	2	n/a
Comprehension Questions: # Implicit Correct	n/a	n/a	2	0	n/a
Comprehension: % Correct	n/a	n/a	100	33	n/a
Rate: WPM	n/a	n/a	59	38	n/a
Rate: CWPM	n/a	n/a	55	33	n/a

On the QRI, it was clear that Josh was performing well below his on-level peers for the summer between second and third grade. His instructional reading level, meaning the level he could read with teacher guidance without getting too frustrated, was the primer level, or pre-first grade. His frustration level, where text is simply too difficult to maximize upon learning potential, was first grade. His independent level, the level he could likely read for enjoyment

with minimal difficulty, was likely to be the pre-primer 2/3 level. He did not attempt to decode unknown words, but he recognized his errors and self-corrected a number of times. I did not include self-corrections in the number of total miscues because I was measuring only word-reading mistakes, and self-corrections which were read correctly were not mistakes. If I had, his accuracy would have been significantly reduced. Since self-correction is a reading strength, it was not appropriate to count self-corrections as miscues when the self-corrected word was read accurately. On the level one passage, he grew increasingly frustrated. He rubbed his feet, took off his shoes, and rocked back and forth.

The placement and pretest data I used and obtained prior to and on the first session day supported the total intervention package ultimately implemented in the following ten sessions. Josh had a lot of potential as a reader, in terms of word attack, listening and reading comprehension, but his oral reading fluency and difficulty with automatic recognition of high-frequency words profoundly interfered with his overall reading progress.

Ongoing Assessment

Most days during the intervention period, Josh took a RAZ fluency assessment based on a leveled passage. Results of the fluency assessments are displayed in Table 4.5. No fluency assessment passage was administered after session 7, because Josh was so frustrated he would not look at me or speak.

The goal on each assessment passage, as recommended by RAZ, was 90% accuracy and 50 WPM to move to the next level. Had levels continued to increase, the WPM target would have increased as well. Josh achieved those benchmarks on sessions 5 and 8. Session 8 was clearly a high point for Josh's progress, as he read with 100% accuracy well above the target of 50 WPM. Overall, Josh achieved benchmarks for forward progress on levels F and G and made

measurable progress in level H. Josh's ongoing oral reading fluency progress is visually displayed in figures 4.1 and 4.2.

Table 4.5

Ongoing Reading A-Z Fluency Assessment Passages

Session	RAZ Level	Total Accuracy (% Words Correct)	Rate (WPM)
2	F	93	42
3	F	84	40
4	F	85	49
5	F	96.5	50.68
6	G	91.7	38.4
8	G	100	67.5
9	H	89	26.72
10	H	95	36.44

Figure 4.1

Reading A to Z Fluency Assessment Passages: Total Accuracy

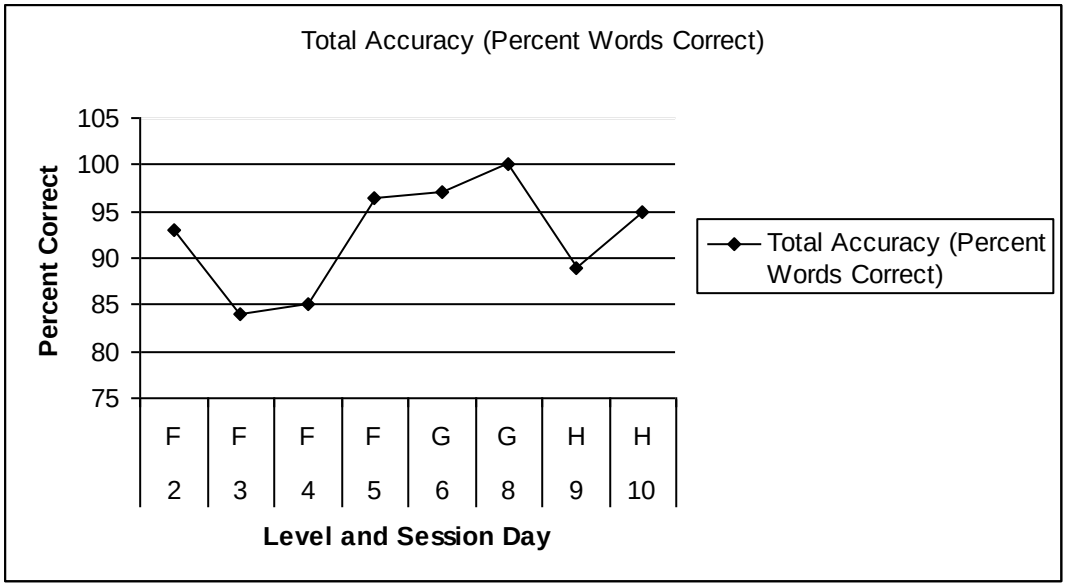


Figure 4.1. Session day 7 is absent from the graph because no fluency assessment passage was administered. The passage reading on that day caused such frustration that clinical judgment was used to make the decision not to assess.

Figure 4.2

Reading A to Z Fluency Assessment Passages: Oral Reading Rate

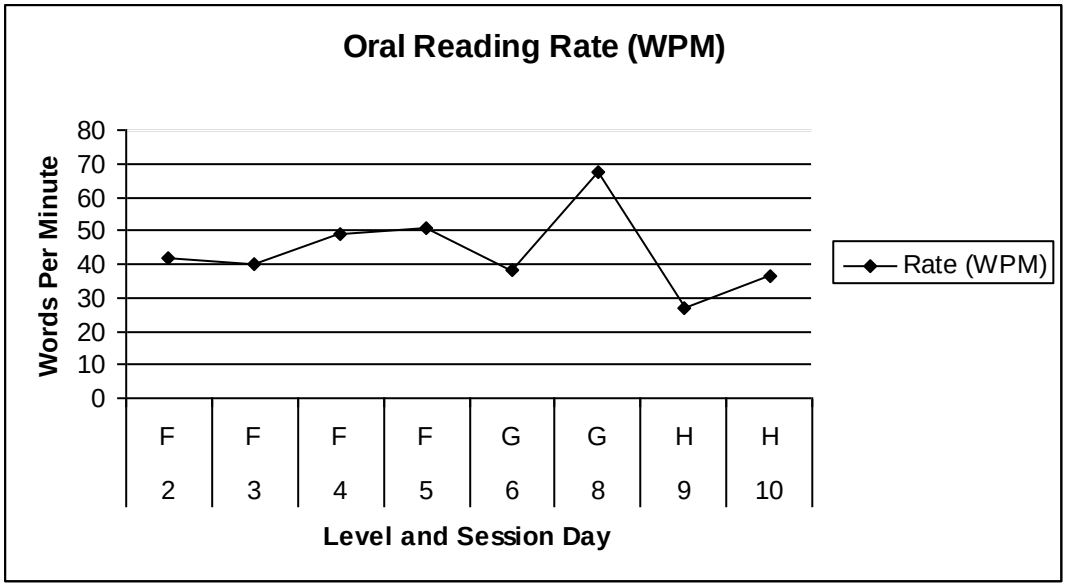


Figure 4.2. Session day 7 is absent from the graph because no fluency assessment passage was administered. The passage reading on that day caused such frustration that clinical judgment was used to make the decision not to assess.

Despite a slight dip in ORF performance in both rate and accuracy during session three, all trends are positive until the difficulty level increases and the scores drop.

To monitor whether or not the increasing text complexity and difficulty had an impact on comprehension, a comprehension quiz was given after each repeated reading of a RAZ book. Four books RAZ books were used over the course of the intervention period. The results of the comprehension quizzes are displayed in Table 4.6 and Figure 4.3.

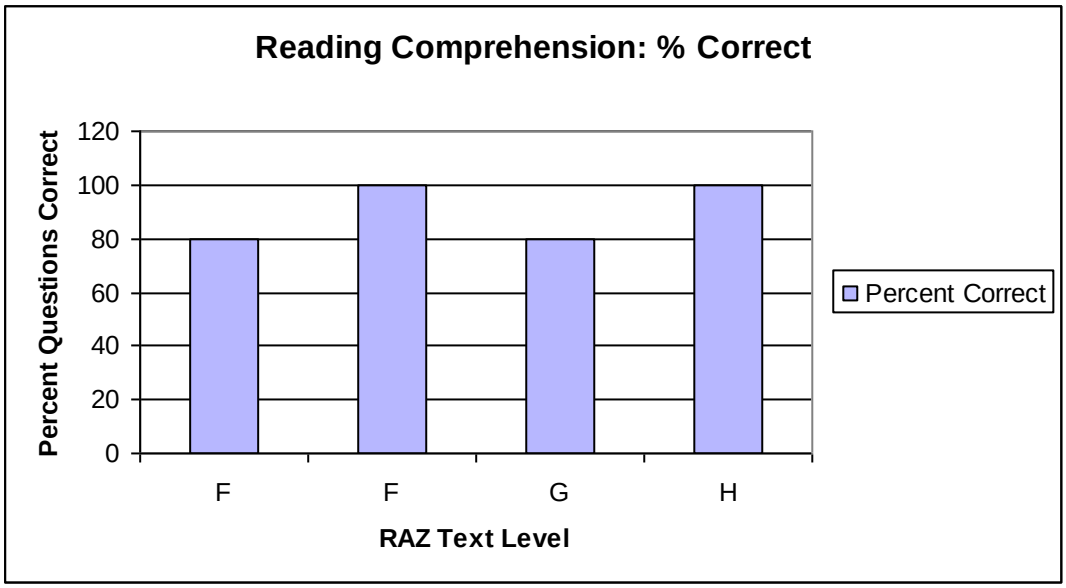
Table 4.6

Ongoing Reading A to Z Comprehension Assessments

Book	Level	Type of Text	% Comprehension Questions Correct
All Kinds of Factories	F	Expository	80% (4/5)
The Snowstorm	F	Narrative	100% (5/5)
Monsters' Stormy Day	G	Narrative	80% (4/5)
Ships and Boats	H	Expository	80% (4/5)

Figure 4.3

Ongoing Reading A to Z Comprehension Assessments: % Comprehension Questions Correct



Josh scored 100% on the narrative text in Level F and the expository text in Level H (the most difficult level). He scored 80% on the expository text in Level F and the narrative text in Level G. It does not seem that either increasing text difficulty or type of text, expository or narrative, had an effect on Josh's comprehension. It should be noted that all quizzes consisted of five questions, so missing one question had the effect of reducing the comprehension score to

80%. Each of the questions he answered incorrectly involved the meaning of vocabulary words in context.

Ongoing data collection and analysis shows that Josh made three RAZ levels of gains in ORF, and consistently scored either 80% or 100% on comprehension quizzes associated with practice passages. Next I will present and analyze data collected in field notes and observations.

Observations and Field Note Summaries

This section of the presentation of data will focus on observations, recordings, and inferences made from field notes collected during the sessions. While some of the data presented here will be quantitative, the majority will be presented as a narrative and qualitative summary of Josh's progress during the intervention period.

Sight Word Identification

When practicing sight words using the *Sight Word* application for iPad (App-Zoo, 2010), Josh demonstrated that he had mastered (100%) the Dolch sight words (Dolch, 1948) on the first grade word list on his first attempt. He did read the word "done" with the long *o* sound, which is the way it would be pronounced if it was a phonetically regular word. He also read the word "could" as "cold," possibly indicating he was not familiar with the "ou" vowel team or the *silent l* in the word. On the first day, during sight word identification practice, it became evident that Josh did not know the difference between a vowel and a consonant, so I taught the concept directly. Another feature of the iPad application required him to select the spoken word from a group of four written words. He correctly identified 32 of 34 sight words on the first grade Dolch (1948) list. He selected the word "green" for "ground," however, and, inexplicably, the word "feet" for "wish." He had more difficulty with second grade words, particularly words with two syllables, consonant diagraphs, and the "sk" and "ck" sounds, which, similarly to his Dr. Seuss

assessment, he confused. He also tended to ignore suffixes and word endings, such as the addition of "s" or "es" to make a word plural, or "ed" to represent past tense.

Josh showed relative proficiency on the 2nd grade word list, as well, instantly identifying the vast majority (72%) of the 2nd grade words on his first attempt. Josh used a feature of the *Sight Words Application* (App-Zoo, 2010) to check off words he had already mastered, and I kept a record in my field notes of how many attempts it took him to correctly read the word on each day. He decoded and/or self-corrected the words "clean" and "kind," as well as "four" and "far," which he confused for one another. He demonstrated difficulty with instant recognition of the short "u" sound, the schwa sound, and the word "laugh." When presented with the word "never," he instantly read "seven," suggesting he had immediately seen the "eve" letters in the middle and associated it with "seven." On the third grade word list, Josh repeatedly confused the words "where" and "were," and "thought" and "though." He also struggled to master "heard," "suit," and "pieces." By the end of the intervention period, Josh had mastered all the words on the first and second grade word lists when presented with flash cards or on the iPad (as opposed to reading the words in context or connected text.)

Word Attack and Syllable Skills

Word attack and syllable skills were practiced using phoneme-grapheme mapping (Grace, 2007) and the Simplex Spelling phonics/encoding iPad application (Pyxwise, 2012). We used phoneme-grapheme mapping to study the vowel team syllable (i.e., a closed syllable with two vowels in the middle). Josh mastered the "ea" vowel team relatively instantly, and used phonics skills to place consonants around the vowels. He also mastered the "oi" team quickly, but when I introduced the "oy" team, he began to falter and appeared to randomly guess words. We studied the vowel team "oe" in several phonetically irregular words and when the "oe"

makes the "schwa" sound. He struggled with the "oe" team particularly when the syllable ends with *s,* as in "goes" and "does." For words with which he was unfamiliar, such as *laugh, carry,* or *together,* he was regularly reluctant to attempt decoding them at all. When encouraged, he often seemingly randomly guessed at a word with the same or similar beginning sound. For instance, the word *laugh* was read as *land.* He knew how to segment phonemes and chunk syllables, but required prompting to slow down and persist with the segmenting and chunking concepts. Multisyllabic words were difficult for Josh to decode, although this seemed largely due to his attempts to rush through them. He struggled with when to use "er," "or," and "ar," as well as the "le" syllable, confusing it with "el" and "al."

Josh was quick to grasp on the concept of compound words and capitalize on recognizing, reading, and constructing compound words. He remarked at one point, "I wish someone taught me to look for the words I already know in a word when I was in second grade!"

Oral Reading Fluency Practice

As noted in the procedures, ORF practice followed a two-day cycle. On day one, we followed the guided release of responsibility model (Ruetzel & Hollingsworth, 1993); on day two, he listened to his reading while following along and read again. Text was primarily selected from RAZ at the levels deemed appropriate by the fluency assessment passages; the books and levels are referenced in Table 4.6.

Josh did his best to keep up with me and read with expression during choral reading. However, during independent reading on the first day of the cycle, he grew so frustrated when the levels increased to G and H that he almost entirely gave up finishing the book. When I coached him and reminded him that the reason it got harder was because he did better, he was unphased. When encouraged to persist through frustration, he made errors that almost seemed

deliberate. He inserted phonemes into words that did not exist; he omitted words; he omitted sentences; he paid less and less attention to the actual words on the page. As a result, we were both frustrated, as I believed he was capable of more than I was able to record. The frustration continued until the following day, when he continued as though he had never been upset.

Josh did demonstrate some definite strengths during oral reading practice. He used context to guess at words he did not know. However, this occasionally resulted in his selection of words that made sense but bore no phonetic resemblance to the word he was 'decoding' or 'identifying.' He also realized his own decoding and word reading errors several times without having to be prompted, and self-corrected accordingly.

On day two of the cycle, Josh listened to himself reading in a recording of the previous day's *I Do* portion of the guided release of responsibility model. As he heard his voice, he followed along with his finger. He noted, while listening, his own miscues and frequently deemed particular pages of the text as 'good reading' or 'bad reading.' (He was encouraged to change such thinking to "good reading" and "room to grow".) Notably, the re-reads of the texts that had caused such frustration the prior day did not cause Josh frustration upon the re-read. Josh's accuracy and rate growth over the two day cycles for each text is displayed in Table 4.7 and Figures 4.4 and 4.5. The first book we read was selected from the *National Geographic Windows on Literacy* series (2005), which was available at the CLC. We used the book on the second session day because the RAZ website was malfunctioning. The book most closely aligns with the RAZ level G, according to a leveling correlation chart published by the Wauconda Community School District (http://www.d118.org/district/curriculum/gifted/corellations.pdf; retrieved 08/05/2012).

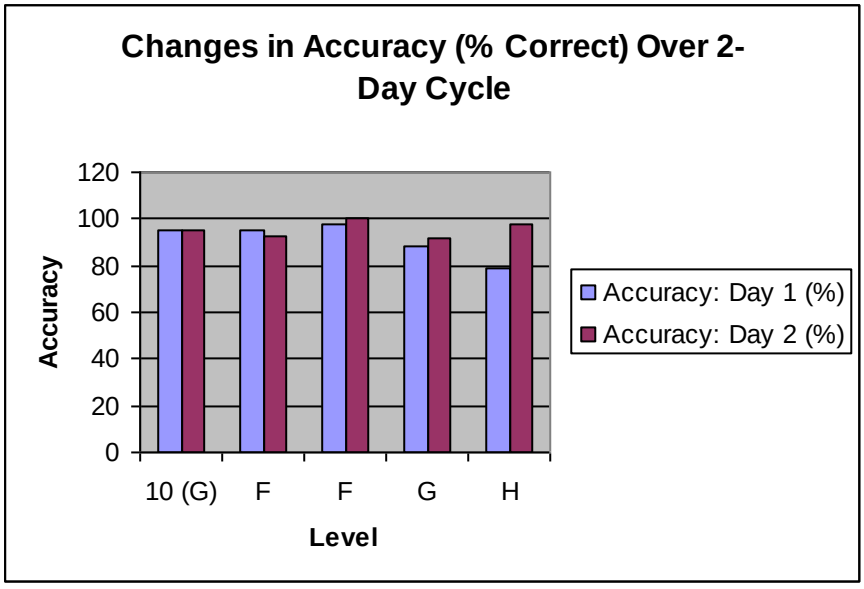
Table 4.7

Changes in Accuracy and Rate Over the 2-Day Reading Cycle

Text	Level	Accuracy: Day 1 (%)	Accuracy: Day 2 (%)	Rate: Day 1 (WPM)	Rate: Day 2 (WPM)
My Town Used to Be Small	10 (G)	95	95	40.8	69.7
All Kinds of Factories	F	95	93	26.6	30.13
The Snowstorm	F	98	100	44	55
Monster's Stormy Day	G	88	92	32	43.4
Ships and Boats	H	79	97.6	19.6	26.7

Figure 4.4

Changes in Accuracy Over 2 Day Cycle: % Words Correct

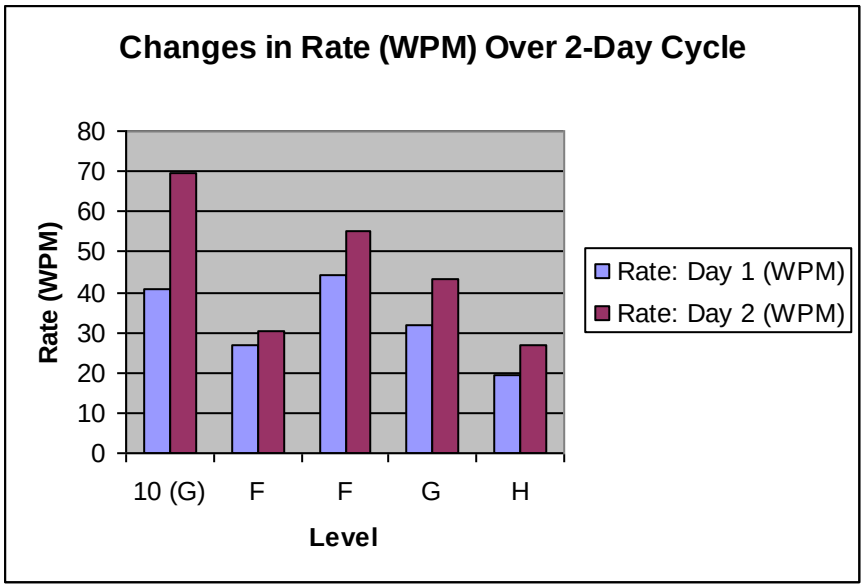


The two-day cycle incorporating repeated reading appears to have had minimal effect on Josh's accuracy rate at levels F and G, and slightly greater effect at the highest level of H. However, Josh's first readings on three of the first four books already reached the target of 90%. There was no effect on *My Town Used to Be Small,* and Josh's accuracy percentage actually decreased two percentage points on *All Kinds of Factories.* However, on the most difficult book,

Ships and Boats, his accuracy jumped from 79% to 97.6% - in other words, from far below the 90% target to far above the 90% target. While there was mean growth of 4.52 percentage points from day 1 to day 2, results were not statistically significant according to a *T-Test* performed on the data. The *P*-Value of the *T-Test* was 0.14, so it was not statistically significant at the generally accepted 95% confidence interval for educational research.

Figure 4.5

Changes in Rate Over 2 Day Cycle



A graphical display of the data referencing changes in rate over the two day cycle suggests a significant positive effect of the two-day fluency practice cycle (Figure 4.5). The rates on day 2 of each cycle suggest growth from day 1 to day 2. The mean WPM on the first day was 35.85, and the mean WPM on the second day was 49.56, indicating a 13.71 increase in mean WPM from the first to second days. To measure causation, a statistical *T-Test* was performed on the WPM means of day 1 as compared to day 2. The *P* value of the *T-Test* was 0.02, which is significant at the level $P<0.05$. Thus, the 2-day cycle had a statistically significant positive effect on Josh's ORF rate at the 95% confidence interval.

Comprehension Activities and Observations

Some activities were used to foster engagement with the texts, fostering comprehension. However, they were supplemental to the primary intervention. Josh used a graphic organizer with the *My Town Used to Be Small* text to distinguish main idea from supporting details. He remembered every single supporting detail in the book, but was baffled at the concept of 'main idea.' After I read aloud and modeled how to state the main idea in one sentence with a different book, he correctly distilled the main idea. Another day, he was instructed to look at pictures recalling what happened in the story (*Monster's Stormy Day*), sequence them in order, and write a sentence summarizing the picture. (Josh has excellent handwriting and engages well in writing tasks). When writing the sentences, he struggled with encoding and spelling but it was easy for him to paraphrase what was happening in the text and put it in his own words. He even added additional details with the naturalness of a creative writer, adding modifiers to describe the monster's actions ("running around in circles like they were crazy;" "Lurk was also a terrible singer.") These ideas were implied and illustrated in the text, but not explicitly stated. Therefore, in addition to his apparent inclination for writing and storytelling, he demonstrated a clear ability to make inferences in text.

Behavioral Interventions and Supports

A variety of supports were put in place to maximize Josh's potential for reading success while mitigating his hyperactive behaviors to minimize their negative effects on his reading progress. Josh was not diagnosed with ADHD but displayed many characteristics of the condition, particularly of the hyperactive element. In addition, frustration and impatience occurring when tasks became more difficult lead to behaviors invocative of pouting: refusing to speak, putting his head on the table, or turning his back to me. Interventions and supports

included the use of contingent rewards (game time on the iPad), awards (certificates for moving up RAZ levels), modeling and instruction in appropriate reading behaviors (sitting up straight; holding the text in front of him, following along left to right with his finger) and social behaviors (appropriate breaks, keeping his shoes on, eliminating inappropriate noises/gestures), and the use of interactive instructional technology (iPad applications). In addition, through ongoing data collection and progress monitoring, Josh was provided daily feedback about his progress.

The most effective elements of the positive behaviors intervention package were the use of instructional technology to foster engagement and the use of contingent and tangible rewards. When Josh received a reward, he was encouraged and noted that even though "I got mad it was worth it." He was the most consistently engaged and least frustrated when working on iPad applications, though I tried to reduce the amount of time he worked on the iPad as opposed to traditional text, pencil-and-paper activities, as I believe when he returns to school in the fall, he will not have an iPad and will still be expected to conduct himself appropriately and engage in learning.

Unless he was frustrated, Josh responded well to feedback highlighting his successes and reading achievements. He was excited to receive marks of 100% or *A+*, whence he leapt out of his seat and rushed to share his progress with the site facilitator and anyone else he could find.

Posttest Data and Pre to Post Comparative Data

Josh was reassessed on the last session day of the intervention period using the Dr. Seuss assessment and the QRI-5. Results of the Dr. Seuss assessment, and a comparison to the pretest Dr. Seuss assessment, are displayed in Table 4.8 and Figure 4.6.

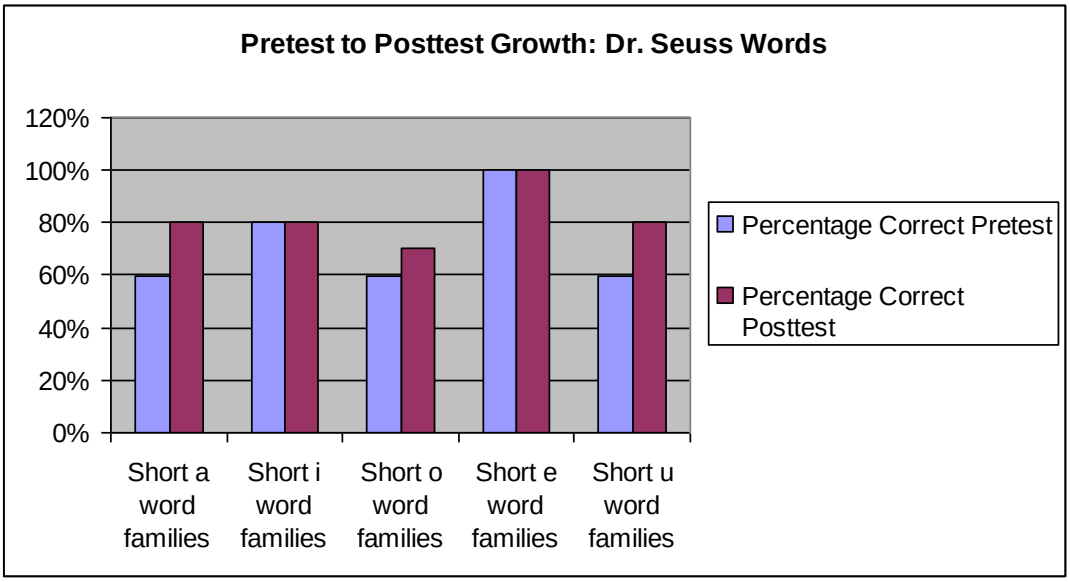
Table 4.8

Dr. Seuss Words Assessment: Posttest

Word Family	Percentage Correct
Short a word families	80%
Short i word families	80%
Short o word families	70%
Short e word families	100%
Short u word families	80%
Mixed CVC Families (Not administered on Pretest)	60%

Figure 4.6

Pretest to Posttest Growth on Dr. Seuss Words Assessment



Overall, Josh made ten percentage points in growth on the Dr. Seuss word families assessment pre-to-post test, suggesting that the word attack interventions were effective. A *T-Test* was performed to determine statistical significance of the effectiveness of the interventions.

The *P* value of the *T-Test* was 0.04, so the interventions were statistically significant at the *P<0.05* level, or at the 95% confidence interval. However, he still struggled with the "ck" versus "sk" sounds and was not as accurate on the mixed cvc families as when one word family was presented at a time.

Finally, the QRI was administered as a post-test. For the post-test, we started with the Level One passage and went to Level 2. Results of the QRI posttest are displayed in Table 4.9. On the pre-test, Josh's independent level on the QRI-5 was the Primer level and his frustration level was Level 1. On the post-test, his independent level was Level 1 and his instructional level was Level 2. He thus increased an entire QRI level in twelve 90-minute sessions during the summer between school years. Comparative graphics for the word identification and passage reading for Level One (the only level for which there is comparative data) are displayed in Figure G.

The most evident gains on the first grade passage were made in the area of comprehension (i.e., the retelling and comprehension question components). Josh's comprehension score increased by 66.67 percentage points, and was statistically significant at *P<0.05* (P=0.02). His retelling percentage point increase was statistically significant as well, at *P<0.01*. His 10-percentage point gain in total accuracy pretest to posttest was also statistically significant at *P<0.01*, though his 4.7 percentage point gain was not statistically significant (P=0.06). On the word identification section, the increase in mean percentage correct from pre-to-posttest was significantly significant at *P*<0.05 (P=0.04). On the literacy area that was the focus of this study, oral reading fluency in terms of rate, was minimal. The WPM growth of 0.66 was not statistically significant at P<0.05 (P=0.99). However, his correct word per minute

(CWPM) gain was statistically significant at $P<0.05$ (P=0.04). Furthermore, Josh read at a higher rate on the Level 2 passage (his instructional level), reading at 45 WPM.

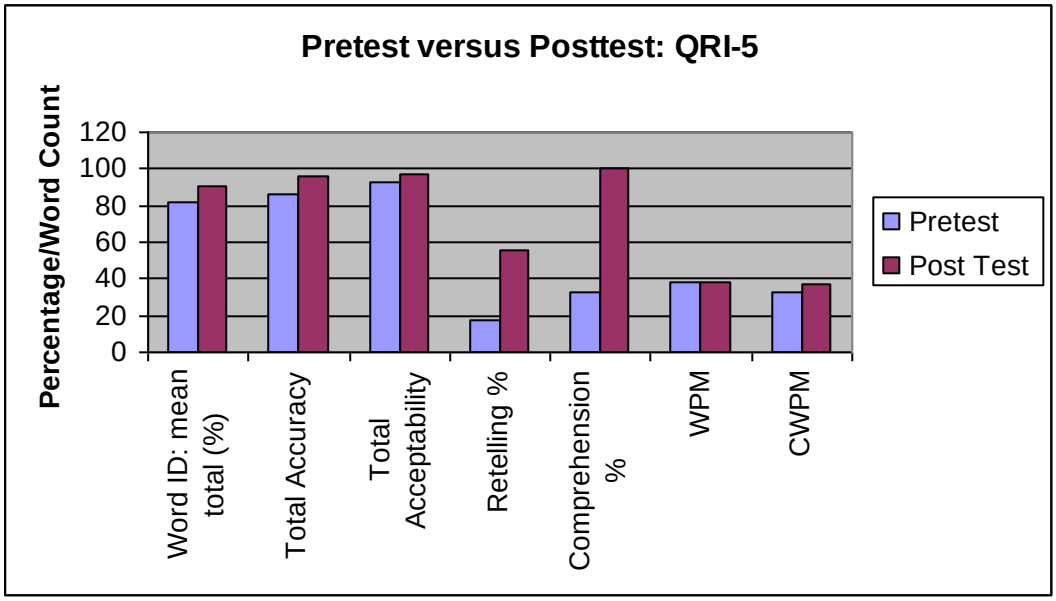
Table 4.9

QRI-5 Posttest Data

QRI Level	Pre-Primer 1	Pre-Primer 2/3	Primer	1	2
Word ID: % Total	94	95	100	95	70
Passage Name	n/a	n/a	n/a	Mouse/House	Toy
Passage Type	n/a	n/a	n/a	Narrative	Narrative
Pre-reading: Concepts Familiar (%)	n/a	n/a	n/a	67%	33%
Total Accuracy (%)	n/a	n/a	n/a	96%	98.8
Total Acceptability (Non-meaning changing miscues)	n/a	n/a	n/a	97.6%	99.4
Retelling: % Number Ideas Correct	n/a	n/a	n/a	56.8%	47.4%
Comprehension Questions: # Explicit Correct	n/a	n/a	n/a	4	3
Comprehension Questions: # Implicit Correct	n/a	n/a	n/a	2	3
Comprehension: % Correct	n/a	n/a	100	100%	75%
Rate: WPM	n/a	n/a	n/a	38.66	45
Rate: CWPM	n/a	n/a	55	37.42	44.5

Figure 4.7.

Pretest to Posttest Changes on the QRI-5



Summary of Data Analysis

Overall, Josh increased his instructional reading level one level over the course of the intervention period, though he continues to struggle with oral reading fluency, particularly with rate. His ongoing fluency assessments allowed him to progress from RAZ level F to RAZ level H in 12 sessions. He made statistically significant gains in his ORF rate when considering the mean gain over each two-day cycle in reading practice, and although ORF gains on the QRI pre-to-posttest were not evident at Level One, he was able to read 45 WPM on Level 2. Chapter 5 will consider implications of these findings and connect them to the research base presented earlier in this study, examine strengths and limitations of this research study, and provide an evidence-based set of recommendations for Josh's continued reading development.

Chapter 5

Discussion and Conclusions

The purpose of this study was to explore the effects of a three-pronged approach incorporating strategies in sight word identification, decoding and word attack, and oral reading fluency practice on oral reading fluency and overall reading achievement. The previous chapter analyzed data collected pre intervention, during the intervention period, and post intervention. In this chapter, I will discuss those findings in greater detail and connect them to existing research, including the studies discussed at length in Chapter 2. In addition, I will connect the study to Common Core State Standards, explaining how the interventions supported Josh's development in terms of what students are expected to know and be able to do at the end of second grade. I will also present strengths and limitations of this study, as well as recommendations for Josh's continued growth as a fluent reader.

Connection to the Common Core State Standards

The Wisconsin Department of Public Instruction adopted and the Common Core Initiative in 2010. Each state has a set of academic standards, though most states by now have adopted. Standards define what students should know and be able to do (e.g., knowledge and skills) by the end of each grade level. Each state's assessment system is supposed to be aligned to their standards, though states' implementation of alignment is variable.

The CCSS in Wisconsin articulates a set of foundational literacy standards in the areas of print concepts, phonological awareness, phonics and word recognition, and fluency. The research and findings outlined in this study align with a number of the elements in the standards articulated in the literacy foundations: Phonics and Word Recognition and Fluency portions of the CCSS. The word attack skills in which Josh received practice and instruction are aligned with

Phonics and Word Recognition standards for grade 2 *a* through *c.* These standards address the ability to distinguish long and short vowel sounds, and to recognize common spellings and sounds of the vowel-team blend, decode phonetically regular two-syllable words. In addition, the fluency practice procedures addressed Fluency standards for Grade 2 *b* and *c*, including oral reading with accuracy, appropriate rate, and expression when utilizing successive or repeated reading strategies.

Connections to Existing Research

This study found that the three pronged intervention approach incorporating strategies in sight word identification, word attack and decoding skills, and fluency practice had a statistically significant, positive effect on Josh's overall reading achievement pretest to posttest. In addition, it found a significant, positive effect on nonsense-word reading pretest to posttest, and a significant positive effect on reading rate (words per minute) over each 2-day cycle of the intervention period. The findings confirm those of MacDonald & Figueredo (2010), who premised the implementation of their Kindergarten Early Literacy Tutoring (KELT) program on evidence that effective literacy interventions are individualized and specific. All measures of dependent variables in their study showed gains. Likewise, Josh made overall reading growth equal to one instructional level on the QRI after a highly individualized and specific tutoring sessions that comprised the intervention program.

Josh's pretest to posttest reading progress, however, in some ways contrasts with findings by Wise et al (2010) which found a strong positive relationship between oral reading fluency of both nonsense words and real-words, and comprehension. The study also found a very high correlation between ORF in connected text and reading comprehension. On Level 1 of the QRI, Josh made no gain in his oral reading fluency rate, but increased in his comprehension score

from comprehending 33% of the passage comprehension questions to 100% of the comprehension questions. However, his ORF accuracy increased from 86% of words read correctly to 96% of words read correctly, so in the area of accuracy, this study confirms the findings of Wise et al. In addition, Josh's final total acceptability score, that is, the percent of words read correctly and words read incorrectly when the errors did not change the meaning of the word, was 97.6%, nearly a five-percentage point gain from his total acceptability of 93% on the pretest. The decrease in meaning-changing miscues pretest to posttest may have served to assist Josh's understanding of what he read.

Josh made his most significant gains in ORF rate when re-reading on day two of the gradual release of responsibility and repeated reading model. Ruetzel and Hollingsworth (1993), in their study of the effects of direct fluency instruction on reading comprehension, used the gradual release of responsibility as a structural component of their fluency intervention. Their Oral Recitation Lesson (ORL) followed the I do/We do/You do instructional model. Similarly, the leveled Reading A to Z practice books in the present study were incorporated into the intervention sessions by teacher modeling, choral reading, and independent reading. On day 2 of the cycle, Josh listened to a recording of himself reading aloud, and then read the book again. The data that was statistically significant at $P<0.05$ tested the significance of the mean WPM on day 1 compared to day 2 of the cycle. Ruetzel and Hollingsworth found that the students in their treatment significantly outperformed their peers who did not receive the intervention. This study echoes those findings; the data collected from the direct effects of the 2-day guided release of responsibility and re-reading model were also statistically significant.

The findings by Patton et al (2010) suggested that adding an explicit comprehension element to a fluency intervention when fluency skills are highly underdeveloped may serve to

further confuse struggling readers and prove counterproductive when fundamental reading skills are lacking. Several data points, both qualitative and quantitative, led me to believe that Josh's ability to comprehend text was much more developed than his fluency ability. That professional observation was confirmed by his Woodcock Reading Mastery Test (WRMT) scores, in which Josh's listening comprehension standard score (92) only slightly exceeded his passage comprehension score (88). Both scores had the same age equivalent (7:10) and descriptive category (difficult). While comprehension and higher order thinking skills may be 'difficult' for Josh, they can be considered relative strengths, considering his difficulties with ORF and word identification. Additionally, at his instructional levels for oral reading fluency, his comprehension as determined by the RAZ comprehension quizzes, averaged 90%. Given the research by Patton et al, and Josh's already relative strength in reading comprehension, I decided not to make comprehension a focus of the intervention, but rather to monitor comprehension as a component of evaluating overall reading achievement. In the study by Patton et al, students who did not receive a comprehension supplement to the fluency intervention made a statistically significant gain in passage comprehension, while students who did receive the comprehension supplement saw their scores decline. While those findings seem counter intuitive to many practitioners of reading instruction, including me, they support the researcher's conclusion that comprehension instruction may interfere with overall reading achievement when foundational skills are lacking (Patton et al., 2010). The current study supports the findings by Patton et al, because Josh made a reading comprehension gain of 77 percentage points from pretest to posttest on the QRI, while making no significant gain in oral reading fluency as it relates to WPM on the Level 1 passage.

Josh's comprehension gains mirror some of the comprehension gains in studies by Wise et al, Ruetzel & Hollingsworth, and Patton et al. Diliberto et al found that systemic and explicit instruction in syllable skills increased overall reading achievement. Josh received between 20-30 minutes of explicit instruction and practice in syllable skills and decoding by syllable strategies each day. The intervention in the current study reflected the procedures in the Diliberto et al study in that Josh learned about syllable types, *r*-controlled syllables, the *le* syllable, divisions and rules of syllables, and diagraphs and blends. Similarly to the Diliberto et al study, Josh made overall reading achievement gains, including an increase of one QRI level and three RAZ levels. Conversely, Cummings et al. found that an increase in nonsense word reading could predict an increase in oral reading fluency in first grade students. Josh's growth on the Dr. Seuss nonsense word assessment was statistically significant, but his ORF (as measured by rate, not accuracy) remained stagnant on the QRI Level 1 passage. However, he did demonstrate growth in his ORF rate on the Level 2 passage, which was shorter but more difficult. In addition, his fluency gains facilitated an increase of three RAZ levels.

Similar to the study by Noell et al (1998), Josh received contingent and tangible rewards, including game time on the iPad to reinforce positive behaviors, and certificates for moving up RAZ levels. The system paralleled the study by Noell et al. that used contingent rewards (i.e., tokens instead of certificates) for gains in correct words per minute. The students in the study by Noell et al made a mean gain of 59% from baseline data to the final assessment, while Josh made an overall gain of one level on the QRI and three RAZ levels. The findings in this study reflect those by Noell et al, that contingent and tangible reinforcement can encourage both positive behaviors and positive trends in academic growth. While those findings are applicable in a tutoring or one to one intervention setting, I would err on the side of caution in a whole class

situation. It seems that public tangible rewards for academic gains, particularly as a special education teacher, invoke shame or embarrassment for students who were less successful at achieving gains.

McClanahan et al. (2010) used a number of iPad applications to provide interventions for a struggling reader who had attention-deficit and hyperactivity disorder. The pre-service teacher in the McClanahan study used the iPad to essentially facilitate her case-study student to make a full level of QRI growth, which is precisely what Josh was able to accomplish when the guided release of responsibility fluency practice model was combined with learning and practice activities on the iPad. While Josh did not have a diagnosis of ADHD, he displayed hyperactive behaviors which may have limited his progress academically. However, Josh, like the case study student in McClanahan et al's study, responded best to interventions that utilized the iPad to visually, audibly, and kinesthetically engage him.

Overall, the research presented in this study mirrors the studies presented in Chapter 2 in terms of overall reading intervention and its effects on reading achievement; syllable skills, decoding and nonsense-word reading; interaction of fluency and comprehension and effects of fluency training on comprehension; and the use of instructional technology to engage and motivate the student. However, Josh's stagnancy in the area most challenging area to him, ORF rate, on Level 1 of the QRI, contrasts with both my own expectations and hypotheses and the findings of some of the previous studies, which found fluency interventions to increase rate. The following section will raise and discuss additional limitations of this study.

Limitations

The design, results, and nature of this study invoke several limitations. First, there are several data points I am concerned are not representative of Josh's actual capabilities, which

draw into question the findings and conclusions drawn in this chapter and in Chapter 4. When Josh became frustrated, as evidenced by putting his head down, taking off his shoes, rocking back and forth, and sitting on the floor instead of his chair, he seemed to perform on assessments at a level less indicative of his true skills and abilities. At times, mistakes and errors seemed to be deliberate, guessing at answers without considering the question fully, or inserting words instead of looking at words on the page. Given the levels of frustration he experienced when reading orally the Level 1 passage on the QRI as a pretest, and my observations about his frustration and performance, I suspect Josh's pretest comprehension percent score was not representative of his true ability.

Additionally, I must call into question Josh's ORF rate on the posttest of the QRI-Level 1 for the same reasons. I purposefully chose short text through much of the intervention period to mitigate the influence of long passages invoking boredom and frustration, given Josh's short attention span and difficulty with sitting or staying still. Because I chose to use the same pretest and posttest passage on the QRI Level 1, and the passage was longer than the fluency passages Josh was accustomed to reading, I believe he became frustrated and bored. As noted previously, I noticed many behaviors and patterns that caused me to believe that when frustrated, he did not perform at the levels he was capable of. Josh read the first half of the passage much more quickly than the second half, by which time he was complaining, not paying attention to the words on the page, putting his head on the table, taking off his shoes, and rubbing his feet. Furthermore, because it was the last session of the summer, I brought cupcakes and told Josh I was reserving them until we had finished all assessment. Josh's interest in the cupcakes seemed to encourage his complaining as he was discouraged he could not eat them immediately.

The fact that I used the same passage for both the pretest and the posttest on the QRI Level 1 can be regarded as both a strength and a limitation. The use of the same passage was purposeful to reduce the introduction of compounding variables by inter-level text complexity variability. It is possible that a second reading five weeks after the first caused Josh to have falsely inflated comprehension and accuracy scores. However, when the assessment was finished, I asked Josh if he remembered reading the passage previously and he did not.

Finally, there are limitations in case study research as a method of academic investigation all together. Case study research necessarily involves one participant. Thus, inferential statistics may not be applied to case study data. No generalizations to the general population may be made. The research can be used to profile another student for similarities and design a similar set of interventions, but such procedures are entirely explorative, because the sample was neither random nor representative.

Strengths

The case study research design has its strengths as well as its limitations. Working with one student allowed me to maximize on individualization of the intervention, focusing on Josh's areas of need while utilizing his relative strengths. From a practical standpoint, the use of the iPad would have been impossible with a larger sample, because I only have one iPad, and literacy centers which are funded through competitive grants are generally not equipped with tablet computers for all the students they serve. The use of the iPad was a strength in another regard, as well: the relatively new entrance of the tablet computer onto the market has meant that there is currently little research to support or refute the use of tablet computers in education, or the potential they have to engage children with difficult behaviors.

Another strength of the study is the evidence it yields for multiple facets of foundational intervention. The study included the gradual release of responsibility instructional model, as well as decoding and spelling strategies, successive readings, voice recordings, syllable and phonics skills, and practice with high-frequency sight words. Josh's overall gains suggest effectiveness of approaching difficulties with reading from multiple angles. In the next section, I will discuss recommendations to meet Josh's particular needs as a reader based on evidence acquired from this study.

Recommendations

While a limitation of this study was that data collected from the progress of one individual could not be generalized to a greater population, a strength is that the data provides a scientifically research-based body of evidence to make recommendations for Josh's continued reading growth**.** Josh's greatest area of difficulty in the area of literacy is oral reading rate. Josh made the most improvement when he followed the gradual release of responsibility instructional model, evaluated his own reading, and read again on a successive day. While this may not always be possible in every classroom setting, Josh's parent might request his teacher sends all reading materials home with him after they are taught and practiced in class. Josh's parent could have Josh read the text aloud and record it; most cellular phones have a means to record and replay voice. Josh's mother, in fact, has the same phone I used to record his voice.

When designing and modifying instructional tasks, Josh's teachers should pay particular attention to incorporating activities that use multiple sensory stimuli. Josh learns best when he is moving, listening, talking, and seeing. This can be accomplished with instructional technology on a traditional as well as a tablet computer, but instructional technology is not required for designing engaging lessons, which also serve to mitigate hyperactive behaviors that can disrupt

the learning environment. For instance, he engaged in short word sorts as well as he did with iPad applications (although his interest was not sustained as long).

Josh takes pride in his handwriting and strives to give his best effort on writing tasks. Josh can be encouraged to self-monitor his progress and behavior with stickers. He is inclined toward the dramatic arts, an excellent way to practice expressive oral reading. Josh has a vivid imagination and he can expand upon and add rich details to stories he reads.

Contingent and tangible rewards assisted Josh's commitment to following through on tasks, persevering through his frustration. Tangible rewards need not be expensive nor unhealthy; simple certificates worked well. He also likes pens in different colors, fake money (such as money from a board game), stickers, and game time. A long term goal may seek to reduce Josh's reliance upon external reinforcement. Josh responded well to transparency with progress monitoring. His teachers should be deliberate about measuring progress, sharing results, and teaching Josh to track his own progress. On the *Sight Words* (App-Zoo, 2010) iPad application, Josh was able to track his own progress by checking off the words he mastered on the first attempt. A check-off sheet, or method of applying his own stickers to a star chart, would concurrently teach him self-monitoring skills and facilitate his understanding of the intrinsic value of academic growth.

In my interactions and observations, Josh's mother is an important resource for the efforts of his third grade teacher to continue to develop his reading progress. Josh's mother is a tremendous advocate of her son's educational opportunities, and will stop at nothing to ensure his success in school. She honored every request I made of her: practicing reading at home with additional books during a holiday break, arranging for replacement tutoring sessions, and replacing ½ hour of video game time at home with reading practice. Josh's teachers should

capitalize on his mother's willingness to extend his education at home, her consistent availability, and her view of teachers as partners in her son's academic and personal development.

It is also imperative that Josh's school continue to implement Response to Intervention (RtI; Martin, 2011). Josh is still a struggling reader, particularly in the area of oral reading fluency. His persisting difficulties in ORF may cause increased struggle with the general education curriculum, particularly as school tasks evolve from learning to read to reading to learn. Josh should receive a tier 2 intervention under RtI provisions attached to the Individuals with Disabilities Education Act (IDEA, 2004) during third grade. If he does not show signs of increasing progress in his areas of difficulty, he should again be evaluated for special education services, so his reading progress does not continue to fall behind his on-level peers. He should also continue with his tutoring services (his mother has already enrolled him at the literacy center for the fall).

Finally, while Josh's oral reading fluency is, in terms of rate, currently within the range of what first graders are expected to know and be able to do, his instructional level for comprehension is within the second grade range. Josh is entering third grade. With audio recordings and teacher narration, Josh should be encouraged to practice comprehension strategies with second grade, and potentially third grade, leveled texts. Both the general education reading curriculum and the Tier 2 reading intervention curriculum adopted by the school district Josh attends have audio recordings available to pair with each leveled text. The general education teacher might make those recordings available for checkout to Josh's parent, so that Josh can continue developing his comprehension and higher-order thinking skills while accessing grade level text. Without access to higher-level texts, Josh's comprehension abilities, which are a

strength at the level he is practicing his oral reading, may stall if not allowed to continue to develop. This is particularly important during third grade, when reading foundations tend to merge with reading comprehension, setting the stage for the remainder of elementary school. By sixth grade, students are typically expected to have mastered foundational reading skills, and readers must use those skills to learn, instead of learning the skills themselves. If Josh continues to develop his higher-order thinking skills, he may facilitate his content knowledge and brain development to achieve the grade standards expected of third-graders. If he does not, he may fall behind in multiple academic areas, extending frustration to school at large, and limiting his potential for career and college readiness.

Conclusion

The one-level overall gain in reading achievement that Josh made during the summer intervention between second and third grade is profound, and may be paramount to his success in third grade. Instead of beginning third grade one and a half years below the proficiencies of his on-level peers, he begins just half a year behind, which is manageable in terms of keeping pace with the general education curriculum.

This study involved adopting, adapting, and designing reading interventions based on a number of prior research studies. In most cases, the study reflected or confirmed those interventions which, in the prior studies, were effective. However, on the same leveled passage he read prior to any intervention, he made no growth in his ORF rate at all. This means his difficulty with oral reading fluency remains severe, and that additional interventions are imperative. If Josh is unable to master oral reading at appropriate rates, his ability to engage in grade level reading tasks, especially as texts become more complex, is jeopardized.

Josh is a Black/African-American, hyperactive child who lives in the heart of the most impoverished zip code in his city. His career ambition is to get rich by playing NBA basketball. He is also charming, good natured, quick to grasp new concepts and instructions, inquisitive, and eager to connect prior knowledge to what he is currently learning. In many ways, Josh typifies the student at the roots of Wisconsin's racial literacy gap – a gap which is the widest of all fifty states in America. To put Josh on a path to success, his parents, teachers, and tutors must ensure he does *not* continue to typify the profile of a student who shoulders the burden of an inequitable system of education. In this study, in 12 sessions, Josh showed the progress he is capable of. His mother has already enrolled him for continued tutoring at the literacy center to augment the instructional day during his third grade year. I am confident Josh can continue on a trajectory that ensures he never becomes a causality of the sad reality that in much of America, a child's zip code predicts his or her educational opportunities.

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Appendix A

Observation Chart

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
6/25	Meet parent, get consent, discuss, inquire about IEP, get and give contact information. Interview student; develop rapport. Assess using QRI, Dr. Seuss Nonsense Words, Reading Fluency (Woodcock-Johnson III Form C-Brief Battery); Word Identification (WJIII)	Student had, unbeknown to me, already completed the full QRI, so we had extra time. We used it to practice 2nd grade sight words and read a story called "my town used to be small." On the Dr. Seuss, he correctly identified 6/10 CVC (consonant-vowel-consonant) one-syllable nonsense words. He had his short I sounds correct and got all the words correct except for 2: wick (said wisk) and sprick (said sprisk.) This indicated to me he needed direct instruction in hard/soft consonant sounds and ending sounds. On the short o word families, he got all correct except for 'shotted' (did not attempt); chock (said "chosk" – same hard c/soft c); and 'sprots' (said 'sports.' Probably means 'sports' is a sight word. On the short e word families, he got every single word correct. On the short u word families, he said 'slug' for 'clug' (soft/hard consonants!), pluts (said 'sluts! Ooops!), chuns (said 'chun' – ending sounds) and 'spruck' (said sprusk – hard/soft c). By the end of that word family group we did not move on to level 2 because he was obviously so frustrated. On the WJ letter-word ID subtest, he scored at 35 correct, which gave an age estimate of 7.5 and a grade equivalent of 2.1 (he is almost 9	Decoding skills are fairly strong. Have to emphasize phonics lessons on short u and the difference between hard/soft consonants. He also didn't know the difference between consonants and vowels so we will work there too.

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
		and will enter third grade.) Kept tally of his automatically identified sight words vs. sight words it took 2 attempts to have correct vs. sight words he simply didn't know. In oral reading, he read a national geographic book in the 'early' stage (level 10.) Used context to guess at words he didn't know. (Sometimes to completely different ends – for instance, said 'store' instead of factory…store would have made sense, but not phonetically similar.) He read at 40.8 WPM. Accuracy was 95%.	
6/26	Review sight words Review "my town" story Listen to the recording of his reading/reflect Re-read 'my town' Graphic organizer – main idea for story New 2nd grade sight words Hard c/soft c: phoneme-grapheme mapping Fluency assessment	He was ½ hour late – we didn't get to the whole plan. While listening to himself read he started whispering along with it, and saw where he would make an error – he would say "that's good" for each page he read correctly and "bad" when there was a miscue. On the second reading he read 69.7 WPM !!!! (WOW – value of repeated reading!) and accuracy of 95%. Errors were ending sounds 'ed' and the word 'used' (wased.) On the graphic organizer, he was very good at recalling details but the concept of the main idea, or one phrase summarizing the point of the book (the town got bigger) seemed to go completely over him – almost as though it was so obvious he didn't understand what he was supposed to do. Spelling words that took more than one time to correctly spell: again, ask, because, before, around, bring. Correct on first encoding	Work on al, el, le Confuses "b" and "p" phonemes

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
		attempt: could, every, from, best, both, better, clean, done, drink. New sight words automatically identified: always, around, before, both, buy, call, cold, fast, first, found, gave, green, their, tell, off, or, pull, read, right, sing, sit, sleep. Decoded words: because, best, does, five, is, made, many. Words he didn't know: been, goes. On the phoneme to writing application, correctly spelled (to phonemic representation) sunset, hilltop, nugget. Took three times to correctly identify correct graphemes: picnic, gallop. On the spelling word jumble application (more for fun as a break) he got craft, uphill, and traffic correct. Travel, wagon, vessel, and limit took 2 attempts. Gravel took 3; fastest took 5, and gallop took six. On his fluency assessment (level F) he read 42 WPM at 93% accuracy. Target is above 90% accuracy and above 50 WPM according to RAZ.	
7/10	Vowels: long vs. short Model syllable strategy Count/clap syllables: 2 and 3 syllable words (phoneme-grapheme and the multisyllabic words in today's reading) Map new words from today's reading Review 2nd grade sight words	Strong showing on sight words review today (automatically identified: about, better, bring, but, draw, drink, eight (!), fall, got, grow, hold, hot, keep, light, long, much, myself, never, only, pick, show, six, small, start, ten, today. Decode: clean, four (far), far, kind. Not identified: carry (curry), done, (long o, but that would be the phonetically regular pronunciation), fall (full), hurt (hard), laugh (life), own (on), never (seven…hmmmm…), shall (shell).)	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
	Introduce 3rd grade sight words Read aloud: RAZ level F factories (the first level for which fluency begins to be assessed) and to tie "factories" in with previous readings. (I read, we read, he reads). Fluency assessment (RAZ fluency assessment level F – kim's flowers)	Spelling words: Correctly spelled about, better, bring, carry, clean, done, draw, drink, eight. Noteworthy that we did the same spelling words as sight words and those were after sight word practice. Phoneme grapheme mapping – was impressed with his blends. Required coaching for the "ui" diagraph in 'buildings, and the 'ch' dipthong in 'machines.' Did well on silent e. Mixed up o and e in people, but at least knew there was supposed to be an o in there. Did will on double-consonant in 'cotton.' Got 'ow' correct in windows. Together and different (three-syllable words) were rough. When pre-reading he made a hypothesis (this will be about thousands and thousands of factories.) At table of contents, he had never seen a table of contents before and kept reading 'continents.' Took 4 times to get it right. (I refuse to use echo correction for decoding, does not make them apply a skill.) Word country – would not attempt – prompted with pictures, took 3 times to get it correct. "Huge" short u – prompted by saying "does it make sense that there would be "hugge" machines and he said "huge!" Machines – wanted to skip the word, wouldn't let him, got it on his second attempt! Consistently changed word endings – omission of plurals, including "ing" where it did not exist. Got cloth correct but in next sentence	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
		could not get "clothes" and continuously said "clothings." Prompted 5 times before he got it right. WPM was 26.6 on the book. Accuracy was 95%. 5 question inferential and explicit comprehension check – 4/5/80%. (On the fluency assessment passage, (level F) 40 WPM and 84% accuracy.	
7-12	Phoneme-Grapheme Mapping: the vowel-team syllable (ea) Word work: encoding 2nd grade sight words Fluency practice: grade 2 paragraph (iPad application) Listen to recording of himself reading (All Kinds of Factories) Reread: factories Assessment: RAZ level F	Josh very quickly mastered the ea dipthong. He correctly encoded by phoneme and syllable the following words: eat, clear, bead, freak, team, great, break, head, heavy, tread, thread, and brisk. He also did a good job boxing together the letters that were one grapheme (ea in all words; also th). He put 'sk' into one box, not distinguishing the phonemes. He was unsure how to represent the 'eee' sound in "heavy" and at first used an e instead of a y, and then self corrected when I raised my eyebrows. For the spelling words, he correctly spelled "fall, full, grow, hold, hot, kind, light, never, pick" on the first attempt. He took two attempts (e.g., iPad indicated he had done something wrong) and correctly spelled on 2nd attempt the following words: far (farr), hurt (hart), keep (keap – but he at least was remembering the ea diagraph!), long (loung), myself (mysilf), only (olny). He consistently spelled "laugh" incorrectly. On the fluency application, we focused on rate (his greatest fluency challenge). The paragraph was about whales.	Instruct him to PAY ATTENTION TO THE WORDS ON THE PAGE! Not what he thinks would make sense, but slow down and read individual words. Will increase rate in long run because he won't have so many self-corrections.

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
		First, the application read aloud. Then he read 47 seconds). Next, the application broke the sentences into phrases and color coded the phrases, then modeled reading each phrase at proper rate, joining them together. Then, he re-read. His second reading was 27 seconds. His accuracy was 94% on the first reading and flawless on the second. Then he listened to himself read the book 'all kinds of factories,' following along and noting his 'good' and 'bad' pages (which we re-christened to say 'working on' pages). On his text reading (factories) his accuracy was 93% and his rate was 30.13 WPM. He continued to struggle with the word 'contents,' but self-corrected. He read 'clothes' correctly on the first try. Twice he inserted the word "for" where it did not exist. He also substituted the word "are" for "where" in one instance. His prosody was quite good. He paid quite a bit of attention to expression and inflection. It should be noted that I never let him go on until each word was perfect, so his rate was affected. On his fluency assessment, where his rate was unaffected, he read at 49 WPM with 85% accuracy. I told him his goal to move to the next level is 50 WPM at 90% accuracy, which is the target for RAZ level F.	
7-16	Word sorts-compound words Compound word	We started with compound words. I wanted him to internalize that when he comes	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
	writing Compound word antonym writing Model reading "Snowstorm" Choral Reading – "snowstorm" Independent Reading – snowstorm Comprehension quiz Fluency Assessment Passage	to big words, he can look for parts of the word he already knows. He first read aloud all the words, practicing them. Then he started sorting them by smaller words in the larger words. He first pulled out all the words that contained 'light,' then 'some, thing, out, side, snow, down, head, book." He began identifying words that are compound words – such as 'footlocker,' which he asked if he could spell, and then spelled correctly. He is very meticulous about his handwriting! On the compound word writing practice, he wrote the words switchboard, typewriter, backstage, shoemaker, handshake, waterproof, and quicksand. For the antonyms portion, he constructed downstairs, somebody, southwest (the direction and the word himself, spelled correctly!), something, daytime, outside. On independent ORF, he had 2 miscues – the word 'cold' and added "er" to warm. That said, his accuracy was 98% and his WPM was 44. On his comprehension quiz/check, he got 5/5=100%. On the fluency assessment, he got 50.68 WPM at 96.5% accuracy! This was cause to celebrate. We would move to level G the following day.	
	Review compound words as flashcards; sort by syllables; syllable types, all letters	Behaviors are getting more challenging every day. Needs breaks after every activity. Needs incentives (treats, a quarter, etc). Mostly hyperactive	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
	with diagraphs and/or dipthongs; all with silent e, nouns, adjectives (quick sorts) Spelling words – level 3 (ten words) Compound words: identify from in-text. Listen to self reading/repeated (re) read (snowstorm). Level G story (Monsters Stormy Day) – I read, we read, he reads. Fluency assessment passage.	as opposed to attention-deficit. Today pouting behavior emerged, as the work got harder because his levels increased. Completed all word sorts, review of words – increased automaticity. Identified compound words accurately from within text: carefree, surfboard, seashore, sunrise, raindrop, weatherman, sometime, grandstand, popcorn, forehead. He also separated the following words into two words: farmhouse, iceberg, billboard, bookstore, hailstone, snowflake, scoreboard, barnyard. Spelling: correct on first attempt: hurt, shall, start, today, together, try. Encoded by phoneme in 2 attempts: seven, warn. Still incorrect: laugh. On repeated reading of 'snowstorm,' read at 55 WPM with 100% accuracy. I read aloud and we choral read "monsters," but Josh had been late and we did not have the time for independent reading. On the level G fluency assessment passage, he read 38.4 WPM in 91.7% accuracy.	
7-18	"oi" vs. "oy" phoneme grapheme mapping their vs. there iPad application fluency practice – rate/phrasing – level 3 Reading aloud – monster's stormy day Fluency assessment.	Phoneme grapheme mapping words: oil (example),boil, broil, spoil, join, point, poison, loiter, boy, destroy, envoy, enjoy, voyage. Did a very good job on some very difficult words (voyage.) Thought y should be in broil. There vs. their was difficult, he was often guessing, until I made him explain each and every use back to me. He had to justify the reason for the use. On the worksheet, he chose	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
		to color code himself – good strategy for the future! He also took it upon himself to read the label on my water bottle. On the fluency iPad practice, he went up one level from the last iPad fluency drill. The passage was about teeth and contained unfamiliar words like 'enamal,' 'permanent,' and 'substance.' He first listened to the application read. Then he read once. His first reading he read at a very slow rate of 15.68 WPM. He then practiced with color coded phrasing. He read the same paragraph 2 additional practice times. On the second time, he increased his rate to 27.3 WPM, and on his third he increased to 49 WPM. The monster story was painful, in the sense that he was frustrated and completely shut down. I explained that when you get better, it gets harder, but he continued to pout. (This would become a pattern the next time we moved up a level). It took so long to read that the recorder shut off. Afterward, he was so angry and frustrated I didn't even attempt a fluency assessment passage. It was the last session for the week, so I gave the book to his mom's boyfriend and asked that he practiced. He read with mom and her BF over the weekend. His rate on that reading was 32 WPM at 88% accuracy.	
7-24	Word Sorts: er, or, ar; People who do things vs. words for	On the word sorts, he incorrectly sorted "fresher" (thinking it was "fisher"), and did not know where to put "longer, burglar,	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
	comparison; words with double consonants (double consonants make the vowel short!). Reread: monstor/shadow book. Sequencing activity, comprehension quiz, compound word construction, proper vs. general nouns activity, fluency assessment.	traitor, or brighter." Otherwise, he did really well. On the reread, he read at 43.4 WPM without frustration! It was evident he practiced with mom and her boyfriend quite a bit! He had to sequence pictures in the order they happened in the story, and write sentences to describe what was happening. It was easy for him to paraphrase the text and put it in his own words. He did this with the natural-ness of an on-level or above level writer! He would even add his own details such as "they were acting like they were crazy," or "Lurk was also a terrible singer" – ideas implied, but not explicityly stated. On the compound words activity he was supposed to construct 5 compound words with "room" and 5 with "water." He correctly constructed 'classroom, roommate, darkroom, lunchroom,' and 'courtroom;' and 'waterbed, bathwater, watermelon, waterboy (let it slide as that is the person who runs water to the athletes on the field), waterfall, and watercolor.' He invented some non words (some of which actually made sense but are nonwords): rainbath, colorboy, passwater, waterhands, and watermate. On the comprehension quiz, he got 4/5, or 80%. The question was about the meaning of a word (pretend) in context.	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
7-30	Word sorts and vocabulary words for today's story (ships and boats). Decoding new words by syllable. Put words in alphabetic order I read/we read/he reads: ships and boats Comprehension check Fluency assessment	Poor focus, behavior, effort today. Difficult words: sails, coasts, paddles, frames, oars, motors. He provided an example of each vocabulary word. Alphabetic order – had never been taught how to do this before but picked it up quickly. He pouted and was incredibly frustrated reading the level H book. It was as though he had never learned any decoding by syllable strategies. He inserted phonemes where they did not exist and when I grew increasingly frustrated as it seemed he was purposefully giving minimum to negative effort. Again, inserted words he thought would make sense in context (wood instead of logs) instead of reading words on the page. 19.6 WPM at 79% accuracy. Comprehension: 4/5; 80%. Fluency assessment passage – again, not best effort – 26.72 WPM at 89% accuracy. Gave him book to take home and practice, which he did not do.	
7-31	Listen and re-read ships and boats. Comprehension cards: making inferences: model, read aloud – choral, make inferences. Compound word practice. Phoneme grapheme mapping: "oa" diagraph. WJ III assessment – letter/word ID. WJ-III-fluency: assess. Fluency assessment	On the re-read, with a much better attitude, he had 4 miscues for 97.6% total accuracy and read at 26.7 WPM. Compound word practice: constructed sunset, zigzag, pigpen, cobweb, popcorn, armpit. All three inferences were made correctly.	

Session	Instructional Plan	Specific Observations from Lesson	Concerns/Changes Warranted
	passage.		
8-1	Assessment: Dr. Seuss words, QRI	See findings chapter.	

Appendix B

Comprehension Check

Reading a-z Monsters Quick Check

Level G
Monster's Stormy Day

Name [redacted] Date _____

1. *The monsters **pretend** they are cowboys.* What does **pretend** mean?
   - (a) to do something that's not real
   - (b) to make up a new game
   - (c) to share with a friend

2. What did Bonk use to make puppets?
   - (a) socks
   - (b) his hands
   - (c) stuffed animals

3. Why were the monsters playing inside?
   - (a) It was too cold outside.
   - (b) It was too hot outside.
   - (c) It was stormy outside.

4. Why did the lights go off in the monster's house?
   - (a) The storm made them turn off.
   - (b) The monsters turned them all off.
   - (c) They didn't have any lights at their house.

5. What did the monsters ***not*** need for the shadow puppet show?
   - (a) a flashlight
   - (b) a sheet
   - (c) a pencil

6. **Extended Response:** Explain why making shadow puppets was a good idea on the day of the story.

Teacher Instructions: Sit next to the student and read the first question as you run your finger under the words. Ask the student to wait to answer until you have read all the choices. Repeat them if necessary. Have the student choose the best answer. Repeat with the remaining questions.

Appendix C

Fluency Passage

Reading a-z **Fluency Passage** **Level H**

Name [redacted]

Some Animals
Word Count: 82

There are many kinds of animals. 6
Some animals live on farms in barns. 13
Animals like horses, cows, and 18
even some pigs live in barns. 24
Some animals live with people in houses. 31
You might see cats and even fishes. 38
Some animals live in the sea. 44
Fish and crabs live in the sea. 51
Some animals live in tall brown trees. 58
I have seen red birds and even big bees 67
that live in trees. 71
But the best animal of all 77
lives with me—my dog! 82

$\frac{82}{135} = \frac{x}{60}$

36.44

95

Number of Errors 1 2 3 4 5 6

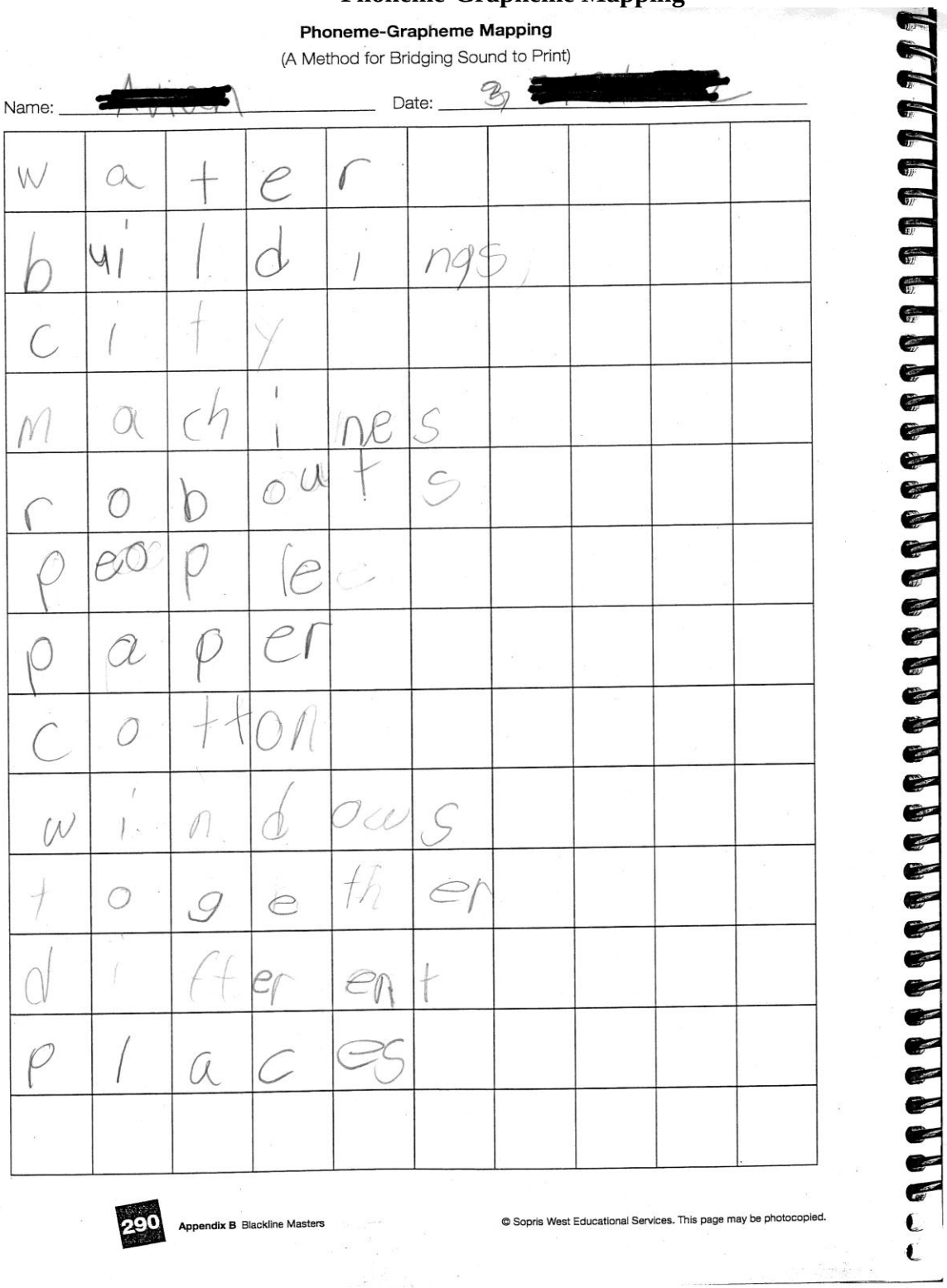
Accuracy (%):

Reading Rate (Words Per Minute):

20 35 50 65 80 95 110 125

Appendix D

Phoneme-Grapheme Mapping



Phoneme-Grapheme Mapping

(A Method for Bridging Sound to Print)

Name: [redacted] Date: [redacted]

w	a	t	e	r					
b	ui	l	d	i	ngs				
c	i	t	y						
m	a	ch	i	ne	s				
r	o	b	ou	t	s				
p	eo	p	le						
p	a	p	er						
c	o	tt	on						
w	i	n	d	ow	s				
t	o	g	e	th	er				
d	i	ff	er	en	t				
p	l	a	c	es					

290 Appendix B Blackline Masters