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The Effect of Prosody Instruction on Reading Fluency and Comprehension Among Third-Grade Students

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ABSTRACT

THE EFFECT OF PROSODY INSTRUCTION ON READING
FLUENCY AND COMPREHENSION AMONG
THIRD-GRADE STUDENTS

by

Tammy B. Overstreet

Chair: Ray Ostrander

ABSTRACT OF GRADUATE STUDENT RESEARCH

Dissertation

Andrews University

School of Education

Title: THE EFFECT OF PROSODY INSTRUCTION ON READING FLUENCY AND
COMPREHENSION AMONG THIRD-GRADE STUDENTS

Name of researcher: Tammy B. Overstreet

Name and degree of faculty chair: Ray Ostrander, Ph.D.

Date completed: July 2014

Problem

Many students are failing to become proficient readers with current instructional

methods used in American schools. Students frequently make improvements in two of

fluency's dimensions, rate and accuracy, but these improvements have not consistently

correlated to improvements in reading comprehension, which is the objective of reading.

The automaticity plus prosody (APP) model was developed by this researcher from

Topping's deep processing fluency model to explain why teaching and assessing the

multiple dimensions of fluency (rate, accuracy, and prosody) improve comprehension.

The purpose of this study was to compare students in a private school in a small town in

southwestern Michigan who received a treatment of only repeated reading and self-

graphing with students who received a treatment of repeated reading, self-graphing, and an instructional focus of prosody.

Method

An experimental pretest-posttest with control group design was used in this study. Participants were members of a class of third-grade students ($n=20$) from a private school in southwestern Michigan. The control group consisted of half the students ($n=10$), and the treatment group consisted of the remainder of the students ($n=10$). Students were initially matched based on their teacher's informal assessment results for reading comprehension and reading fluency based on the students' raw scores from the MASI-R Oral Reading Fluency Measures and CORE Reading Maze Comprehension Test . One student from each matched pair was then randomly assigned to the treatment or control group. The students were trained to engage in repeated reading using fiction passages at their independent reading level. Students in the intervention group were also taught lessons with an instructional focus on prosody. The study consisted of 21 sessions, 20-30 minutes per session, 3 days per week, over 7 weeks. Reading comprehension and dimensions of fluency (rate, accuracy, and prosody) were the dependent variables. These variables were measured with the AIMS-web Maze-CBM, the AIMS-web R-CBM, and the Multidimensional Fluency Scale.

Results

One between (treatment) and within subjects (test period) ANOVA indicated that treatment and interaction (treatment by test period) effects for all dependent variables (rate, accuracy, prosody, and reading comprehension) were not statistically significant at

the 0.05 level. However, test period main effect was statistically significant for three of the four dependent variables ($p<0.05$). No significant changes over test periods were found for accuracy. For prosody ($F_{(3,60)} = 6.30$, $p= .001$, $\eta^2 =.26$), and rate $F_{(1.85, 36.91)} = 13.09$, $p<.001$, $\eta^2 =.42$), significant increases took place between test period 2 (week 3) and test period 3 (week 6). For reading comprehension ($F_{(3,60)}=33.20$, $p<.001$, $\eta^2 =.65$), significant change was observed between test periods 3 and 4. These results indicate that students improved in rate, prosody, and reading comprehension regardless of whether or not they received instruction on prosody. Thus, for this group of third-grade students, prosody instruction appears to be not effective in helping students improve reading fluency and comprehension.

Conclusions

The APP model, as applied to reading development, was supported by the results. Repeated reading with self-graphing, which was done with students in both the control and intervention groups, developed students' basic fluency through appropriate, successful practice that led to automaticity. These gains in automaticity contributed to higher comprehension and oral expression, both of which are elements of expressive fluency. Whereas non-significant results did not show an instructional focus on prosody-created heightened levels of fluency or comprehension, the length of the study, the small sample size, and other limitations may have mitigated against adequate opportunity to identify differences between the groups. This study did confirm that students' fluency and comprehension levels can be significantly raised in a short period of time.

Andrews University

School of Education

THE EFFECT OF PROSODY INSTRUCTION ON READING
FLUENCY AND COMPREHENSION AMONG
THIRD-GRADE STUDENTS

A Dissertation

Presented in Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Tammy B. Overstreet

July 2014

THE EFFECT OF PROSODY INSTRUCTION ON READING
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APPROVAL BY THE COMMITTEE:

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                                         James R. Jeffery

_____
Member: Luana Greulich

_____
Member: Jimmy Kijai

_____   _____
External: Louise Moon   Date approved

To my husband, thank you for the tremendous support you have shown me throughout this process and your unswerving determination for me to finish. I could not have done it without you! I love you!

To Laura and Rebecca, thank you for your patience with me as I have completed this journey. I wanted to make you proud because I love you so much.

To my mama, my love of learning came from you. I know you would be so happy to see me do this. I bet you would write a poem about it.

To Mom and Dad, thank you for doing everything in your power to cheer me along and help me persevere. Your prayers are the reason for my success.

To God, be all the glory!

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LIST OF ABREVIATIONS

APP   Automaticity plus prosody model

CBM   Curriculum-based Measurement

MDFS   Multidimensional Fluency Scale

NICHD   National Institute of Child Health and Human Development

R-CBM   Reading Curriculum-based Measurement

RTI   Response-to-Intervention

WCPM   Words Correct Per Minute

ACKNOWLEDGMENTS

CHAPTER 1

INTRODUCTION

Background of the Problem

Young people who matriculate through America's K-12 system exit performing at subpar levels in the core academic subjects of reading, writing, and mathematics (Beall, Adams, & Cohen, 2010; Carnegie Council on Advancing Adolescent Literacy, 2010; Cataldi, Siegel, Shepherd, & Cooney, 2014; Lesgold & Welch-Ross, 2011; MacArthur & Philippakos, 2013; Macaruso & Shankweiler, 2010; Mariage et al., 2009; National Center for Educational Statistics, 2011; National Research Council, 2012; Reynolds, Wheldall, & Madelaine, 2011; Wise, 2009). The results of the 2013 National Assessment of Educational Progress, known as "the nation's report card," show that only 5% of 12th-graders perform at the advanced level on reading assessments that measure if they have the skills necessary to read, write, or do math required to compete in today's global marketplace (Friedman, 2005; National Center for Educational Statistics, 2011; Perin, 2013). Further, almost two thirds of eighth-graders do not score at a proficient level on reading exams, and 97% cannot perform at advanced levels in reading (National Center for Educational Statistics, 2011). These issues do not suddenly appear in adolescence (National Center for Educational Statistics, 2011). In 2011, only 34% of fourth-graders scored at or above the proficient level on similar assessments of reading (National Center for Educational Statistics, 2011).

When 2013 statistics are broken down in terms of race, the numbers are even more sobering. While almost half of White students score at or above the proficient level, only 18% of Black students, and 20% of Hispanic students score at or above the proficient level. In fact, more than half of all fourth-grade African American and Hispanic students scored below the "Basic" level (National Center for Educational Statistics, 2011). Thus, too many American children and far too many American minority children are not learning to read well enough to succeed in college, and more than a few fail to read well enough to be considered functionally literate (able to read and understand job applications or their prescription pill bottles) (Baer, Kutner, & Sabatini, 2009; Delgado & Weitzel, 2012; Kleinfeld, 2009). To ameliorate this problem, elementary school teachers must find interventions that enable successful reading while students are in the elementary grades and have sufficient time remaining in the educational system to gain necessary knowledge and skills to be proficient readers.

In primary grades, much instructional time is allocated to helping students acquire early reading skills, with some public school systems requiring 90 minutes or more of reading instruction and 60 minutes of writing, speaking/listening, and oral language instruction for all students in kindergarten through fifth grade (Andrekopoulos et al., 2010; Oregon K-12 Literacy Framework, 2012; South Carolina Department of Education, 2008). One would think this amount of reading and writing instructional time would enable students to acquire foundational reading skills. Yet despite the best intentions of educators and policy makers, large numbers of students in the United States, including up to 40% of urban students and one-third of non-urban students (National Center for Educational Statistics, 2011), struggle to read throughout their elementary school

progression into middle school and high school, leaving as many as 6 million middle- and high-school students still struggling to read (Annie E. Casey Foundation, 2010). As a result, 60% of minority students fail to graduate from high school, and 1.2 million students annually drop out of school without graduating (Biancarosa & Snow, 2006; Carnegie Council on Advancing Adolescent Literacy, 2010; Cataldi, et al., 2014; Diplomas Count, 2008; Wise, 2009). These low graduation rates are linked to reading. Research indicates that problems in reading lead to "early school exit . . . and low self-esteem due to lack of success" in academics (Brynner, 2008; Graves, Duesbery, Pyle, Brandon, & McIntosh, 2011, p. 269; Wise, 2009).

Helping students gain functional and academic reading skills has important implications for those individuals and society as well, as many studies have linked a myriad of issues to reading difficulties, including a strong connection to unnecessary health-care expenses, incarceration, abusive behavior, low socioeconomic status, and drug abuse (Baer et al., 2009; Centers for Medicare and Medicaid Statistics, 2004; Delgado & Weitzel, 2012; Kleinfeld, 2009; Perin, 2013; Shippen, Houchins, Crites, Derzis, & Patterson, 2000). Additionally, government officials and policy makers worry the U.S. economy will suffer if students do not leave school with requisite skills to gain employment with a livable wage (Annie E. Casey Foundation, 2010; Leu & Kinzer, 2000). Such individuals have difficulty adequately providing for a family without the need for governmental assistance. Furthermore, a single dropout costs the United States over a quarter of a million dollars over the course of his or her lifetime in lost income, remedial college courses, and Medicaid costs (Annie E. Casey Foundation, 2010; Baer et al., 2009; National Governors Association, 2010; Wise, 2009). Thus, even students who

are at high risk due to poverty, homelessness, or high residential mobility are found to be much more resilient in regard to academics if they have high oral reading ability in first grade; in fact, that ability to read well orally is seen as a protective factor (Herbers et al., 2012).

These statistics reiterate what educators know—reading well is important for children and for adults (Wise, 2009). Reading well means having high levels of both reading comprehension and reading fluency (Applegate, Applegate, & Modla, 2009; Begeny & Martens, 2006; Fountas & Pinnell, 2012; Kuhn, Ash, & Gregory, 2012; Kuhn, Schwanenflugel, & Meisinger, 2010; Kuhn et al., 2006; O'Shea, McQuiston, & McCollin, 2009; Paige, Rasinski, & Magpuri-Lavell, 2012; Rasinski, 2000; Rasinski et al., 2005; Rasinski, Rikli, & Johnston, 2009; Wilson, 2012). In its report that transformed the manner in which schools deliver reading instruction, the National Reading Panel (2000) recommended students receive instruction in what has come to be referred to as The Fab Five of reading instruction: phonological awareness, phonics, fluency, vocabulary, and reading comprehension. Additionally, many researchers recommend that educators consider such important factors as students' age and developmental level, social development, culture, schema, and interests, particularly in regard to two components of reading—reading comprehension and oral reading fluency (Courbron, 2012; Fountas & Pinnell, 2012; Mira & Schwanenflugel, 2013; Rasinski, Rikli, & Johnston, 2009; Reutzel, 2012; Topping, 2012; Walczyk & Griffith-Ross, 2007). These two skills, constructed on the phonological awareness and phonics skills targeted in many reading programs during preschool through second grade, are integral, closely connected components of the complex task of reading (Applegate et al., 2009; Basaran, 2013;

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Begeny & Martens, 2006; Berninger, Abbot, Vermeulen, & Fulton, 2006; Edmonds et al., 2009; Fountas & Pinnell, 2012; Lerner, 2006; Murray, Munger, & Clonan, 2012; Paige et al., 2012; Piluski & Chard, 2005; Rasinski, Rikli, & Johnston, 2009; Reis, McCoach, Little, Muller, & Kaniskan, 2011; Rasinski, 2012b; Reutzel & Cooter, 2012; Schwanenflugel, Hamilton, Wisenbaker, Kuhn, & Stahl, 2004; Wolf & Katzir-Cohen, 2001). The complexity of the factors affecting the reading process means that educators face many challenges in their efforts to enable students to become fluent, comprehending readers, which is evidenced by the number of struggling readers in American schools (Applegate et al., 2009; Edmonds et al., 2009; Hasbrouk & Tindal, 2006; Murray et al., 2012; Piluski & Chard, 2005).

Over the past several decades, and especially in the years since the National Reading Panel's (2000) report, much attention has been directed at developing students' fluency and comprehension, yet teachers still struggle to find the most effective interventions for specific students and groups of students regarding these reading components (Applegate et al., 2009; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Kuhn et al., 2010; Mariage et al., 2009; Morgan, Sideridis, & Hua, 2012; Murray et al., 2012; Neddenriep, Fritz, & Carrier, 2010; Rasinski, Samuels, Hiebert, Petscher, & Feller, 2011; Shippen, Houchins, Steventon, & Sartor; 2005; Vaughn et al., 2012; Wexler, Vaughn, Roberts, & Denton, 2010). These struggles do not remain due to a lack of instructional effort or politically based policy. Many schools now use the problem-solving model of Response to Intervention, RTI, to assess, diagnose, provide intervention, and monitor the progress of students who are below benchmark in reading

and other subjects (Berkeley, Bender, Peaster, & Saunders, 2009; Lipson & Wixson, 2009; Reutzel & Cooter, 2012).

For example, within the RTI framework, in addition to providing high-quality, evidence-based practices to all students, classroom teachers use universal screening to identify those students who are below benchmark. If students are found to be below benchmark, teachers implement responsive, evidence-based teaching practices in greater frequency and within smaller group or individualized settings to help struggling students make gains in reading (Lipson, Chomsky-Higgins, & Kanfer, 2011; Lipson & Wixson, 2009; Reutzel & Cooter, 2012; Vaughn & Fletcher, 2012). However, while RTI has become well established in public elementary schools (Berkeley et al., 2009; Denton, 2012; Ehren, 2010; Fuchs & Vaughn, 2012; Graves et al., 2011; Lipson et al., 2011; Torgesen, 2009; Tran, Sanchez, Arellano, & Swanson, 2011), according to the 2013 National Assessment of Educational Progress, no measurable difference was found in average reading scores for fourth-grade students from 2009 to 2011 (National Center for Educational Statistics, 2013). This lack of improvement occurred despite the fact that by 2009 many states had bowed to pressure from the federal government to make the implementation of RTI mandatory in public schools and had greatly increased the amount of time students spend receiving evidence-based reading instruction and being assessed in reading (Zirkel, 2009). This, then, begs a question. Why are students not improving if their progress in reading fluency and reading comprehension are being closely monitored and if students are being given additional support when they struggle? In answer, the interventions being widely used in many schools to improve reading fluency and comprehension, such as repeated reading and self-graphing, need to be modified or

enhanced in order for students to make consistent improvements in overall reading proficiency as well as in reading fluency and reading comprehension. Current approaches overemphasize basic fluency's elements of rate, accuracy, and automaticity (Allington, 2009; Applegate et al., 2009; Hicks, 2009; Lipson et al., 2011; Murray et al., 2012; Nichols, Rupley, & Rasinski, 2009; Pearson, 2006; Rasinski, 2004; Samuels, 2007). Students become faster, more automatic readers without developing their abilities to read with expression and to comprehend, which are elements of a more advanced type of fluency—expressive fluency. Several researchers have found evidence that prosody and comprehension are closely linked (Basaran, 2013; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Yildiz, Yildirim, Ates, & Cetinkaya, 2009) and that an instructional focus in prosody can help students make consistent gains in expressive fluency's elements of prosody and reading comprehension (Griffith & Rasinski, 2004). The lack of success from commonly used interventions and the promising results of studies that have linked good prosody to the ability to comprehend have led me to investigate how using an instructional focus in prosody in conjunction with the commonly used interventions of repeated reading and self-graphing affect the multiple dimensions of reading fluency and reading comprehension.

Statement of the Problem

The National Center for Educational Statistics (2011) has reported that a large number of students struggle to read not only proficiently and fluently, but also to comprehend what they are reading. However, there is insufficient research conducted to determine the most effective fluency instructional practices to help students consistently

make gains in reading comprehension, as well as in fluency (Applegate et al., 2009; Begeny & Martens, 2006; Edmonds et al., 2009; Kuhn et al., 2010; Lipson et al., 2011; Murray et al., 2012; Nichols et al., 2009; O'Shea et al., 2009). Interventions that contribute to gains in fluency and in comprehension, which can be implemented by classroom teachers with similar amounts of ease and time investment, must be found and validated. One such approach is an instructional focus in the dimension of reading fluency described as reading with expression, or prosody. However, little research has been done in both public and private elementary schools on how an instructional focus on prosody affects students' fluency or reading comprehension.

Purpose of the Study

The purpose of this study was to demonstrate the viability of employing an instructional focus on reading prosody to improve students' reading fluency and reading comprehension. Furthermore, this study was designed to demonstrate that current fluency instructional emphasis on rate and accuracy can be improved by including an emphasis on reading prosody. Thus, this study examined the relationship between the instructional focus of fluency lessons to growth in oral reading fluency (as measured in rate, accuracy, and reading prosody), as well as to growth in reading comprehension. This was undertaken by using instructional strategies in two treatment conditions. The first used repeated reading and self-graphing of rate and accuracy alone. The other used repeated reading and self-graphing in combination with an instructional focus on prosody, controlling for baseline fluency and baseline comprehension levels of third-grade students in a private, denominationally affiliated school.

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Theoretical Framework

When one undertakes research, a consideration of underlying theory is necessary. According to Borg and Gall (1983), a theoretical framework should consist of an explanation of how and why the variables within a particular study are related. Additionally, a study's theoretical framework allows the researcher to demonstrate an understanding of foundational concepts and theories in order to explicitly state the connections between the research topic and a broader knowledge base within the field of study in which research will be conducted (Creswell, 2009).

The theoretical context used to explain the relationships between the variables in this study is the APP model that I developed. (See Figure 1.) This theory was drawn from Topping's (2012) deep processing fluency (DPF) model, a theory with roots in the information processing model of reading published in a seminal study by LaBerge and Samuels (1974). A bottom-up theory, the DPF model, as shown in Appendix A, hypothesizes that while learning to read, children progress sequentially along a multi-level framework of processes and sub-processes, first developing phonemic awareness and then letter knowledge. These basics are followed first by phonemic decoding, next by orthographic knowledge of phonograms, then by sight word knowledge, then by oral reading fluency, and, finally, by comprehension (Chall, 1983). The mastery of each process or sub-process allows the reader to develop automaticity in each process, freeing up cognitive capacity for greater success at the next level.

Topping's (2012) theory enhances LaBerge and Samuels's (1974) theory of automaticity by positing that reading is made up of the reciprocating and recursive interactions of lower-order and higher-order mental processes where deeper fluency
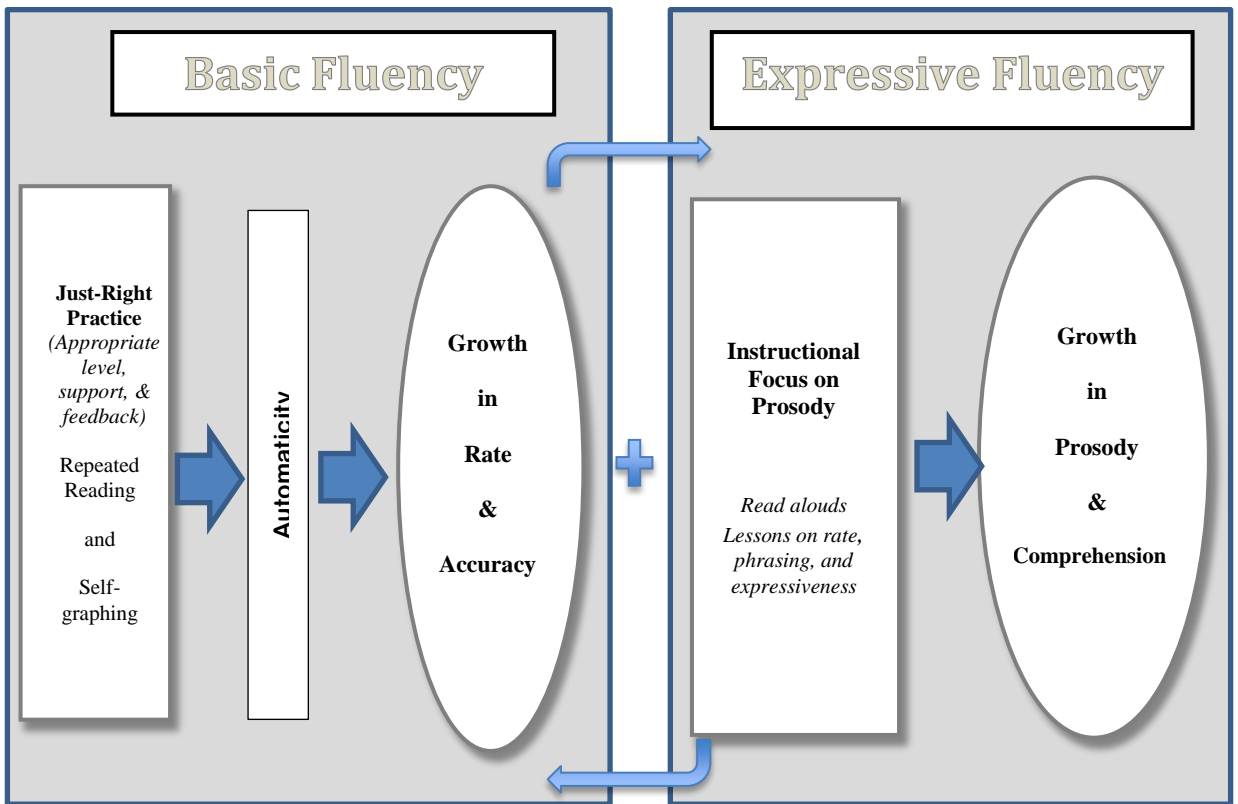
Figure 1. Automaticity plus prosody (APP) fluency theoretical model.

levels in which students have developed prosody (in addition to automaticity) enable

comprehension, and, hence, are effective to model prosodic skill development to

increases in reading comprehension.   Topping's (2012) model includes predisposing

factors, describes several meaning-making channels (auditory, visual, semantic, and

structural), and encompasses surface fluency, strategic fluency, and deep fluency.

Therefore, as this study involved third-graders, most of whom are working to develop

basic and expressive fluency, I chose to develop a model similar to Topping's (2012)

DPF model to directly address the key variables affecting third-grade readers: just-right practice, automaticity, prosody, and comprehension. The APP model is well suited to third-grade readers who are or should be developing automaticity and transitioning from basic (surface) to expressive (strategic) fluency. However, they may not be far enough along the continuum to display the deep fluency level of Topping's (2012) model. Therefore, the APP model provides a meaningful framework for considering the relationship between the variables in this study: a prosodic instructional focus in fluency lessons to growth in oral reading fluency as observed in rate, accuracy, and reading prosody, as well as growth in comprehension because instruction in prosody should lead to the expressive level of fluency, as students learn to read with prosody and comprehension.

LaBerge and Samuels's (1974) theory of automaticity was developed four decades ago. Its roots are from scientific psychology (James, 1890; La Mettrie, 1748/1749) and cognitive psychology (Kahneman, 1973), even though the contemporary ideas regarding automaticity are grounded in biological and ethological studies of reflex, taxis, and instinct (Kihlstrom, 2008). Despite the wide pendulum swings common to reading theory and pedagogy, automaticity theory remains prominent in the field today (Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009; Gray, 2004; Hapstak & Tracey, 2007; Hawkins, Hale, Sheeley, & Ling, 2010; Hicks, 2009; Kihlstrom, 2008; Kostewicz & Kubina, 2010; Kulich, 2009; Nichols et al., 2009; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Walker, Mokhtari, & Sargent, 2012; Wilson, 2012). Automaticity theorists compare the human mind and its functioning to a computer (Kihlstrom, 2008; Lipson & Wixson, 2009; Reutzel & Cooter, 2012). When the brain is

engaged in the task of reading, letters and words are input that must be automatically interpreted in order to allow the mind to have enough free resources to process meaning. This conceptualization of how reading progresses from lower level to higher level skills has been challenged by those who propose a more interactive model of reading in which the higher level processes do not wait to begin until all lower levels have been completed (Chall, 1983; Piluski & Chard, 2005; Posner & Snyder, 1975; Stanovich, 1980; Topping, 2012). However, the renewed emphasis on reading fluency in recent years has cemented the use of automaticity theory in fluency instruction and assessment, such as through the use of repeated reading and its variations (Bowers, 1993; Doehring, 1976; Hawkins et al., 2010; Kostewicz & Kubina, 2010; McCormick & Samuels, 1979; Murray et al., 2012; Samuels, 1985; Therrien, 2004; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Therrien, Wickstrom, & Jones, 2006; Wexler et al., 2010; Wilson, 2012; Wolf & Katzir-Cohen, 2001; Young, Bowers, & MacKinnon, 1996). However, the lack of consistent accompanying increases in comprehension (Chall, 1983; Hasbrouk & Tindal, 2006; Hoien-Tengesdal & Hoien, 2012; Kuhn et al., 2010; Lipson et al., 2011; Murray et al., 2012; Schrauben, 2010; Stanovich, 1980) has led some reading experts such as Chall (1983), Stanovich (1980), Kuhn et al. (2012), and Topping (2012) to revise the theory to better explain the complex processes that result in reading comprehension. Topping (2012) groups relevant factors into four areas that are somewhat sequential and recursive with the following feedback loops: predisposing factors or entry skills, surface fluency, strategic fluency, and deep fluency. The APP model was developed from portions of Topping's (2102) theory which apply to the specific population in this study—third-graders. The APP model and the deep fluency processing model (along with its

forerunner, automaticity theory) detail the link between fluency and comprehension; therefore using these theories as a framework for analyzing an instructional focus on prosody and oral reading fluency and reading comprehension is appropriate.

Since reading with prosody as well as with automaticity has been recently linked to increased reading comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009) while reading with automaticity has not been as consistently linked with similar growth in comprehension (Applegate et al., 2009; Begeny & Silber, 2006; Chard, Piluski, & McDonagh, 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Schrauben, 2010; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010), analysis of the effects of a fluency instructional focus that emphasizes prosody as well as automaticity is important. Therefore, in this study, growth in the multiple dimensions of reading fluency and growth in reading comprehension were conceptualized as follows. If prosody is included as a fluency instructional focus in addition to the automaticity focus used in many schools in fluency instruction, then students should experience growth in all dimensions of oral reading fluency as well as in reading comprehension; thus, they should grow in expressive fluency. However, students who receive instruction that solely emphasizes the automaticity aspects of basic fluency (rate and accuracy) should experience growth in basic fluency. However, they should not

experience as great a gain in expressive fluency's elements of prosody and reading comprehension because these elements were not included in instruction. These assumptions should follow because an instructional focus on prosody should enable students to reach the level of expressive fluency. Therefore, it follows that students who undertake reading instruction combining an intentional instructional focus on prosody with practice that builds automaticity through repeated reading and self-graphing will have growth in multiple dimensions of fluency and in reading comprehension.

Given that this is true, one can argue that teachers would want to follow such a process because the APP model states that growth in prosody due to instruction in oral reading fluency's prosodic dimension will enhance students' reading comprehension by addressing meaning-making elements of fluency (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009). Therefore, as applied to this study, the APP model suggests that one would expect the independent variable—instructional focus on the prosodic dimensions of oral reading fluency (in addition to its automaticity dimensions)—to influence or explain the dependent variables' growth in the multiple dimensions of oral reading fluency as well as growth in reading comprehension because students can become more skilled as readers if they are taught to attend to expressive fluency rather than solely basic fluency. As such, the APP model shapes the following assumptions underpinning this study: (a) students who receive instruction and practice in basic fluency elements through just-right practice

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will develop automaticity; (b) students who receive instruction in basic fluency elements as well as in expressive fluency elements through just-right practice and an instructional focus on prosody will develop automaticity as well as prosody and growth in reading comprehension. Therefore, if these hypotheses are true, and the above assumptions, taken together, theoretically match and undergird this study's purpose, then it follows that third-grade students in a private school setting, comprising a treatment group receiving just-right practice and an instructional focus in prosody, should be expected to demonstrate growth in automaticity and in the multidimensional aspect of oral reading fluency, prosody, as well as growth in reading comprehension.

Significance of the Study

This study sets forth the proposition: Students who make improvements in multidimensional elements of oral reading fluency, both in basic fluency's dimensions of rate and accuracy, and in expressive fluency's dimension of prosody, should also make improvements in reading comprehension when reading prosody is included in fluency instruction and assessment. Given current pedagogical and assessment practices in reading, studies such as the current one are important for many reasons. First, this study focuses attention on the multidimensional aspects of fluency, some of which have been ignored in recent years by educators who teach and assess only basic fluency (Allington, 2009; Applegate et al., 2009; Hicks, 2009; Lipson et al., 2011; Murray et al., 2012; Nichols et al., 2009; Pearson, 2006; Rasinski, 2004; Samuels, 2007). Such can impede students' progression to expressive fluency where prosody and comprehension can be improved. Second, many students struggle to read well or even proficiently despite making gains in basic fluency's automaticity component (Applegate et al., 2009; Begeny

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& Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006;

Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et

al., 2010; Rasinski et al., 2011; Schrauben, 2010; Valencia et al., 2010; Walker et al.,

2012; Wexler et al., 2010). Thus, this study is important in that it builds on the recent

research findings showing a consistent correlation between expressive fluency's

components of prosody and reading comprehension (Basaran, 2013; Binder et al., 2012;

Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira &

Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski,

Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel &

Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz

et al., 2009). Likewise, this study advances this body of research by illustrating the ease

of including reading prosody in the assessment and instruction of fluency and by

exploring the benefits of such an approach. Finally, this study included an intervention

that uses a combination approach to teaching reading fluency through the use of common

instructional techniques that promote growth in basic fluency through just-right practice

with repeated reading and self-graphing in conjunction with instructional approaches

explicitly focusing on expressive fluency's component of prosody, using strategies such

as reader's theater, partner poems, and echo reading. This study's design contributes to

practice and theory by building upon recent studies showing that fluency is more

consistently correlated with reading comprehension when prosody is included with rate

and accuracy in the definition and assessment of fluency (Basaran, 2013; Binder et al.,

2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira &

Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski,

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Harrison, & Fawcett, 2009; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009). Such demonstrates that an instructional focus on prosody during fluency lessons could be linked to greater improvements in expressive fluency's elements of prosody and reading comprehension than are made when teachers focus their instruction and assessment solely on basic fluency's elements of rate and accuracy in their instructional and assessment protocols.

The Research Questions

This study sought to answer the following research questions: First, do the oral reading fluency skills of rate, accuracy, and prosody differ for students who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing (treatment condition 1) from those who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing plus an instructional focus on reading prosody (treatment condition 2)? Second, does reading comprehension differ for students who receive treatment condition 1 from those who receive treatment condition 2?

Definition of Terms

Accuracy: In oral reading fluency, reading with precision the actual words that are represented in the text.

AIMS-web R-CBM: A web-based application that includes individually administered tests of oral reading, with nationally normed test forms for Grades 1-12 that can be used for universal screening as well as progress monitoring with at-risk students.

AIMS-web Maze-CBM: A web-based application that includes individually administered tests of reading proficiency, with test forms for Grades 1-8 that can be used for universal screening as well as progress monitoring with at-risk students. The Maze-CBM is a set of reading passages, each of which includes multiple-choice cloze task that students read silently. The first sentence of the passage is left intact, and every seventh word after the first sentence is replaced with three words in parentheses. One word is the correct answer (the word actually removed from the passage), one is a near wrong answer (same part of speech as the correct word), and the other word is a far wrong answer (different part of speech as the correct word).

Automaticity: Completing a task automatically and successfully without giving thought to the sub-processes which it involves in an obligatory manner, without conscious control. When reading with automaticity, the reader applies knowledge of the alphabetic code to identify letter-sound correspondences accurately and quickly while recognizing familiar spelling patterns in a manner that increases efficiency of decoding, allowing him or her to apply energy to blend phonemes to make words (Gray, 2004, p. 39).

Automaticity plus prosody (APP) model: The model I developed to explain how fluency develops. The first level of fluency in this model is basic fluency in which students achieve automaticity through just-right practice such as repeated reading and self-graphing. The next level is expressive fluency, in which students read with expression and comprehension.

Basic fluency: The lower level of fluency within the APP model. At this level, readers grow in rate and accuracy to develop automaticity through just-right practice.

Deep processing fluency: In Topping's (2012) model, the final stage of fluency in which students use metacognition, reflection, synthesis, and have high levels of confidence, self-efficacy, resilience, satisfaction, and motivation.

Expressive fluency: The higher level of fluency within the APP model. At this level, readers grow in prosody and comprehension through instruction in prosody.

Functional literacy: Literacy skills that allow an individual to manage daily living and employment tasks, requiring reading skills beyond a basic level of decoding (Schletchty, 2001).

Integration: The way readers combine the multiple dimensions of oral reading fluency, consistently orchestrating stress, intonation, phrasing, rate, and pausing (Mira & Schwanenflugel, 2013).

Intonation: Variance in voice tone, pitch, and volume to reflect text while reading; synonymous with expression (Mira & Schwanenflugel, 2013).

Just-right practice: The type of fluency practice that leads to growth in the dimensions of fluency: rate and accuracy. This practice can be done through repeated reading and self-graphing when appropriate support and feedback are provided as students work on a level of text that is just right for them (not too difficult or too easy.)

Modeling/Observational learning: When an individual observes another person and patterns himself or herself in some way after the model, modeling has occurred. This patterning can involve thoughts, beliefs, behaviors, strategies, and affects (Schunk & Zimmerman, 1997, p. 195).

Multi-dimensional Fluency Scale (MDFS): The most commonly used assessment used in education to measure prosody and the other multiple dimensions of oral reading

fluency. The most recent version includes three dimensions: phrasing and expression, accuracy and smoothness, and pacing (Rasinski, Rikli, & Johnston, 2009).

Oral reading fluency: The element of oral reading that describes the process of reading with automaticity, appropriate phrasing, pitch, stress, intonation, and volume to convey the meaning intended by the author (Paige et al., 2012; Zutell & Rasinski, 1991).

Pausing: The short breaths at commas and longer stops at end punctuation or dashes made by a reader who is guided by punctuation (Mira & Schwanenflugel, 2013).

Peer-mediated approach: Any instructional or practice procedure that involves two or more students working together to learn or practice a skill.

Phrasing: The manner in which a reader chunks words into meaningful units of language (Mira & Schwanenflugel, 2013).

Prosody: Expressiveness in reading.

Rate: The number of words read correctly in a specific unit of time, usually 1 minute.

Reading comprehension: The manner in which meaning is created by a reader as he or she uses background knowledge, the information in the written words, and the situational context of the reading.

Repeated reading: Reading a text more than one time in an attempt to increase fluency by developing automaticity.

Self-graphing: The marking of a performance outcome on a personalized graph, which contains a preset goal line.

Strategic fluency: In the deep processing fluency model, the fluency that builds on surface fluency. Students with strategic fluency self-monitor and self-regulate to read with prosody and comprehension (Topping, 2012).

Stress: The emphasis placed on words by a reader to reflect meaning (Mira & Schwanenflugel, 2013).

Surface fluency: In Topping's (2012) model, the fluency that comes as students use auditory, visual, semantic, and structural channels during maximized practice to develop automaticity (Topping, 2012).

Limitations

Various limitations affect the predictive validity and generalizability of studies. A threat to the external validity of this study was the small sample size and the fact that all students involved attended a private school in southwestern Michigan located on the campus of a university. This sample may not be generalizable for all other third-graders. Furthermore, some students at this elementary school have parents employed by the university or whose profession provides support services for the university. As such, this sample could be potentially affected by an association with a peer group belonging to more highly educated parents.

A potential threat to the internal validity of this study could be design contamination. Students' knowledge that they were study participants could have affected their pretest-posttest differences in scores. This seemed apparent when students showed excitement about their improvements, asked questions about the research, and articulated their desire for their results to be "good." Students in the intervention group may have discussed instructional interventions with students in the control group who did

not receive instruction in prosody, leading to a bleed-over effect, especially given that regular classroom instruction provided to all students by their classroom teacher included instruction in prosody as part of curriculum requirements.

Numerous efforts for accuracy and proper systematic research protocol were used to combat potential bias, including the use of a research assistant who randomly checked for inter-rater agreement with me on three assessments per assessment session with the multidimensional fluency rubric; however, the use of a fluency scale can be influenced by subjectivity. I also considered the format of the rubric a limitation. While some of the students in the control group raced through their timed readings, those in the intervention group became much more intentional about using a conversational pace, attending to punctuation and phrasing, and other elements of prosody. One of the frustrations I experienced when using the MDFS scoring rubric was that reading too quickly was not easily measured. Additionally, some students who achieved satisfactory phrasing and pace had to be given a lower score on the rubric due to their low volume, which may well have been an indicator of shyness or the volume with which these students speak in general and not just when reading.

Delimitations

There were several delimitations of this study. First, the study consisted of an intact class of students who were randomly assigned through matched ability pairing to either the control group or the experimental group; however, as all were third-graders enrolled in a private, denominationally affiliated school, results cannot be generalized. Second, the study spanned 9 weeks of time, with the intervention lasting for 7 weeks. Because the study was conducted with only 7 weeks of intervention with three short

practice sessions conducted weekly, the time span and frequency were restrictive. A longer running intervention perhaps would produce greater gains in reading fluency levels and reading comprehension levels. Additionally, the study was interrupted for a week due to the school's spring break. This caused a break in instruction that may have reduced the effectiveness of the intervention. Finally, students' reading comprehension was measured using a single curriculum-based measure. Using multiple measures for comprehension may have produced more fine-tuned results.

Overview of Research Methodology

This quantitative study used a pretest/posttest control group design and involved a single class of third-grade students (n=20), with a control group (n=10) and an intervention group (n=10). The groups were equivalent, as students were randomly assigned through matched ability pairing to the control or experimental group. (Students were initially matched based on their teacher's informal assessment results for reading comprehension and reading fluency based on the students' raw scores from the MASI-R Oral Reading Fluency Measures and CORE Reading Maze Comprehension Test (Diamond & Thorsnes, 2008). One student from each matched pair was then randomly assigned to the treatment or control group.) I established baseline levels of the multiple dimensions of fluency in terms of rate and accuracy as well as prosody. Also, student baseline levels were established for reading comprehension. Over a 7 week period, students in both groups participated in peer practice of repeated reading of independent level passages, and all students graphed their own progress in terms of rate and accuracy. Students in the intervention group received additional instruction in the area of prosody in order to allow me to look for a relationship between increasing prosody and reading

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comprehension growth. At the conclusion of the study, students in both groups were retested with the same measures that were used for pretesting.

Summary

This study addressed the problem of failure for increases in oral reading fluency to also lead to increases in reading comprehension. It was based on the APP model I developed from the deep processing fluency model (Topping, 2012). The research sought to establish that students who learned to read with increased prosody, which is an element of expressive fluency, as well as with increased rate and accuracy, which are elements of basic fluency, would make greater learning gains (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009). Students who received instruction in prosody and who graphed their progress over time during tri-weekly practice sessions with peer repeated reading were compared with students who only graphed their progress over time during tri-weekly practice sessions with peer repeated reading and did not receive instruction in prosody.   I expected that those in the group who received instruction in expressive fluency's dimension of prosody would grow more than the control group in terms of prosody and comprehension.

CHAPTER 2

LITERATURE REVIEW

The Process of Sorting Resources

To discover evidence and documentation for this study, searches were conducted using Andrews University's James White Library's Academic Search Complete (EBSCO), the OmniFile Full Text Select (H.W. Wilson), Social Sciences Citation Index, Sage Publications, and ProQuest Dissertations and Theses. Some journals were found within the James White Library's periodicals list after having been mentioned in the reference sections of other articles but were unavailable through one of the search engines of the library. Articles have been included from as early as 1974 if they were seminal studies, but most were from 2000 to April 2014. Additionally, I made use of the James White Library Interlibrary Loan program. At times, articles were located using various search engines. Several books were found using the James White Library's digital, online catalog.

Search criteria included but were not limited to: *fluency and reading comprehension; fluency rubrics; fluency scales; assessment of reading fluency; prosody; prosody* and *reading comprehension; assessment of comprehension; curriculum-based measurement; Rasinski; Silberglitt; Padak; Aims-web; Therrien* (author) and *fluency; Nation* and *Snowling* (author); *Fuchs* and *Deno* (author); *Valencia* and *comprehension*;

Schwanenflugel; fluency and *comprehension* and *adolescent; oral reading fluency* and *graphing; graphing* and *fluency; self-graphing; defining reading comprehension; Bonfiglio* and *Daly; Nichols* and *Rasinski.*

Purpose and Organization

The purpose of this literature review is to answer several questions. First, how does my research relate to and expand research within the field of literacy education, specifically in the areas of oral reading fluency (ORF) and how do the multiple dimensions of ORF link to reading comprehension? Also, why have I chosen to research these specific areas within the field of literacy instruction? This review of literature begins with a description of fluency and how it is defined and assessed. Fluency's dimensions of rate, automaticity, accuracy, and prosody are defined. Prosody assessment is also detailed. Reading comprehension is defined and its assessment described. Next, the link between fluency and comprehension is explored, with the results of several studies presented. Common fluency instructional practices and studies examining their effectiveness are presented, including repeated reading, assisted reading, student self-assessment and self-graphing, peer-mediated approaches, combination approaches, and those that emphasize prosody.

Fluency: An Overview

What is oral reading fluency? The answer to this question has been and continues to be a matter of contention within the field of education (Miller & Schwanenflugel, 2008, p. 336; Schrauben, 2010). This battle is not simply a war of words or an issue of semantics, but one that has crucial implications for literacy education since the manner in

which fluency is defined has profound effects on how it is taught and assessed. Those who adopt a bottom-up approach see fluency as a step in a sequential progression of reading skills that lead to comprehension (LaBerge & Samuels, 1974), while those who adhere to a more developmental approach, see fluency and its link to reading comprehension as a complex interplay of skills and processes that involves numerous feedback loops (Topping, 2012). Clearly, each of the aforementioned definitions would lead to widely divergent instructional and assessment practices. The definition of fluency chosen for use in this study necessitated a close examination of the multiple dimensions of fluency, which include rate, accuracy, automaticity, and prosody.

Since the mid-1970s, fluency has frequently been defined in terms of accuracy and speed, largely due to seminal studies by LaBerge and Samuels (1974) and their theory of automaticity. When the National Reading Panel (2000) included fluency as a vital element of successful reading programs, schools and teachers began to regularly include fluency instruction in their literacy programs. After the passage of the No Child Left Behind Act of 2001 and the reauthorization of the Individuals with Disabilities Education Improvement Act in 2004, fluency began to be defined, at least operationally, more in terms of rate and accuracy than by a broader definition (Kuhn et al., 2010, pp. 238-239). The RTI model, developed to better ensure that all students could meet the high standards required by this legislation (Lipson & Wixson, 2009; Reutzel, 2012), depends heavily on frequent and quantifiable assessment, which has cemented the role that the quantifiable dimensions of fluency play in literacy education (Deeney, 2010).

Elementary teachers often strongly emphasize fluency instruction in their classrooms. However, the very act of ascribing importance to fluency has led to

instructional and assessment practices which have diminished its effectiveness as a means

of helping students become better readers. Many states have adopted the Dynamic

Indicators of Basic Early Literacy Skills (DIBELS) (Good & Kaminski, 2002), or a

similar assessment that measures only rate and accuracy, as their high stakes assessment

required by the No Child Left Behind Act. While the DIBELS assessment provides

important information regarding fluency, the information it provides is not a complete

indicator of fluency but rather is a gauge of two dimensions of fluency only—rate and

accuracy as indicated by the number of words read correctly in one minute. As Deeney

(2010) explains, fluency, as a construct, has been changed operationally:

> Assessment choices should be based on our understanding of the construct being
> assessed. . . . Although we should choose assessments based on a solid
> understanding of the construct we want to assess, the opposite can happen.
> Widespread use of specific assessments can ultimately define the construct being
> assessed. What the measure assesses becomes the definition of the construct. (p.
> 442)

Hence, due to the emphasis of rate and accuracy in commonly used state-mandated

assessments, these basic fluency elements have become privileged in instruction in many

classrooms. Returning to a more complete definition of fluency and to a more thorough

understanding of the construct (and all its dimensions) is important in order to help

students become competent readers who are able to make meaning, which is the objective

of reading. Fluent reading is not only reading with good speed and accuracy, but at its

higher levels of expressive and deep fluency, it involves reading with expression,

comprehending, and more.

Reading is essentially a process of making meaning—of comprehending text;

however, many sub-processes contribute to this meaning-making process. Beginning

readers must first learn to break the code, coming to understand the connection between

letters and their corresponding sounds and then build on this knowledge to decode words

accurately, which eventually allows them to read with automaticity. As readers develop

these skills, they become fluent, reading with appropriate speed, accuracy, and prosody.

To read with automaticity, students must be able to decode with ease; to read with

prosody, students must have developed automaticity (Penner-Wilger, 2008). Good

decoding must be present for automaticity to be present, and automaticity must be present

for good prosody to be possible. In many developing readers, fluency leads to

comprehension, allowing readers to understand the text they read, or to make meaning

(Lerner, 2006; Reutzel & Cooter, 2012).

LaBerge and Samuels (1974) believe that fluency contributes to comprehension

because disfluent readers, those lacking automaticity in word recognition, must devote

> a significant amount of their finite cognitive energies to consciously decode the
> words they encounter while reading. Cognitive attention or energy that must be
> applied to the low-level decoding task of reading is cognitive energy that is
> denied to the more important task of comprehending the text. Hence,
> comprehension is negatively affected by a reader's lack of fluency. (Rasinski
> Rikli, & Johnston, 2009, p. 351)

Few would argue that last point—disfluent readers struggle to comprehend. However,

several studies have shown that some students who do well on tests of oral reading

fluency do not do well on tests of reading comprehension (Chall, 1983; Hasbrouck &

Tindal, 2006; Hoien-Tengesdal & Hoien, 2012; Kuhn et al., 2010; Lipson et al., 2011;

Murray et al., 2012; Schrauben, 2010; Stanovich, 1980). This study seeks to discover if

the lack of a consistent link between high levels of fluency and good reading

comprehension is due to the fact that some students who have been deemed fluent readers

have actually only achieved basic fluency, and while their basic fluency (rate and

automaticity) may be at proficient or advanced levels, elements of expressive fluency (prosody and comprehension) are lacking.

Harris and Hodges (1995) define reading fluency as having a freedom from word-identification problems which could hinder comprehension. Reutzel and Cooter (2012) explain fluent readers have the ability to read smoothly at a reasonable rate in an effortless, automatic manner akin to speaking, allowing them to focus on the ideas in the text and to comprehend the message of the text they are reading. The National Institute of Child Health and Human Development (NICHD, 2000) defines reading fluency as the ability to read and comprehend text at the same time. Penner-Wilger (2008) defines fluency by describing its foundational skills: accuracy, automaticity, and prosody. In a more complex analysis, Wolf and Katzir-Cohen (2001) explain that fluency's definition evolves according to the development of the reader:

> In its beginnings, reading fluency is the product of the initial development of accuracy and the subsequent development of automaticity in underlying sublexical processes, lexical processes, and their integration in single-word reading and connected text. These include perceptual, phonological, orthographic, and morphological processes at the letter-, letter-pattern, and word-level; as well as semantic and syntactic processes at the word-level and connected-text level. After it is fully developed, reading fluency refers to a level of accuracy and rate, where decoding is relatively effortless; where oral reading is smooth and accurate with correct prosody; and where attention can be allocated to comprehension. (p. 219)

As each reading expert who defines fluency reiterates, fluency has many dimensions, including rate, automaticity in word recognition, accuracy in decoding, and prosody (Hapstak & Tracey, 2007). The National Reading Panel (2000), for example, defines fluency as the ability to "read text with speed, accuracy and proper expression" (p. 1) and further includes specific recognition that "fluency requires the rapid use of punctuation and the determination of where to place emphasis or where to pause to make

sense of a text" (p. 6). The National Reading Panel (2000) extends fluency's definition to include its multiple dimensions:

> Fluency is the ability to read a text accurately and quickly. When fluent readers read silently, they recognize words automatically. They group words quickly in ways that help them gain meaning from what they read. Fluent readers read aloud effortlessly and with expression. Their reading sounds natural, as if they are speaking. (p. 22)

To more consistently see a link between fluency and reading comprehension, each dimension of fluency must receive emphasis in instruction and assessment, yet many teachers teach and test as though fluency is one-dimensional, focusing on rate to the detriment of all other dimensions. A closer examination will elucidate how each dimension contributes to fluency as a construct and why each of these dimensions must be considered when assessing and providing instruction within the construct of fluency.

Rate and Automaticity

Although Hudson, Pullen, Lane, and Torgesen (2008) and other researchers provide detailed information regarding fluency and its components, for the purposes of this study, fluency's dimensions that are of most concern to classroom teachers—rate, accuracy, and prosody—will be highlighted. To begin any examination of fluency, rate is an excellent place to commence, particularly since rate receives such a strong emphasis in the current educational assessment climate. Oral reading rate is the number of words that a student reads correctly in 1 minute and encompasses both speed and automaticity. Speed refers to how fast the reader says the words on the page, but automaticity is harder to define. Automaticity is a term that can be used to describe a level of competence that can be achieved in many processes. Tasks such as walking, driving, or riding a bicycle can come to be performed with unconscious competence. The individual has

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automaticity in the task when he or she can accomplish the task without the occupying of

the mind with that task (Gray, 2004). When discussing reading, automaticity refers to the

ability of the reader to do the complex tasks involved in reading without having to use

cognitive resources to do so.

What does automaticity have to do with fluency in general and rate specifically?

Automaticity allows the reader to save cognitive energy by freeing the attention span,

which affects the reader's speed since readers who can read with automaticity can read

faster (Deeney, 2010). Effortlessness, an important part of automaticity, arises from the

reader's recognition of words without conscious effort (Gray, 2004). He or she sees

entire words and phrases that do not require discrete decoding of letters, blends, or

diagraphs within words. Automaticity allows the reader to recognize these words and

phrases, which are stored in his or her memory banks. This word recognition must occur

automatically to allow for fluent reading so readers can properly integrate the many types

of information they are receiving while reading, including phonemic, semantic, phrasal,

and textual data (Kuhn et al., 2010, p. 232). Additionally, truly fluent readers usually

comprehend as they read, which can be hindered if they cannot effortlessly recognize

words and must use excessive cognitive resources to decode (LaBerge & Samuels, 1974;

Schrauben, 2010). Automaticity "serves to free sufficient mental resources for a learner

to focus their attention on the novel or more complex aspects of a task" (Gray, 2004, p.

39).

Extensive reading allows students to create pathways in their brain for certain

words and phrases, speeding up the process of reading and comprehending of subsequent

reading, by turning low-frequency words into high-frequency words (LaBerge &

Samuels, 1974). Many students who struggle to read fluently suffer from the Matthew effect in which capable readers read much more than struggling readers and thus are exposed to many more words and accrue much more practice, which enables them to be more proficient (Stanovich, 1986). The Matthew effect in the real world translates to the rich getting richer and the poor getting poorer. In the world of reading, the Matthew effect describes how readers who get less practice develop less automaticity with words because they see fewer words.

> In reading, automaticity entails practice at retrieving word forms and meanings (the output) from printed words (the input). Automaticity is a characteristic of specific words, not readers. Words move from the functional lexicon to the autonomous lexicon as a result of practice reading text. (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001, p. 40)

When considering the importance of rate and how rate is affected by automaticity, Moors and DeHouwer (2006) explain that when automaticity is present, "every process is uncontrolled, efficient, unconscious, and fast, to some degree" (p. 321); however, as students become older, speed must be considered in light of its diminishing returns. According to Hasbrouck and Tindal (2006), who examine oral reading fluency norms, first-graders at the 50th percentile gain 30 words per minute in reading rate from winter to spring, while eighth-graders improve only 18 words per minute over their entire eighth-grade year, and adults who are considered skilled readers, improve very little over time in terms of speed. Optimum oral reading rates also depend on context. Reading so quickly that comprehension is negatively affected does not constitute fluent reading, nor does reading very slowly with good comprehension; a balance is necessary between rate and fluency (Anderson, 2008). Hasbrouck and Tindal (2006) indicate that an oral reading rate of 107 words per minute is appropriate for third-graders and 123 for fourth-graders,

if they are to read with appropriate comprehension and prosody, whereas Leslie and

Caldwell (2009) give a range of 85-139 words per minute as expected rates for third-

graders.

Rasinski (2010) recommends using developmentally appropriate target rates

rather than choosing a specific rate as right for any student, which would allow teachers

to estimate students' growth over time within contextualized text. To compare reading to

another process, consider: A toddler who is learning to walk travels very slowly at the

beginning of the learning process, but as he develops automaticity in the process of

walking, he walks more quickly. However, his automaticity does not mean he must

sprint everywhere to be considered good at walking. Many situations, such as slippery

slopes scattered with jagged rocks, require a more moderate speed when walking. Texts

with difficult concepts and unfamiliar vocabulary merit a slower reading rate. When

considering rate, within the context of fluency's multiple dimensions, teachers should

remember that reading at a good rate is important to fluency, but a "good" rate will look

different in various reading situations. Despite its overemphasis, as Prescott-Griffin and

Witherell (2004) explain, rate is an important consideration:

> The importance of a child's rate of reading should never supersede the need for
> adequate comprehension. . . . If a child's reading rate is so slow that it hinders her
> reading comprehension or interferes with her motivation to read, then steps need
> to be taken to increase the child's reading rate. (p. 17)

Students whose rate is low should receive instruction, and just-right practice to help them

increase their rate; however, having a broader focus for instruction and assessment will

help students improve in the multiple dimensions of fluency, rather than in rate alone.

Fortunately, most strategies for increasing rate are also excellent for improving other

aspects of fluency such as choral reading, echo reading, radio reading, use of poetry, and reader's theater (Prescott-Griffin & Witherell, 2004).

Accuracy

The next dimension of fluency to be addressed within this literature review is accuracy, which is the manner in which the reader reads with precision the words that are represented in the text. When students read aloud during 1 minute timings, their accuracy is determined by analyzing their words read correctly as well as their error rates. Having high levels of accuracy in decoding is critical to the reading process, since "misreading critical words, or a large percentage of words can derail comprehension" (Deeney, 2010, p. 440), which is the point of reading.

While accurate reading is an important element of good reading, many reading theorists decry the manner in which accuracy and rate are the only elements of fluency commonly tested today, which has had the effect of redefining fluency so narrowly that the construct is too radically changed to be considered fluency (Deeney, 2010; Samuels, 2007). Fluency at all levels (basic, expressive, and deep) must be considered when making decisions on assessment and instruction.

Fluency's Neglected Dimension: Prosody

Prosody Defined

How can the construct of fluency be salvaged and brought back to an operational definition that includes more than its easily quantifiable elements? Fluency's final dimension, prosody, must be returned to its rightful place within fluency's definition. This will take place only when prosody is included in assessments of fluency. What is

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prosody, how is it assessed, and why is it not commonly included in fluency's definition and assessment today? Dowhower (1991) explains that, prosody, also known as reading with expression, "has been a vague instructional phrase, rarely defined explicitly either by teachers or texts on teaching reading" (p. 165). Defining prosody in unambiguous terms is a critical starting point in this discussion.

Prosody is the element of fluency many teachers refer to as reading with expression; however, as is the case with fluency, the construct of prosody has been defined in various ways by different reading experts. A consideration of neuroscience can elucidate the construct. Glavach (2011) explains prosody is produced in the right side of the brain, defining it as the "emotional part of speech," which includes rhythm, intonation, and patterns of language (p. 1). Zull (2002) clarifies that, in most people, cognitive language comprehension occurs in the left hemisphere of the brain. In the same general area on the right side of the brain, the meaning of the language is interpreted based on one's understanding of the emphasis on particular syllables, rhythm, pitch, tone, and inflection (Zull, 2002, p. 171). The brain's left side provides understanding that would be left "flat and simple" without the effective interpretation that takes place in the brain's right side (Zull, 2002, p. 172).

Deeney (2010) states that prosody is a reader's ability to read smoothly, with appropriate phrasing and expression, and includes the elements of tone, inflection, rhythm, and parsing. Dennis, Solic, and Allington (2012) link prosody to rate, accuracy, and expression, explaining that prosody develops on a continuum that begins with accuracy, proceeds to automaticity, and culminates in the use of prosodic feaures. Not only does prosody involve that expressiveness common to fluent readers, but prosody

also includes the elements of proper phrasing, or the parsing of text into appropriate chunks. Proper phrasing is illustrative of comprehension (Deeney, 2010, p. 441). By organizing text into meaningful phrases, the reader packages the information of the text into groups of words that fit together, a process that enhances comprehension (Roll, Lindgren, Alter, & Horne, 2012).

Prosody has other features as well. When reading with prosody, a reader appropriately varies his or her pitch, which is also known as intonation, or fundamental frequency. Furthermore, the prosodic reader reads with a proper rhythm, and stresses words and phrases effectively by changing the loudness or prominence of syllables in a way that matches native language stress patterns (Kuhn et al., 2010; Schwanenflugel & Benjamin, 2012). Additional prosodic features involve timing and include duration or length, a correlation of rate, and pausing, which is also known as spectrographic silence (Schwanenflugel & Benjamin, 2012). Prosody describes speech's rhythmic and tonal qualities, which normally apply to larger than single phoneme segments, so they are referred to as suprasegmental features (Dowhower, 1991). However, prosody cannot be simply defined by the examination of these components, as its essence is more of a feeling than that of an entity. According to Kuhn et al. (2010), "Prosody is the music of language" (p. 234) and "is at the heart of the development of reading skill" (p. 237). The combination of prosody's components creates the ability to read with expression, and by showing which words are important through prosodic intonation, the reader brings meaning to the written language.

Overview of Prosody Assessment

Given the importance of prosody's contribution to the construct of fluency, one might expect it to receive a great deal of attention in schools, both in instruction and in assessment. However, as previously stated, most assessments of fluency used widely in public schools today assess only basic fluency's elements (rate and accuracy), with little attention being paid to the instruction or assessment of expressive fluency's element of prosody. Moreover, prosody is directly affected in a negative manner when students and teachers focus excessively on speed, as oral reading fluency rate should be aimed at conversational rates (Paige, 2012). Students who race through their reading to have a faster oral reading rate do so at the expense of prosody. Reading too fast results in a loss of the expressive quality of reading. This loss of prosody has negative consequences on the goal of reading—comprehension (Roll et al., 2012).

Kuhn et al. (2010) suggest that good prosody improves comprehension, as fluent readers embed the correct prosody into their oral reading, which illustrates that they are making sense of the text. Prosody aids students in constructing comprehension as well as indicating that they have achieved comprehension. Prosody is often emphasized when reading poetry, dramatic text, and narrative text; however, prosodic reading of any genre is linked to improved comprehension (Rasinski, 2010). According to Paige (2012):

> Students with greater prosody comprehend at a higher level. . . . One reason for the connection between prosody and comprehension may involve working memory. It has been hypothesized that prosody provides the reader with a greater ability to hold an auditory sequence such as a phrase or a sentence in working memory. This may provide the reader with an advantage in processing textual details beyond that where words are simply encoded one after another with no expression. (p. 61)

Since the goal of reading is comprehension, and good prosody is linked to good comprehension, schools should begin to assess prosody in order to guide instruction in this important aspect of fluency. However, many schools continue to assess only rate and accuracy.

Why is prosody neglected in the assessment of fluency? Assessing prosody takes more time and expertise to assess than rate and accuracy require and is considered by some as difficult to quantify (Fuchs, Fuchs, Hosp, & Jenkins, 2001). In a seminal study on this topic, Dowhower (1991) indicates that prosodic reading has several indicators, including the presence or lack of pausal intrusions, the length of phrases between pauses, the ratio of inappropriate phrases to appropriate ones, the duration of the final words of syntactic phrases, the stress or accent, and the way pitch changes at final punctuation marks. Readers who make fewer inappropriate hesitations within words or syntactic units, who read in longer phrases that are grouped in appropriate syntactical and phonological units, who lengthen final phrases, who vary their pitch to match prosodic markers such as periods or question marks, and who stress only appropriate words (around one per phrase), read with better prosody than those who do not do all of these when reading aloud.

In the classroom, prosody is usually measured with rating scales such as the NAEP Oral Reading Fluency Scale (Pinnell et al., 1995) or the Multidimensional Fluency Scale (Zutell & Rasinski, 1991). Kuhn et al. (2010) urge that more complex scales are needed to accurately assess the complex phenomenon of prosody (p. 236). However, lack of the perfect scale should not discourage teachers from using those scales because

when fluency is assessed, prosody must be considered in order to gain a full picture of a reader's fluency.

Whereas reading rate has been determined to be a "decent measure of reading fluency . . . reading at an appropriate rate in meaningful phrases, with prosody and comprehension should be the fluency goal for all readers. A literate person is one who derives meaning, not speed, from the printed word" (Rasinski & Hamman, 2010, p. 26). The quantifiable aspects of fluency (accuracy and automaticity) are important because they serve as indicators of the reader having sufficient working memory, an adequate understanding of phonics, the ability to chunk text, and adequate vocabulary knowledge. However, these two aspects of fluency are simply not enough to fully understand the complex construct of fluency and how it relates to comprehension (Courbron, 2012, p. 36).

Placing appropriate emphasis on fluency's other dimension, prosody, is crucial to ensure fluency's role in the overall process of reading is actualized—aiding in comprehension. When only rate and accuracy are measured, rather than deeming the result fluency, the assessment should be termed "word recognition automaticity" (Dennis et al., 2012, p. 215). Researchers in the field urge that when fluency is defined and assessed more appropriately, teachers will provide more appropriate instruction (Courbron, 2012; Deeney, 2010; Dennis et al., 2012; Paige et al., 2012; Samuels, 2007). Fluency can be defined both simply and in a more complex manner, but teachers who keep in mind the overall goal of the reading process will consider fluency's complicated dimensions in light of reading's simple goal—decoding while comprehending (Paige et al., 2012; Samuels, 2007).

Despite the fact that even people without a background in education can hear the difference between prosodic reading and non-prosodic, current fluency assessment practices have ignored prosody's contribution to fluency. A large reason for this is the failure of reading experts to agree upon a definition of prosody and to create an instrument which can be used quickly and easily by classroom teachers to assess fluency in a multidimensional manner (Miller & Schwanenflugel, 2008; Valencia et al., 2010).

A few reading experts have endeavored to develop effective means for the assessment of prosody. Currently, prosody is measured in three ways: (a) indirectly with stress sensitivity tasks and parsing tasks, (b) directly with spectrographic measurements, and (c) with rating scales (Schwanenflugel & Benjamin, 2012). Indirect measures require the expertise of a speech pathologist, quiet testing environments, and individualized assessments. The direct measurement of prosody with spectrographs also requires the skill of a trained expert and access to technology usually found only in speech and hearing centers. Additionally, even experienced labelers spend 100-200 times the actual recording time to label a single spectrogram. This method is also not realistic for classroom use, but could help inform and guide the development of user-friendly assessments of prosody (Schwanenflugel & Benjamin, 2012).

Assessing Prosody With Rating Scales

The most common assessment method for prosody and the only one available to most teachers is the use of a rating scale, such as the NAEP Oral Reading Fluency Scale (Pinnell et al., 1995) or the Multidimensional Fluency Scale (Rasinski, Rikli, & Johnston, 2009; Reutzel & Cooter, 2011; Zutell & Rasinski, 1991). The NAEP scale (Pinnell et al., 1995) has been abandoned by many teachers because it does not include accuracy within

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its measured features, has ambiguous divisions between descriptors, and does little to inform instruction (Schwanenflugel & Benjamin, 2012).

The Multidimensional Fluency Scale (Rasinski, Rikli, & Johnston, 2009; Zutell & Rasinski, 1991) has a stronger focus on the prosodic features of oral reading, including phrasing and expression, smoothness and accuracy, as well as pacing (Kuhn et al., 2010, p. 236). The most recent version of this scale (Rasinski, Rikli, & Johnston, 2009; Schwanenflugel & Benjamin, 2012) examines three dimensions of prosody—phrasing and expression, accuracy and smoothness, and pacing. Those using this scale need only 1 minute of oral reading to conduct an assessment but should record the reading in order to be able to listen to it repeatedly while assessing with the scale (Rasinski, Rikli, & Johnston, 2009).

The most commonly noted caveat of fluency scales is their lack of precision, but Kuhn et al. (2012) urge that this lack of precision is an acceptable tradeoff to balance out the current focus in fluency assessment on basic fluency (rate and accuracy). While prosody rating scales are not as easily used or as quickly quantifiable as common measures of rate and accuracy, Walker et al. (2012) insist that accuracy, rate, and expression must all be included in fluency assessments due to their crucial role in allowing readers to direct their attention to comprehending. Further, the use of rating scales to assess fluency deepens teachers' and students' understanding of the multiple dimensions of fluency and the critical importance of providing balanced, explicit instruction in those multiple dimensions, allowing assessment to improve instruction (Zutell & Rasinski, 1991).

Best Practices in Prosody Assessment

In order to answer questions about fluency assessment, Valencia et al. (2010)

explored the construct, criterion, and consequential validity of approaches to assessing

oral reading fluency in their study of second-, fourth-, and sixth-graders. Before the

study ensued, all students (*n*=279) chosen for inclusion in the study had previously been

tested without accommodations on their school's version of the assessment required by

No Child Left Behind legislation. First-year English Language Learners (ELLs) were not

included in the study. The researchers used the norm-referenced test, the Iowa Test of

Basic Skills (ITBS), to assess reading comprehension as well as developing and field

testing their own tests, both narrative and expository, of reading comprehension and

fluency. This allowed them to assess accuracy, rate, prosody, and passage

comprehension. The researchers adapted the NAEP oral reading fluency scale from the

fourth-grade level to holistically assess expression, phrasing, and adherence to the

author's syntax, which the researchers considered to be key elements of prosody. They

found that words read correctly per minute on a fluency probe was a measure of rate

rather than fluency. "When separate indicators of oral reading fluency (rate, accuracy,

prosody, passage comprehension) were used in assessment, the result provided a finer

grained understanding of oral reading fluency and fluency assessment, and a stronger

prediction of comprehension" (Valencia et al., 2010, pp. 284-285).

Alternative Methods in Prosody Assessment

Alternative methods for assessing prosody are beginning to be developed by

researchers. Benjamin et al. (2013) conducted a study to develop a spectrographically

grounded scale for prosody. According to the National Center for Voice and Speech

(2014), a spectrograph is an instrument often found in laboratories of voice researchers that displays graphical representations of sound as time passes. Sound's varying component frequencies are printed as wide and narrow bands that can be analyzed for various attributes. These authors sought to validate the Comprehensive Oral Reading Fluency Scale (CORFS), a new fluency assessment tool that uses a combination of two subscales focused on reading expression as well as reading rate and accuracy.

In their first study, Benjamin et al. (2013) developed the subscale for evaluating prosody by examining the spectrograms produced from the oral reading of children who possessed various levels of fluency skill. When the researchers had three reading experts rate the oral reading of second-grade students (n=59) using the CORFS, they found strong intra-class correlations among readers for reading expression and rate and accuracy. Also, the ratings of expression correlated with all of the spectrographic indicators except one and were highly correlated with standardized fluency and comprehension assessments. In their follow-up study, the researchers replicated the structure of the CORFS using spectrographic measures of oral readings of two new texts by third-grade students (n=60). The results aligned closely with those from the first study, which taken together supports the validity of the CORFS, justifying its use as a balanced and complete assessment of reading fluency.

A similar study conducted by Miller and Schwanenflugel (2008) used spectrographic measurement to compare young readers' (n=92) prosody with that of adults in order to predict which of the early readers would have the best comprehension. These authors created a prosodic profile of each reader at the end of their first-grade and second-grade years by measuring pitch changes within sentences, pauses within

sentences, and intonation. These profiles were compared to those of adults and scored as having lesser or greater adult-like prosody. At the end of third grade, the students were tested in oral reading fluency and in reading comprehension. "Decreases in the number of pausal intrusions between the first and second grades and early acquisition of adult-like intonation contour predicted better comprehension later" (Miller & Schwanenflugel, 2008, p. 336). The authors conclude that when students read with prosody, they are more capable of understanding what they read. The complicated analysis techniques used in this study preclude similar classroom applications, but the results are important, as the researchers found that young readers with the most consistent adult-like prosody had the highest comprehension, which justifies including prosody when defining fluency and could also justify a focus on prosody in instruction and assessment.

Bolanos et al. (2013) have also sought an alternative method for assessing prosody, one that uses computers to produce automatized assessment. These researchers characterized fluent and expressive reading using a set of prosodic and lexical features derived from literature and current rubrics for expressive reading, including reading rate, pauses, repetitions, correlations between pauses and punctuation, phrase length, stressed syllables, and pitch peaks and contours.   Using recordings (n=783) of 1-minute unassisted readings of grade level passages by elementary students (n=313), the researchers developed a computer program they termed Fluency Oral Reading Assessment (FLORA). The purpose of this program was to create computer-generated ratings of prosody that had a higher rate of agreement with human raters than human raters had with each other. The authors suggest that the computer-generated system, which makes use of complementary prosodic and lexical features, could enhance fluency

assessment by greatly reducing the amount of time spent by individual teachers on the assessment process, potentially saving millions of hours of instructional time (Bolanos et al., 2013, p. 234). Additionally, the recordings and computer-generated assessment would produce a lasting record of each student's performance, providing the option for further study of those recordings to identify problems and analyze treatment options. Furthermore, students could receive immediate and repeated feedback when using an automated assessment system and begin to apply that feedback to become better readers through their work with a readily available computer tutor.

The assessment of prosody is vital to understanding the link between fluency and comprehension. According to Paige et al. (2012):

> Readers enhance textual meaning by reading with appropriate fluency. Fluent readers tend to read in a way that constructs meaning, whereas less-fluent readers tend to struggle with making meaning. A reader's ability to construct an interpretation of a text can be hindered by slow, laborious word recognition skills. Poor prosody may lead to confusion through inappropriate or meaningless groupings of words. (p. 67)

While no formula has yet been developed to combine reading speed, reading accuracy, and reading prosody into one number, to have such a formula would be advantageous, and perhaps will be developed in the future. Fluency assessments cannot provide an adequate measure of fluency unless the three foundational components of fluent reading, which include accuracy of decoding, automaticity/rate of word recognition, and prosody, all within the context of reading comprehension are considered within the assessment (Penner-Wilger, 2008; Piluski & Chard, 2005).

Reading Comprehension

Comprehension Defined

The goal of reading is to understand or to make meaning. The ultimate goal of reading instruction is for students to become lifelong, independent readers who can understand a variety of texts (Ogle & Beers, 2009, p. 214). This complex process of reading comprehension involves "accessing word meaning in context, parsing sentences, and drawing inferences" (Rayner et al., 2001) while monitoring for meaning (Jacob & Paris, 1987, p. 258) and involves an interaction between the reader and the text (NICHD, 2011, p. 4). Lower level processes, such as word identification and basic fluency, are integral to success in the higher level processes of deep fluency and comprehension. Multidimensional and developmental, reading comprehension is composed of many skills and practices and changes over time (Morsy, Kieffer, & Snow, 2010).

Reading comprehension, like reading fluency, has many definitions, perhaps as many as there are reading experts. A simple definition, *the act of understanding what one reads*, describes the essence of what reading comprehension is, but such a simple definition can obfuscate the complexity of this construct. When reading with comprehension, the reader must use phonemic awareness to understand phonemes, the smallest units of sound in a language, as well as a knowledge of phonics that allows him or her to connect graphemes, the smallest units of writing in a language, to specific sounds. While doing so, he or she also must consider a knowledge of syntax, or the rules for the way words are combined in a language. At the same time, the reader must consider orthographic patterns in words, analyzing spelling patterns to aid in making meaning, considering the difference in common homophones such as *hair* and *hare* and

other similar words. Simultaneously, the reader must consider semantics specific to his or her own background and perspective, along with etymological considerations of how word meanings may have changed over time within his or her culture. Finally, the reader must consider how language is used by people in society to satisfy their need to communicate (Reutzel & Cooter, 2012). Reading comprehension can vary due to characteristics of the reader, the text, and the activity of reading, each of which can vary depending on socio-cultural context (Morsy et al., 2010). To comprehend, the reader must actively engage in making meaning by activating background knowledge, by using knowledge of text structure to gauge which parts are important, by making predictions, by finding the big ideas, by connecting the message in the text to his or her own experiences, by visualizing, by summarizing, by evaluating, and by monitoring for comprehension (Tompkins, 2007).

Reading has been compared to rocket science with good reason, as it entails not only breaking a code but also grappling with many other nuances as the reader's existing knowledge interacts with the context of the situation in which the reading is occurring, along with the information actually suggested by the words written on the page. Additionally, comprehension is affected by how well an individual understands language in general based on cognitive capacity and his or her available working memory (Rayner et al., 2001, p. 42). Given these multiple facets of comprehension, it stands to reason that many factors contribute to success with making meaning while reading, and that reading prosody, an element of reading fluency, may bear a strong influence on the overall process of reading with comprehension. According to Pearson (2013), some reading experts refuse to distinguish between reading and reading with comprehension: "Their

failure to make the distinction is deliberate, for they would argue that reading is comprehending (or that reading without comprehending is not reading)" (p. 9). Many experts do agree that reading aloud with good prosody facilitates reading with comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009).

Assessment of Reading Comprehension

The assessment of reading comprehension, due to the complex nature of the construct of reading comprehension, is also multifaceted (Svetina, Gorin, & Tatsuoka, 2011). Further, comprehension cannot be observed directly and must be measured with indirect means. Asking readers to describe the text, to retell or summarize what they read, or to answer specific questions, or to interpret and critique an author's message gives only "the residue of the comprehension process itself. Like it or not, it is precisely this residue that scholars of comprehension and comprehension assessment must work with in order to improve our understanding of the construct" (Pearson, 2013, pp. 1-2).

Tests of reading comprehension are based on

> a conceptualization of the skills and knowledge that comprise the ability to make meaning of text. This construct then is 'operationalized' or made measurable through the selection of passages, the writing of questions, and (in the case of multiple-choice questions) the creation of distracting incorrect answers. Thus, understanding the validity of information provided from a test of reading comprehension must start with an understanding of what the construct of reading comprehension actually is. (Morsy et al., 2010, p. 3)

An indicator of the many factors that affect how well a reader comprehends is found in a study that discovered that measuring decoding accuracy and listening comprehension can allow readers to account for 40-60% of variance in reading comprehension, without having students complete any more traditional assessment from specific passages of text (Hoien-Tengesdal & Hoien, 2012, p. 467). Some views of reading, such as the Simple View of Reading (SVR), hold that students' reading comprehension can be found from the product of their listening comprehension and decoding ability (Dombey, 2009). According to Dreyer and Katz (1992), the Simple View model has mixed support, but each component has been found to be an essential factor in reading comprehension (Dreyer & Katz, 1992).

By studying good readers and what they do, researchers have been able to determine more about reading comprehension. Active reading, goal-setting, text-previewing, predicting, having strategies for word attack, monitoring for understanding, integrating prior knowledge, reading texts differently based on their type are only a few of the skills that good readers have been shown to possess (Duke & Pearson, 2002). Given this complexity, one should not be surprised to understand the difficulty of adequately determining when good reading comprehension has occurred. However, most schools and teachers have a variety of formal and informal assessments available to attempt this task.

Historically, reading comprehension assessments, both formal and informal, have rarely been defined in an explicit manner (Leslie & Caldwell, 2009). Due to this lack of foundational information, construct validation for most measures of reading comprehension has been problematic. In spite of this, teachers rely on these instruments

to make decisions regarding instruction because, despite the tools' flaws, teachers must have some means of assessing reading comprehension. Some of the commonly used informal assessments used by teachers are informal reading inventories, conferences, literature response journals, rubrics, retellings, think alouds, maze or cloze measures, performance assessment, critical thinking measures, sentence verification tasks, asking short-answer in verbal and written form, as well as written essay questions (Leslie & Caldwell, 2009). Regardless of the widely varying assessments available, more research must be done to provide teachers and students with assessment tools that are better suited to guiding teaching practice, more able to measure valuable student learning and engagement, and sufficiently provide accountability that has been mandated by policy (Leslie & Caldwell, 2009).

The Link Between Fluency and Comprehension

Many interventions are aimed at improving students' comprehension, including but not limited to: reciprocal teaching, think alouds, the pre-teaching of vocabulary, questioning the author, question and answer relationships, and small and large group discussions (Beck, McKeown, Hamilton, & Kucan, 1997; Fountas & Pinnell, 2012; Graves & Graves, 1994; Reutzel & Cooter, 2011). Other studies have endeavored to discover if improvement in reading fluency brings improvement in reading comprehension as well. Conflicting findings are reported by various researchers, with some finding a strong and statistically significant link (Begeny & Martens, 2006; Berninger et al., 2006; Courbron, 2012; Hintze, Callahan, Matthews, Williams, & Tobin, 2002; Kuhn et al., 2006; Paige et al., 2012; Rasinski, Rikli, & Johnston, 2009; Reis et al., 2011; Reutzel & Cooter, 2012; Wise et al., 2010), while others have been unable to find

the same connection between the two (Applegate et al., 2009; Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Schrauben, 2010; Valencia et al., 2010; Walker et al., 2012: Wexler et al., 2010). According to Reutzel and Cooter (2012), "Some educators believe that fluency is the key that unlocks the door to comprehension. But this is only partially true. Fluency may unlock the door, but it does not open the door to reading comprehension" (p. 186).

Likewise, fluent reading has been compared to fluent driving, which requires a driver to do many tasks at once, such as steering, watching for traffic, navigating, changing lanes, and talking to passengers (Samuels & Farstrup, 2011). To become a fluent driver, someone who is learning to drive will require much practice, which is the primary method that teachers use to assist their students in becoming fluent readers. Giving students wide practice with appropriate scaffolding can increase the likelihood that they will have the key for the door to fluency and comprehension.

Fluency can affect comprehension via its effect on what can be held in working memory. According to Rayner et al. (2001), working memory factors can prevent comprehension. Increasing students' prosody allows them to chunk larger segments of text information and hold more in their working memory, which facilitates comprehension. Paige et al. (2012) urge that appropriate fluency is vital because readers who read fluently enhance the meaning of the text as they construct meaning as they read; further, when students read with inadequate prosody, they may become confused by grouping words in meaningless ways (p. 67).

When one considers nonsense words or sentences such as "Cat apple Fred bubbles for the scale eat," the difference between automaticity (basic fluency) and making meaning (expressive fluency) becomes clear. The aforementioned example illustrates that while some words and chunks of words are able to be decoded with ease and speed, comprehension of the text is more than reading the text fluently. Some studies have been conducted on the link between fluency and comprehension, some specifically looking at the link between fluency's expressive element, prosody, and comprehension. However, findings from various studies have sometimes been conflicting.

Rasinski, Rikli, and Johnston (2009) urge that researchers who are seeking to discover relationships between fluency and comprehension must use more complete measures of fluency than rate, as prosody is the element of fluency that connects to comprehension. "For students to read with appropriate expression, they need to be cognizant of the meaning of passage [*sic*]" (Rasinski, Rikli & Johnston, 2009, p. 352). Fluency must encompass a broader range of dimensions than simply automaticity if improving fluency is to be used authentically as a means to improve reading comprehension. Fast reading is not proficient reading, so an instructional focus that inadvisably causes students to focus solely on basic fluency does not help students become more proficient at making meaning, which is the reason for reading.

In their study, Rasinski, Rikli, and Johnston (2009) sought to explore how a multi-dimensional assessment of fluency is related to reading comprehension. They digitally recorded students in Grade 3 (*n*=391), Grade 5 (*n*=421), and Grade 7 (*n*=392) as the students read grade-level passages and later scored those recordings for elements of prosodic reading using a multi-dimensional fluency scoring guide (MFSG). Using a

Pearson Product-Moment correlation coefficient to measure the relationship between oral

reading fluency scores based on the MSFG and silent reading comprehension based on

results from the reading comprehension subtest of the ninth edition of the Stanford

Achievement Test, the researchers found that prosodic reading was significantly

associated with silent reading comprehension at all three grade levels. Rasinski, Rikli,

and Johnston (2009) also found that "between 30-40% of the variance in comprehension

is shared with the measure of reading fluency" (p. 357). A limitation of the study was the

relatively high levels of reading proficiency in the test population, with the majority of

students performing above national norms in comprehension, which the authors suggest

provided less robust findings than might actually be found in a sample that was more

representative of the general population. "The finding of the robustness of the prosodic

measurement of reading fluency suggests a significant link or association between the

prosodic component of fluency and reading comprehension" (Rasinski, Rikli, &

Johnston, 2009, p. 359).

Hintze et al. (2002) studied the predictive bias of curriculum-based measures in

136 elementary students. Using hierarchical multiple regression analyses, this study

found that CBM accurately predicts reading comprehension for both African American

and Caucasian students. While the study found that neither ethnicity nor socioeconomic

status significantly contributes to the prediction of reading comprehension scores, CBM

oral reading fluency scores and age could account for 42% of the variation in reading

comprehension scores (R^2=.30, p<.001). The authors concluded that "CBM in reading is

a strong indicator of generalized reading performance including reading comprehension"

(Hintze et al., 2002, p. 548).

Courbron (2012) conducted a study of incarcerated male adolescent readers (*n*=82) to determine which fluency subskill is most strongly correlated with reading comprehension. Using bivariate correlation analysis on archival data, the researcher learned that the relationship between reading speed and reading comprehension had an identical correlation coefficient as the relationship between reading prosody and reading comprehension, revealing that both speed and prosody are significantly and strongly related to reading comprehension. Reading accuracy, however, was found to be only weakly correlated with reading comprehension.

Berninger et al. (2006) conducted two studies of second-grade students (Study 1 with *n* = 96 and Study 2 with *n* = 98). Using confirmatory factor analysis, the researchers found that differences in reading comprehension were significantly correlated to accuracy and rate in oral reading at word and text levels. While the researchers explain that reading fluency is necessary for comprehension in second-graders, they also caution that fluency skills were only part of the kinds of skills that students would need as they advance in reading (Berninger et al., 2006, p. 348).

Schwanenflugel et al. (2004) conducted a study to learn how decoding and reading comprehension skills are related to reading prosody. They measured suprasegmental features of oral reading in second- and third-graders (*n*=123) and compared the children's prosodic profiles to those of fluent adult readers (*n*=24). Structural equation modeling indicated that a relationship exists between decoding speed and reading prosody and decoding speed and reading comprehension, but the researchers found that only minimal evidence was gained that might indicate that prosodic reading is an important mediator of reading comprehension skill.

The link between fluency and comprehension for elementary students was confirmed by Begeny and Martens (2006). These researchers found that a group-based oral reading fluency intervention used with 12 third-graders improved the students' oral reading fluency as well as their reading comprehension. These results were found using fluency-based screening passages to measure growth in fluency and maze passages and as analyzed with paired t tests above levels of regular classroom conditions. Limitations of this study include small sample size.

Whalley and Hansen (2006) used hierarchical multiple regression analyses to examine the role of prosody in reading development. In their study of Australian fourth-graders (n=81), they found a positive relationship between the students' reading skills and their prosodic sensitivity and that prosodic skills aid in reading comprehension. However, they urge that while their study did establish that prosodic skills contribute to reading comprehension, the nature of the relationship was uncertain and should be investigated further.

In another study, at-risk fourth-graders were taught using the fluency intervention of repeated reading while being provided performance feedback with error correction (Neddenriep et al., 2010). Researchers implemented the intervention in 30-minute sessions that occurred twice each week for 12 weeks. The study was conducted using single-case designs in an effort to discover if reading fluency interventions would also provide generalized improvements in reading comprehension. Although the students showed a 25% increase in rate of words read correctly per minute over baseline levels (ES=1.25) as well as generalized increases in comprehension for 80% of the students, a major limitation of the study was the sample size of only five students.

Basaran (2013) studied the link between reading habits/conditions/situations and comprehension in fourth-graders in Turkey (*n*=90). Four measures were administered, including having students read aloud from narrative text while being recorded. These recordings were analyzed for words correct per minute, accuracy, and prosody. Using Pearson correlation analysis and multiple regression analysis, Basaran determined that "fluent reading was an indicator of comprehending; prosody predicted in-depth meaning linking better than other fluent reading skills; correct reading skills predicted superficial meaning linking better" (p. 2287). Basaran emphasized that prosody was the best predictor of reading comprehension among all reading skills measured in this study.

Mira and Schwanenflugel (2013) studied the effect of reading prosody on reading comprehension in pre-school students' (*n*=92) listening comprehension of storybooks that were read aloud to them. The study's purpose was to find evidence to back up the instructional directives common in educational literature for teachers to read with expression. By measuring the teachers' expressiveness in terms of pitch variation during read alouds, the researchers were able to search for a link to students' listening comprehension through recall, both free and cued. The findings indicate that highly expressive readings result in significantly better comprehension of the stories by young children. These results are important to the current study as they indicate that an emphasis on prosody can affect comprehension.

Oral reading fluency is clearly linked to improved comprehension in studies of elementary students if not secondary, but practice and instruction in oral reading is problematic when working with adolescent students, given constraints of time,

disruptions to other students' reading, and fear and embarrassment experienced by older struggling readers. Some researchers have attempted to find if gains in silent reading fluency have similar benefits to comprehension that oral reading fluency does.

Rasinski et al. (2011) conducted a study examining the effects of using Reading Plus, a computer-based silent reading fluency instructional system, on urban adolescent students' comprehension. With over 16,000 participants, this study examined a large sample of students in fourth through tenth grade in a region with a large number of minority students and English language learners. Using the ANOVA statistical technique, the researchers examined students' scores on the Florida Comprehensive Achievement Test (FCAT), the high-stakes reading assessment used by the state of Florida in compliance with federal requirements. Scores of students who participated in the Reading Plus program for over 20 hours of instruction were compared to scores of students who were taught using other methods. The Reading Plus group (with the exception of English language learners) made significantly greater gains than did students in other groups in the area of comprehension. In particular, middle-school students' mean gains were "more than double the gains of nonparticipating students" (Rasinski et al., 2011, p. 94). The focus on extensive, wide repeated reading with accountability central to the Reading Plus Program provides strong evidence that improvements in silent reading fluency correlate to improvements in comprehension.

Kuhn et al. (2010) suggest that the conflicting findings regarding the link between fluency and comprehension could be due to a narrow consideration of fluency's multiple dimensions, with an overemphasis on rate at the expense of other aspects of fluency such as prosody. Other researchers recommend a consideration of passage characteristics as

some studies have found that when prosody is measured on more complex texts, it is an effective indicator of comprehension (Miller & Schwanenflugel, 2006, 2008).

Binder et al. (2012) sought to discover the link between prosody and reading comprehension in adults with low literacy skills (*n*=57) as compared to adults who were classified as skilled readers. The researchers recorded the examinees as they read orally and then extracted prosodic measures such as pitch changes and pause duration. They found that adults with low literacy skills paused longer and at a greater number of punctuation marks than the skilled readers did. Also, when reading questions, the adults with low literacy skills did not change their pitch, as the skilled readers did make longer and more frequent inappropriate pauses. The researchers found that the "pausing measures explained a significant amount of variance in reading comprehension among the adults with low literacy skills" (p. 2).

Tilstra, McMaster, Van den Broek, Kendeou, and Rapp (2009) studied fourth-, seventh-, and ninth-graders (*n*=271) to determine how much verbal proficiency and oral reading fluency contributed to variance in comprehension beyond the simple view of reading (SVR), a theoretical model which attributes reading comprehension to two processes: listening comprehension and decoding accuracy. Findings varied considerably by grade level, with decoding's contribution to variance in reading comprehension dropping as students progressed from fourth grade to higher grades. The most significant finding in terms of this study is that reading fluency contributed substantially to variance in reading comprehension beyond the SVR, having a steady influence in all grades.

Yildiz et al. (2009) examined oral reading fluency, looking specifically for a relationship between students' words correct per minute (WCPM) and prosodic reading

skills as measured with the Multi-dimensional Fluency Scale (Zutell & Rasinski, 1991).

In their sample of 70 fourth-graders in Ankara, Turkey, these researchers found "a

positive and meaningful relationship between WCPM and prosodic reading skills"

(Yildiz et al., 2009, p. 353), and that as students' prosody improves, their WCPM does

also. The researchers concluded that teachers should use more instructional time

teaching prosodic skills to improve reading speed and reading comprehension.

As Glavach (2011) explains,

> Reading fluency is about how accuracy, rate, and prosody work together to
> comprise fluent reading. For most people the left side of the brain deals with
> language, while the right side handles rhythm, intonation, and patterns of
> language which make up prosody. The brain does its best work when both sides
> of the brain communicate harmoniously. (p. 1)

The aforementioned studies show a conclusive link between fluency and comprehension,

which should be further investigated for directionality and by examining the link between

comprehension and specific dimensions of fluency.

Common Fluency Instructional Practices

The dearth of fluency instruction and assessment common to earlier decades has

been replaced, after the publication of the National Reading Panel with its

recommendations, by increased awareness of fluency's importance, which has led many

schools to require that teachers provide instruction in fluency, with more intense

interventions being delivered to those who struggle. Although "intense disagreements

continue over how to best teach reading" (Kubina & Starlin, 2003, p. 13), fluency

instruction in many schools follows a common thread. Currently, the most widely used

treatment methods for elementary school students with fluency issues are repeated

reading, assisted reading, and wide reading (Applegate et al., 2009; Deeney, 2010;

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Dennis et al., 2012; Griffith & Rasinski, 2004; Hasbrouck & Tindal, 2006; Hicks, 2009; Kuhn et al., 2010; Murray et al., 2012; Nichols et al., 2009; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2012b; Ros Albert, 2012; Samuels, 2007; Samuels & Farstrup, 2011; Valencia et al., 2010; Walker et al., 2012). Repeated reading includes performance reading, poetry cafes, and reader's theater (Young & Rasinski, 2009). Assisted reading often uses repeated reading but has additional scaffolding for students. Previewing text, peer coaching, one-on-one tutoring, phrase drills, books on tape, technology-based programs, and the neurological impress method are forms of assisted reading (Begeny & Silber, 2006; Chard et al., 2009; Griffith & Rasinski, 2004; Hapstak & Tracey, 2007; Kairaluoma, Ahonen, Aro, & Holopainen, 2007; Kuhn et al., 2006; Lipson & Wixson, 2009; Prescott-Griffin & Witherell, 2004; Rasinski, 2000; Reutzel & Cooter, 2012; Therrien et al., 2006; Vaughn et al., 2000, Zutell & Rasinski, 1991). Wide reading involves independent reading in student-chosen, contextualized texts (Gambrell, 2007; Roberts, Torgesen, Boardman, & Scammacca, 2008; Wexler et al., 2010).

Rasinski (1985), a pioneer in fluency research and intervention, recommends that fluency instruction follows several principles. First, teachers should provide models of fluent reading as well as direct instruction and feedback in fluency. Additionally, fluency instruction should include support for the reader while he or she is reading, which can be provided in many ways, including reading-while-listening and choral reading. Rasinski (1985) also recommends repeated reading, providing students with text that has cueing on phrase boundaries, and ensuring that students work with their own independent level of text when practicing fluency. Another researcher, Keehn (2003), identifies explicit instruction that builds students' metacognitive awareness of how to read fluently and the

use of manageable text that students can read with ease (95% accuracy) for fluency practice.

<div align="center">Repeated Reading and Assisted Repeated Reading</div>

One of the first educators to endorse fluency interventions, Samuels (1979) recommended repeated reading as a powerful yet simple-to-use instructional tool that could be used to improve students' fluency. Based on his theory of automaticity, Samuels's method of repeated reading has endured for two decades and is still widely used in classrooms today (Applegate et al., 2009; Deeney, 2010; Dennis et al., 2012; Griffith & Rasinski, 2004; Hasbrouck & Tindal, 2006; Hicks, 2009; Kuhn et al., 2010; Murray et al., 2012; Nichols et al., 2009; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2012b; Ros Albert, 2012; Samuels, 2007; Samuels & Farstrup, 2011; Valencia et al., 2010; Walker et al., 2012). Chomsky (2008/2009), a contemporary of Samuels, also did work that led to the wide application of repeated reading in elementary classrooms.

"When oral modeling is used with repeated reading, it is called assisted repeated reading" (Dowhower, 1991, p. 172). Assisted reading takes many forms, including assisted reading, reading while listening, and paired reading (Therrien, 2004). According to Wilson (2012), assisted reading-while-listening allows students to problem solve with the necessary support of a prosodic model. Assisted reading and reading while listening evolved from the neurological impress method (NIM), a method commonly used in the 1960s through 1980s that may be making a resurgence of late (Flood, Lapp, & Fisher, 2005). NIM is a method in which the teacher and student sit side by side and read aloud simultaneously while the teacher slides a finger under each word while reading with the student's finger resting on top of the teacher's finger as they read. The teacher reads

slightly faster than the student reads aloud and models good fluency. Flood et al. (2005) recommend the use of NIM Plus, a method that uses the traditional methods of NIM combined with an emphasis on comprehension. These researchers conducted a study with below-level readers (*n*=20) in third- through sixth-grade. These students performed statistically better in oral reading fluency, silent reading fluency, and comprehension after a 5-week study.

As a supplement to typical reading programs, Samuels (2007) recommends procedures for repeated reading which include having a student reread a short passage of text several times until he or she reaches a satisfactory level of fluency. He also explains that students should be led in discussions to understand the purpose and benefits of repeated reading and will benefit from keeping individual reading records and graphs, so that their gains and progress are visible to them. Citing empirical and theoretical evidence that validates the practice, Samuels explains that teachers should help students achieve automaticity by giving instruction in word attack or decoding as well as providing time and motivation for practicing these word recognition skills, both of which can be accomplished through repeated reading. Samuels compares the practice element of repeated reading sessions to those required to become successful in sports and music. Dowhower (1991) compares repeated reading to learning a new song through a series of approximations that allow them to learn to operate at a phrasal level. Since its inception, repeated reading has been the subject of many studies and has consistently shown positive results for increasing basic fluency's dimensions (Allington, 1983; Hapstak & Tracey, 2007; Herman, 1985; Kostewicz & Kubina, 2010; Rashotte & Torgesen, 1985;

Rasinski, 2000; Rasinski, Rikli, & Johnston, 2009; Sample, 2005; Therrien, 2004;

Therrien & Hughes, 2008; Therrien & Kubina, 2007; Zutell & Rasinski, 1991).

Therrien (2004) completed a meta-analysis of experimental, quantitative studies

on repeated reading completed between 1977 and 2001 with school-age participants.

This analysis sought to determine the essential instructional components of the repeated

reading method as well as to determine the effects of repeated reading on fluency and on

comprehension. Therrien's (2004) findings indicate that repeated reading is a viable,

evidence-based practice for nondisabled students and for those who have learning

disabilities that can increase fluency and comprehension both on practice passages as

well as in general. The transfer effect to new passages was moderate (ES=.50, *SE*=.058

for fluency, and ES=.25, *SE*=.067 for comprehension), which could be due to the

duration of interventions (all less than 45 sessions), or perhaps due to procedures that did

not focus on the multidimensional aspects of fluency.

Therrien (2004) deems certain instructional components as essential for repeated

reading interventions. These components include having students read passages aloud to

an adult, as having an adult conduct the intervention increased the effect size

significantly, more than three times larger than when students worked with peers. For

fluency, the effect size when working with adults is 1.37, but only .36 when working with

peers. For comprehension, the effect size when working with adults is .71, but only .22

when working with peers. Additionally, before they begin reading, students should be

given a cue (fluency, comprehension, or speed and comprehension) to begin reading and

should read the passage three to four times. The type of cue was insignificant.

Corrective feedback should be given, and passages should be read until a specific

criterion is obtained (ES=1.70) rather than having students read a fixed number of readings (ES=.38).

Therrien and Hughes (2008) examined two interventions, repeated reading and question generation, to discover if the interventions have differential effects on the oral reading fluency and comprehension of fourth- through sixth-grade students (*n*=32) with reading problems or learning disabilities. The investigator trained adult tutors to conduct the interventions using procedures and instructional components identified in the literature as best practices. Each intervention was used over a 2-week period for 5 consecutive days. In the repeated reading intervention, students read passages repeatedly until they reached a preset criterion. In the question generation intervention, students were instructed to read passages purposefully to adapt and answer story structure prompts. Results from ANCOVA and ANOVA analyses indicate that repeated reading does improve fluency on reread passages and that repeated reading improves literal comprehension better than question generation.

Therrien and Kubina (2007) sought to discover "if practice with connected text is a critical component of repeated reading for fluency improvement" (p. 179) or if repeated reading of words out of context would lead to the same types of benefits commonly reported in the literature for repeated reading. By conducting this study, the researchers sought to determine whether gains from repeated reading are due to automatic word processing or if gains come because students move beyond word reading and are able to practice linguistic structures, as they become familiar with specific word combinations, learn prosodic nuances, increase background knowledge, and increase their comprehension of the passage as a whole. The experimental design was two by two with

Grades 3-5 students (n=16) who were at least one grade level below their current placement serving as their own control, with one group completing the intervention with contextualized words first and then with decontextualized words next, and a second group first using decontextualized words and then contextualized words. Results show that students made fewer errors when reading contextualized text and reached the performance criterion faster and more often than when they read decontextualized words in random order, which supports theories that repeated reading may make contributions to student fluency beyond automaticity and transfers to subsequent passages. This finding would be expected within the APP model as a natural progression of skills.

Hapstak and Tracey (2007) analyzed the effects of assisted-repeated reading on first-grade students of varying ability (n=4) to determine if the intervention is differentially effective for students of differing ability levels and academic profiles, specifically a special-needs student, a poor reader, an English language learner (ELL), and a general education student. Each day for 5 days prior to the intervention, the researchers measured the students' words read correctly per minute, averaging the scores to establish a baseline for each student. The students were administered the intervention twice weekly in 10-15-minute sessions for a period of 8 weeks. Results of this study show that assisted-repeated reading had a positive effect on oral reading fluency, with the greatest gains being made by those whose fluency issues stemmed from a decoding difficulty. The authors emphasize the importance of using the appropriate level of texts that students can easily decode so that their energies can be expended on prosody and rate.

Repeated reading and wide reading approaches have also been used with high-school students who have severe reading disabilities. Wexler et al. (2010) conducted research with students in Grades 9-12 ($n = 96$). After being paired within classes with another student, the pairs of students were assigned randomly to one of three groups of approximately equal size. For 10 weeks, one group received repeated reading fluency instruction, a second group was instructed using wide reading, and the third group received traditional instruction daily for 15 to 20 minutes. At the end of the intervention period, the researchers did not discover any statistically significant differences in students' comprehension, fluency, or word reading based on which treatment group in which they were instructed. The authors indicate that the lack of improvement for students in any intervention is a function of their extreme disabilities in reading, which require more intensive, explicit, and direct instruction, practice, and feedback.

Hawkins et al. (2010) compared the use of using repeated reading alone with using repeated reading coupled with vocabulary previewing, as well as using no intervention. This alternating-treatments design was used with 6 high-school students who were reading below grade level, and took place 3 to 5 days per week, for 10-20 minutes per session. Each of the six students was exposed to the three conditions multiple times, which included control, repeated reading, and repeated reading with vocabulary previewing. Results, which included visual inspection of graphs and descriptive statistics, show that a combination of repeated reading (RR) and vocabulary previewing (VP) showed the most promising results for fluency, while RR alone or RR + VP produced similar gains in comprehension. Researchers speculate that repeated reading led to improvements in comprehension due to a freeing up of cognitive resources.

Limitations of the current study include the small sample size, the use of practiced readings for assessment rather than novel passages, and the lack of pre-testing done in the area of vocabulary. Additionally, Roberts et al. (2008) insist that, when working with learning-disabled adolescents whose struggle to read has continued into the middle- or high-school years, neither wide reading nor repeated reading used alone will be a suitable substitute for "systemic, explicit instruction in word study and comprehension strategy use" (p. 65).

Vadasy and Sanders (2008) studied low achieving fourth- and fifth-grade students (*n*=119) using the Quick Reads fluency program, a program in which a teacher models fluent reading of basal text, students repeatedly read that text with a peer partner, students do a choral or echo reading led by the teacher and participate in comprehension extension activities led by the teacher. During the 20 weeks of the study, students who received the Quick Reads intervention worked in pairs that were each taught by a para-education tutor. Vadasy and Sanders (2008) concluded: "At posttest, Quick Reads students significantly outperformed classroom controls in vocabulary, word comprehension, and passage comprehension" (p. 235).

In a small study (*n*=6) of second-grade students, Daly (2009) examined the efficacy of using a comprehension-based reader's theater program with English language learners. The action research method was used to determine if students' prosodic reading on practiced texts would transfer to unrehearsed texts, using the Zutell and Rasinski's (1991) Multidimensional Fluency Scale. After 18 sessions, all students showed improvement in prosodic reading, with average gains from pretest to posttest of approximately 30%. The researchers concluded that reader's theater can be used

effectively to help students read with a higher level of prosodic accuracy, including English language learners. Limitations of the study include the small sample size and the absence of a control group.

Frame (2011) studied third-, fourth-, and fifth-graders (n=57) using a pretest-posttest with control group design to discover if repeated reading with pairs of students in a large-group setting could significantly improve reading fluency and reading comprehension in students at risk for reading failure. The study lasted for 7 weeks, and included a 15-minute session 3 to 4 days per week, totaling 32 sessions. Using ANCOVA, Frame (2011) determined that students' rates of reading fluency growth were significantly improved, but results for fluency and comprehension were non-significant. The researcher postulated that the study's short duration and the lack of sensitivity in the chosen comprehension measure may have prevented significant findings.

In another study involving assisted reading, Rasinski et al. (2011) examined the relationship between an instructional protocol which focused on silent reading fluency and achievement in an urban school setting, using data from Florida Comprehensive Achievement Test (FCAT) scores of students ($n = 16,143$) in Grades 4 through 10 who were in the Miami-Dade County, Florida, Public School system. Students in the treatment group (n= 5,758) received approximately 20 hours of instruction over the course of 6 months with Reading Plus, which is a computer-based reading fluency and comprehension intervention system, while students in the control group (n= 10,385) did not participate in the Reading Plus program. The researchers used ANOVA and found that generally students from all grade levels and subpopulations (except for ELLs) who were in the Reading Plus program made significantly greater gains on the criterion-

referenced and norm-referenced reading tests of the FCAT than did students in the control group. The gains were not static across grade levels. In fact, students in Grades 6, 7, and 8 made gains that were double that of nonparticipating students on the CRT portion of the FCAT.

Denton et al. (2010) studied the effectiveness of providing supplemental early reading intervention as a component of response-to-intervention (RTI) in several schools (*n*=31). The researchers hoped to learn if an RTI approach using Responsive Reading Instruction (RRI), a specific intervention approach, would lead to higher student gains than typical school practice (TSP) for first-graders at risk for reading difficulties. The RRI approach (Denton & Hocker, 2006) includes five lesson components administered during a 40-minute lesson. The lesson components include direct, explicit instruction in phonics and text-reading strategies, as well as modeling and scaffolding while students use those skills and strategies to read and write connected text. The 5 components include 10 minutes of word work, consisting of training in phonemic awareness, letter-sound correspondence, sight words, phonemic decoding, and spelling; 10 minutes of print concepts and fluency instruction and assessment, consisting of an early focus on print concepts that shifts to teacher modeling, repeated oral reading with feedback, and partner reading; followed by 10 minutes of supported reading and 10 minutes of supported writing. Students in the RRI group "demonstrated significantly higher outcomes than the TSP group on timed and untimed word reading, timed and untimed phonemic decoding, spelling, ORF, and reading comprehension" (Denton et al., 2010, p. 407) despite the fact that students in the TSP group received more time receiving phonics instruction. The authors believe that the RRI students consistently performed better than the TSP students

in all of these areas due to more time spent in reading connected texts with a comprehension focus. The researchers also report that despite inevitable variations across the schools and classrooms (urban vs. rural vs. suburban, socioeconomic status of students, teacher's level of experience and training), over 90% of at-risk students with whom the RTI approach was used were able to read and spell adequately by the end of their first-grade year.

Student Self-Assessment and Self-Graphing

Whether students are participating in repeated reading or assisted reading, the use of self-graphing is an additional tool that allows students to track their own growth (Gunter, Miller, & Venn, 2003; Gunter, Miller, Venn, Thomas, & House, 2002). Self-graphing of reading data can positively affect reading fluency in students. Gunter et al. (2002) found that students were "not only able to assist with the data-collection process and enhance their performance, but they often expressed enthusiasm for graphing their own performance data" (p. 30).

In their study that examined the effects of reciprocal peer tutoring and self-graphing on reading fluency and classroom behavior, Sutherland and Snyder (2007), using a multiple-baseline-across-subjects design, found that students improved in reading fluency during the intervention phase of the study but not during the baseline phase when measurements were made without the interventions having been implemented. Limitations of the study include a small sample size (n=4), the sample consisted of emotionally and/or behaviorally disturbed students in a self-contained special education classroom, and the peer coaching and the self-graphing interventions were added simultaneously, which makes ascribing the positive results to either intervention invalid.

Prescott-Griffin and Witherell (2004) explain a process through which students can be trained to assess their own growth in fluency. Students of all grade levels "can also take responsibility for monitoring their own fluency by identifying their disfluent reading habits" (p. 39), a process which takes place in an assisted reading setting. Additionally, Joseph and Eveleigh (2011) found in their review of studies published from 1987 to 2008 regarding self-monitoring of reading behaviors that self-monitoring improves reading performance. The authors caution that not many studies have been conducted in this area, with a total of only 302 subjects combined. However, few studies have analyzed the effect of student self-assessment of academic progress and, specifically, oral reading fluency, which is an area that should be studied more (McDevitt et al., 2008, p. 115).

Morgan et al. (2012) conducted a multilevel modeling meta-analysis of 44 studies that included a total of 290 students in kindergarten through 12th grade to determine which fluency interventions are most effective at increasing students' fluency. Interventions were grouped into five categories, which included (a) goal setting, (b) reinforcement without goal setting, (c) repeated reading, keywords, previewing, and listening, (d) word-level, and (e) tutoring, either peer or pair (p. 97). Findings from the study indicate that "the types of fluency interventions that resulted in the most immediate gain in a student's oral reading fluency were those targeting the student's 'will'" (p. 104). Additionally, goal setting was found to be the most effective intervention for sustained improvement over time, making it the most effective of all fluency interventions studied at initial and overtime effects on oral reading fluency growth. The researchers recommend that practitioners use goal setting with students to help them make immediate

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and lasting gains in fluency. They go on to say that "other relatively effective

interventions, especially initially, are reinforcement and previewing or repeated reading"

(Morgan et al., 2012, p. 105). Goal-setting is easily combined with self-graphing

interventions. Teachers should use care to assist students in setting realistic goals

(Jenkins & Terjeson, 2011).

McCurdy and Shapiro (1992) used four forms of progress monitoring with

elementary students with learning disabilities ($n= 48$), including teacher-, peer-, self-, and

no monitoring. In this study, students who were asked to self-monitor their oral reading

used a process in which the students read a passage into a tape recorder and followed up

by listening to their taped reading and marking errors and words read correctly. Students

then plotted their performance on graphs. Students worked towards long-term goals for 9

weeks, measuring progress twice each week, with visual and verbal feedback provided.

Using the ordinary least-squares method to calculate the slope of the data over time and

by calculating the percentage of data points that fall at or above each participant's aim-

line, the researchers showed that students in the self-monitor group made the greatest

gains from pre-test to post-test. Additionally, the researchers discovered that students

were able to provide reliable data both when self-monitoring and monitoring peers.

Peer-Mediated Approaches

Several of the previously described studies have included the use of peer partners,

which were also used in the current study. In his seminal study, Vygotsky (1962)

theorized that children learn the most efficiently when others support their learning.

When learning to do a new task, even though this task may be difficult for the student, he

or she will experience success if support is available in the form of a more skilled or

knowledgeable "other." Students often prefer for this "other" to be a peer and may also experience greater growth in self-efficacy and motivation when the person modeling a skill is more similar to the student (Schunk & Zimmerman, 1997; Tsikalas, 2012). Some reading interventions, such as the ones used in this study, take advantage of the social interest common among students. Additionally, paired reading and buddy reading approaches have been shown to improve fluency and motivation (Rasinski, 2000). This supports Vygotsky's (1962) theorizing that "what the child can do in cooperation today, he can do alone tomorrow" (p. 104).

Using peer partnerships also allows teachers to target student will. One teacher, Lorraine Griffith, reports that her fourth-grade students are more serious about honoring their commitments to meet nightly reading goals if those commitments are made to a peer rather than to a teacher or parent (Griffith & Rasinski, 2004, p. 135). This same teacher found that students report having higher levels of understanding of texts when they are allowed to participate in discussions on the text with a reading partner and that their fluency levels improve (Griffith & Rasinski, 2004, p. 135).

Combination of Instructional Approaches

Some researchers have chosen the method of packaging instructional techniques for maximized effectiveness. Nichols et al. (2009) discuss methods that go beyond repeated reading to enhance students' ability to read for meaning. These researchers reason that repeated reading can reduce student engagement if students are not provided with appropriate scaffolding. They recommend that teachers provide students with varied opportunities for practice and reading for multiple purposes, stating: "Practice without question is essential for acquisition of fluency; however, varied instructional activities

have been shown to maintain students' active engagement in learning tasks and provide stronger connections to reading comprehension" (Nichols et al., 2009, p. 5). Instructional methods that go beyond repeated reading include: paired repeated reading, assisted reading with a teacher or more accomplished peer, phrase reading, the Oral Recitation Lesson (ORL), the Fluency Development Lesson (FDL), Fluency-Oriented Reading Instruction (FORI), Radio Reading, and Fast Start. Descriptions of these methods are included in this section as well as in the section on instructional practices that focus on prosody.

Radio Reading

Radio reading is often encouraged as an alternative to round-robin reading. In radio reading, students are assigned a section of text appropriate for the reader, often using passages from content area books. Each student examines and edits the text, creating a short section of text that provides the relevant information from the passage to read aloud to peers. Students practice reading their new passages and perform for classmates when ready (Nichols et al., 2009).

Oral Recitation Lesson (ORL)

Teachers who use the Oral Recitation Lesson select texts that lend themselves to performance. The teacher reads the text aloud to model fluent reading. After the read aloud, the teacher emphasizes comprehension by working with the class on a comprehension strategy, such as a story map. Next, students practice reading the text alone or with a partner, focusing on dialogue and the prosodic features of that dialogue. Finally, students read the text aloud in a performance (Nichols et al., 2009).

Fluency Development Lesson (FDL)

Twenty years ago, Rasinski, Padak, Linek, and Sturtevant (1994) created a comprehensive approach to fluency instruction, the Fluency Development Lesson (FDL), which is still used in some classrooms today (Kulich, 2009). The FDL involves a sequence of activities including "prediction of text, modeled reading, class discussion, choral reading, paired reading, performance, and at-home practice" that can be easily implemented by teachers in 10-15 minutes per day (Hapstak & Tracey, 2007, p. 318). Rasinski et al. (1994) used the FDL with urban second-graders more than 6 months and found that students (n=28) in the two classrooms using the FDL made gains in reading rate far above those in the two control classrooms (n=26). Students in the intervention classes made gains that ranged from 81.7% to 93.6% from pretest to posttest, while those in the control group made gains that ranged from 34.2% to 49.2% (Rasinski et al., 1994, p. 162). Rasinski et al. (1994) interviewed the teachers from the intervention classrooms who reported positive results in student reading performance and attitude as well as an enhanced desire and feelings of success in all readers, but most markedly in students who were at risk for reading failure (p. 163).

In a more recent study, Kulich (2009) also used the FDL and compares it to a recipe for reading success. Calling fluency and comprehension vital ingredients, Kulich (2009) explains that when students lack those skills, they become frustrated by continuously stirring the cake batter without ever enjoying the cake (p. 26). Kulich's (2009) reading recipe calls for a cup of word accuracy and comprehension, a teaspoon of automaticity, and a pinch of prosody. Several components contribute to successful fluency instruction, according to Kulich, and can make the batter sweeter for students as

they practice skills. The most important is the daily read aloud where the teacher models fluent reading using an engaging text. Additionally, students must have time to apply reading skills in independent reading of a wide variety of authentic texts of various genres, providing time for students to practice without penalty. Choral reading, reader's theater, and radio reading lend a performance aspect to practice that can be motivation for reading texts repeatedly and for developing prosody. Students also benefit from reading texts that have phrase boundaries clearly marked, giving them a visual cue for appropriate pauses. Repeated reading of text and poetry are also valuable tools for fluency instruction and practice. Having experimented with several recipes, Kulich (2009) recommends a modified version of the FDL that emphasizes poetry and reports that her students have improved in fluency, comprehension, and engagement (p. 33).

Fast Start

Rasinski and Stevenson (2005) conducted a study to determine the effectiveness of using phonics and fluency in a combined instructional approach that capitalizes on the use of rhyming poetry. Their program, Fast Start, sought to involve parents of at-risk first-graders in reading short poems at home with their children, allowing for repeated practice. The parents were given a brief training, and then asked to engage in reading the poems and doing word study with the targeted word family from the poem for 10 to 15 minutes per day over the course of 11 weeks. A control group of children, who were also at-risk for reading failure, were simply provided a copy of the poems to take home with no parent training or follow-up activities provided. The students in both the control and intervention groups received the same instruction at school.

The researchers found that the children in the intervention group gained 54 points on a test of word recognition, while those in the control group gained only 32 points. Additionally, the intervention students made a gain of nearly 26 words read correctly per minute on a grade level passage, while control group students gained only 12 words per minute. The authors conclude the Fast Start intervention allowed students to make 50% more progress, with nearly double the gain in reading fluency over the control group. Additional information gained through parent surveys shows that parents in this urban district felt very positively about the Fast Start program and believed it had greatly benefited their children's reading ability (Padak & Rasinski, 2006; Rasinski, Rupley, & Nichols, 2008a, 2008b).

Other Combination Approaches to Fluency Instruction

Small-group-based fluency interventions can also be effective with elementary students (Begeny & Martens, 2006). Researchers worked with third-graders in four urban school classrooms ($n=12$) who had below-average skills in reading but who were of varying skill levels in an attempt to discover if improvements in fluency on untrained passages as well as gains in comprehension on trained passages could be achieved using a small-group intervention rather than the more common strategy of working with individual or pairs of similar reading ability. Students were divided into two groups of six, roughly matched on the demographic variables of gender, classroom of origin, and instructional level on three assessments. Students in the intervention group ($n=6$) were given instruction using the combined intervention package of word-list training, listening passage preview, and repeated reading. Sessions lasted 15 to 20 minutes and were conducted three times per week over a period of 9 weeks. Pre- and post-test data were

analyzed using paired *t* tests. On practiced material, students showed significant

improvement over those receiving regular classroom instruction (*n*=6) on reading

comprehension as assessed with maze passages. Additionally, increases in fluency from

pre-test to post-test (0.78 words per week) were found to be significant as well.

In another study, combining several small-group interventions such as repeated

reading, listening passage preview, and practicing difficult words in isolation into a single

package of intervention was more effective at helping elementary students make gains

than simply using one intervention (Begeny & Silber, 2006). Using an alternative

treatments design, researchers tutored third-graders (*n*= 4), combining two or more of the

aforementioned interventions into a treatment package, and analyzing the effects of each

package both on immediate gains in fluency and in those retained over time. After

establishing baseline data for each child in the study, the researchers conducted 16

sessions with the students, working with them in a small-group setting, administering the

interventions to all of the students simultaneously, using four conditions for four sessions

each, randomly distributing the conditions over the course of the study. Results indicate

that all of the packages were effective at improving baseline levels of fluency, but the

combination of all three interventions produced the greatest gains. Implications of this

study include that using several interventions is desirable when working to increase

fluency levels, as well as the finding that group-based fluency interventions can be used

highly successfully with these positive results being achieved in short sessions of 9 to 12

minutes.

Therrien et al. (2006) investigated the use of a combination intervention, repeated

reading and question generation, on reading achievement. In their study of students who

either had learning disabilities or who were at risk for reading failure, these researchers found that fourth- through eighth-grade students (*n*=30) who received the dual treatment made significant gains in oral reading fluency and in their ability to answer inferential questions above students who were in the control group. These authors hypothesize that when interventions focus only on repeated reading, students become better at lower level skills, which may improve basic fluency but not comprehension, which requires expressive fluency's higher order skills. By combining repeated reading and question generation, the researchers hoped to see gains in both fluency and in comprehension.

Rasinski et al. (2008a) endorse combining two essential elements of reading instruction: phonics and fluency, recommending that teachers seek methods for teaching the two that are: "natural, authentic, synergistic, effective, and engaging" (p. 257). These researchers surmise that rhyming poetry can be used to facilitate students' ability to integrate word recognition, accuracy, fluency, and expressiveness by using it to teach phonics through word families. Using a three-step sequence, teachers can provide models of fluent oral reading and capitalize on the proven effectiveness of the practice of repeated oral reading. Students are more engaged when the natural outcome of their repeated reading is performance, and poetry lends itself well to this goal as its length makes it easy to read repeatedly.

Griffith and Rasinski (2004) used a combination of timed readings, repeated readings, prosody instruction with fourth-grade students over the course of a school year. Five Title I students were closely examined for gains in fluency and comprehension. Students in this study grew an average of 2.4 years in word recognition, 48 WCPM in rate, and 3.2 years in silent reading comprehension. The teacher used a variety of

methods such as partner reading, book talks, and reader's theater with her struggling

readers as well as all students in the class. Although she specifically examined at-risk

readers in her study, she reported that all readers have made improvements in reading

proficiency, engagement, and motivation.

<div align="center">Instructional Approaches That Emphasize Prosody</div>

As a vital element of fluent reading, prosody must be an instructional focus

(Yildiz et al., 2009). Some of the previous studies included elements of instruction in

prosody, such as teacher modeling of practiced text, but some studies have explicitly

sought to discover a link between improved prosody and improved reading

comprehension, which justifies using instructional approaches for oral reading fluency

and reading comprehension that target reading prosody (Mira & Schwanenflugel, 2013;

Paige, 2012; Topping, 2012). Fortunately, many methods that benefit students' fluency

in general also can help develop the specific prosodic elements of fluency (Prescott-

Griffin & Witherell, 2004).

Kuhn et al. (2012) explain that, in the past, fluency instructional approaches were

ineffective due to the use of round-robin reading; however, while some teachers have

abandoned this practice, the current emphasis on rapid reading is also ineffective at

increasing fluency. These authors urge that an understanding of the roles of automaticity

and prosody are vital for understanding the importance of fluency to the comprehension

of text. Readers must develop automaticity to free attention for comprehension, and this

automaticity comes from encountering the same words and phrases in print repeatedly.

Prosody is also crucial to comprehension because prosodic reading allows the reader to

be more fully engaged due to their richer understanding of shades of meaning (p. 142).

Penner-Wilger (2008) recommends that teachers provide students with models of fluent reading, give them adequate practice in oral reading coupled with feedback, and record their reading in order to allow them to participate in self-evaluation. Piluski and Chard (2005) urge that using what they term a "simplistic approach" of having students read more is ineffective for some students who will not progress in fluency without "expert instruction and teacher guidance" (p. 513).

Rasinski (2010) recommends that teachers model good oral reading through read alouds and through drawing attention to the elements of the read aloud that are modeled. He also recommends that readers have oral support through choral reading, paired reading, and the use of recorded materials and be given wide and deep opportunities to practice reading both orally and silently. Finally, Rasinski urges that teaching students to parse text appropriately will aid their comprehension since meaning lies in a text's phrases rather than in individual words.

Phrasing

In 1991, Dowhower was already recommending that educators provide instruction in prosody and urged the following methods be used when teaching students to read with expression: repeated reading, text segmenting, and auditory modeling. Repeated reading has been discussed in previous sections. Text segmenting, according to Dowhower (1991), "involves changing the written text by pre-organizing it for the student" (p. 171) perhaps by physically dividing the text by placing each phrase on its own line, or by slashes, blank spaces or periods between phrases. Auditory modeling, a form of assisted reading which was previously discussed, can also help students read with expression.

Students can read along with a teacher, tutor, peer, or tape while using phrasally segmented text.

According to Glavach (2011), phrase cued reading is an effective strategy for fluency development. Teachers can easily use this method with authentic text by simply reading the text aloud and placing slash marks where they naturally pause when reading. One slash mark is used between phrases and two between sentences. The teacher then gives each student a copy of the text that has been prepared with slashes to mark pauses. The teacher slowly reads the text to the students, emphasizing phrases. The students follow the text, tracking under the text with their fingers, training their eyes, hands, and ears, helping them to synchronize their vision and hearing. This process is repeated with the teacher now reading at a normal pace. The students then read the text with partners or teacher. Finally, the students and teacher discuss the text's meaning. As the phrase is "the natural unit of grammar and meaning in English" (Wilson, 2012, p. 153), teaching students to divide sentences into phrases helps them comprehend the overall message of the text and focus on meaning.

Sanderman and Collier (1997) in their early research in speech found that an appropriately phrased utterance allowed listeners to respond much more quickly and with higher comprehension than an inappropriately phrased one. For their study, the researchers had subjects ($n=60$) read sentences that were set in context by questions that preceded them. The authors used ambiguous sentences to test the validity of their methodology. They conclude that "prosodic phrasing facilitates the process of comprehension" and that "any well-phrased utterance will be comprehended with less mental effort than one with neutral phrasing rules" (Sanderman & Collier, 1997, p. 404).

Blamey (2008) studied the effects of using prosodically marked text for repeated reading with second-graders (*n*=66) daily over a period of 6 weeks using repeated measures ANCOVA with control-group design with two intervention groups and a control group. Students in one intervention group read unmarked text during repeated reading while students in the second intervention group used prosodically marked text. Students using the marked text scored higher than the other two groups in word recognition, but students using unmarked text read significantly more words correctly per minute than the marked text group or the control group. Students in both intervention groups scored higher on prosody ratings than did students in the control group. In reading comprehension, no significant differences were found for any group.

Reader's Theater

In a study of four second-grade classrooms, Keehn (2003) found that students who received only a reader's theater intervention were not significantly different in growth in rate, accuracy, comprehension, or prosody than students who received reader's theater followed by explicit instruction. This multiple measures study also compared how the reader's theater intervention affected students of varying levels of reading ability. The researcher found that the students with the lowest achievement made significant gains in rate, retelling, and prosody compared to students at the average and high achievement levels. However, students at all levels made significant gains in comprehension, word recognition, phrasing, rate, fluidity, and expressiveness, gaining an average of 30 words per minute in rate from their first time reading a passage at the beginning of the week until their last time at the end of the week. The author concludes that reader's theater is a viable instructional methodology that students find motivational.

Also, this study seems to indicate that, at least with these students, practice in appropriate levels of text is more effective than explicit instruction. Finally, to enable transfer to new texts, fluency interventions should last 6 to 8 weeks.

Fluency-Oriented Reading Instruction (FORI)

FORI (fluency-oriented reading instruction) and wide-reading with scaffolded instruction are both effective interventions to promote the reading development of elementary students (Kuhn et al., 2006; Kuhn et al., 2012). In a broad study 24 second-grade classrooms in New Jersey and Georgia, researchers examined the effects of using two separate fluency interventions—FORI and the wide-reading approach. The FORI approach involves a weeklong instructional plan for each text, with intense levels of support and scaffolding. Students receiving this intervention read the same text four to seven times over the course of the week. In this study, wide-reading meant that students read three or more different texts during the course of each week, with scaffolding.

The 24 classrooms were randomly assigned to one of the three treatment conditions: FORI, wide-reading, or control. Students in control classrooms received instruction according to existing practices in their school, using a variety of methods including work in textbook, use of worksheets, shared reading, guided reading, and reading workshop, teacher read alouds, and round robin-reading when reading orally. Those in the FORI classrooms used a method developed by Stahl and Heubach (2005). The researchers found that students in the FORI and wide-reading classrooms made similar gains above the levels of the students in the control classrooms in word reading efficiency and in reading comprehension, although students in the wide-reading classrooms showed gains earlier in the study than did those in the FORI group.

Additionally, the students in the wide-reading group made significant gains in reading fluency. The researchers concluded that both FORI and wide-reading are viable approaches, especially in terms of increases in reading comprehension. The researchers also noted that many of the students were below grade level in reading but benefited in spite of this due to the high level of scaffolding. The benefits of using either intervention are closely linked to the amount of time spent reading orally. A recommended alternative is Wide FORI in which students use three texts over the course of a week rather than one, a technique that seeks a balance between breadth and depth to develop automaticity.

Duolog Reading

Topping (2012) describes Duolog reading, an instructional strategy that can lead to deep fluency and to comprehension. This instructional practice involves having students work with peers, parents, classroom assistants, or volunteers in a tutoring setting. The tutor and tutee read together until the tutee signals that he or she can continue alone. When an error occurs or a pause of more than 4 seconds, the tutor begins to read with the tutee again until the signal is once again given. Results from 19 control or comparison group studies indicate that tutees make 2.5 times the gains of control group readers, 2.1 times the gains in comprehension above control readers, with a mean effect size of 1.6 for accuracy and 2.2 for comprehension (p. 196). Students also exhibited greater confidence, use of context, had fewer errors, a higher rate of self-correction, and better phonics skills.

Implications for Fluency Instruction

Rasinski, Rikli, and Johnston (2009) make the following recommendations for instruction:

Instruction aimed at improving expressive oral reading may have an even greater impact on comprehension than instruction that is aimed at improving reading rate and automatic word decoding. Instruction focused on oral interpretation of texts such as poetry, scripts, dialogues, monologues, oratory, and the like may hold considerable weight in developing students' expressive and meaning-filled interpretations of text. (p. 359)

Hicks (2009) corroborates this opinion by describing the role of rate, accuracy, and prosody in reading fluency. Fluency gains do not lead to comprehension gains, she explains, when the focus of fluency instruction fails to include all components of fluency. When students are taught to race through passages, skipping unknown words in the interest of rate, their comprehension suffers. Hicks (2009) urges that fast reading is not fluent reading. She recommends that teachers include a variety of practices in their instruction and assessment of fluency, including modeling of fluent reading in all content areas, teacher think-alouds, and the inclusion of variety in rereading experiences such as partner reading, reader's theater, echo reading, shared reading, choral reading, and individual reading. Additionally, she recommends providing students with a variety of genres and a large number of titles from which to choose. When building fluency with rereading, student texts should match students' instructional levels as individuals, and students should be given corrective feedback and explicit reinforcement. Additionally, students should be given high-quality instruction in comprehension skills and strategies as well as in decoding.

Concluding Statement

As stated earlier, reading without understanding is purposeless, given that the reason one reads is to understand the meaning of the text. This barking at print (Samuels, 2007) can too easily occur when students come to believe that effective reading is

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synonymous with fast reading. Again we are reminded of Vygotsky's (1962) words: "A word devoid of thought is a dead thing" (p. 255). Educators can remedy misconceptions regarding fluency and strengthen the link between fluent reading and reading comprehension by modifying instructional practices to include an emphasis on the meaning-making component of fluency—prosody. This study's quest to illustrate an instructional focus on prosody will serve as an effective means of improving both basic fluency (rate and accuracy) and expressive fluency (prosody and comprehension) and is necessary to combat the over-emphasis on fluency's easily quantifiable dimensions. An examination of the effects of a fluency instructional focus on prosody, combined with peer mediation, repeated reading, and student self-graphing, will yield important information for teachers as they strive to help students reach or exceed benchmark levels in reading.

CHAPTER 3

METHODOLOGY

General Introduction

This study examined a single class of third-grade students ($n=20$) who were randomly assigned through matched ability pairing to either a control group ($n=10$) or an intervention group ($n=10$). I established baseline levels of fluency in terms of rate and accuracy as well as in the multiple dimensions of fluency. Additionally, student baseline levels were established for reading comprehension. Students in both groups participated in peer practice of repeated reading of independent level passages, and all students graphed their own progress in terms of rate and accuracy. This method was used to develop students' basic fluency through just-right practice. Students in the intervention group received additional instruction in the area of prosody in order to allow me to look for a relationship between increasing prosody and reading comprehension growth, due to the development of expressive fluency.

The Research Questions

In order to accomplish the purpose of this study, the following research questions were asked:

1.   Do the oral reading fluency skills of rate, accuracy, and prosody differ for students who receive an instructional emphasis on rate and accuracy through the use of

repeated reading and self-graphing (treatment condition 1) from those who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing plus an instructional focus on reading prosody (treatment condition 2)?

2. Does reading comprehension differ for students who receive treatment condition 1 from those who receive treatment condition 2?

Research Design

The current study was a quantitative, quasi-experimental, pretest/posttest design. The study used two equivalent groups, as students were randomly assigned to the control or experimental group. Prior to the study, the third-grade teacher ranked the students (n=20) in regard to their reading proficiency based on the results of her informal assessment using raw scores from the MASI-R Oral Reading Fluency Measures and CORE Reading Maze Comprehension Test (Diamond & Thorsnes, 2008). The top two students were matched, then the next top two, then the next two, etc. One from each matched pair was randomly chosen to be in Group A (control) or Group B (intervention.)

Group A received treatment condition 1. For this treatment, the classroom teacher and her assistant (both of whom were trained by the researcher, using modeling and a checklist with sequencing and script) and spot-checked for fidelity, which was maintained above 95% level) conducted sessions three times per week. These sessions included a repeated reading and self-graphing intervention using AIMS-web R-CBM progress monitoring probes and were conducted for 7 weeks and were used in order to develop basic fluency through just-right practice. In order for them to be more effective as peer monitors for repeated reading practice, students were placed in homogenous pairs, which were also based on their teacher's informal assessment results for reading

comprehension and oral reading fluency using raw scores from the MASI-R Oral

Reading Fluency Measures and CORE Reading Maze Comprehension Test (Diamond &

Thorsnes, 2008).

For Group B, I conducted sessions three times per week using a repeated reading

and self-graphing intervention for 7 weeks using AIMS-web R-CBM progress monitoring

probes. This portion of the treatment condition was conducted exactly as it was with the

students in Group A. The difference for the intervention group was that I also taught a

lesson on prosody during each session with the Group B students to develop expressive

fluency's elements of prosody and comprehension, which was in addition to the repeated

reading and self-graphing done in the control group's intervention.

This comparative study investigated the effects of the independent variable,

prosody as a fluency instructional focus, on the dependent variables of growth in reading

fluency as indicated by rate and accuracy, growth in reading prosody, and growth in

reading comprehension. (See Table 1.) Students' growth in these three areas was

established by comparing their baseline scores to their final assessments.

Population and Sample

As shown in Table 2, participants in this study (*n*=20) were from an ethnically

diverse class of third-graders at a private school located in a small Midwestern town.

Two of the students were English Language Learners (1 in the control group and 1 in the

intervention group), but neither of these students had an Individualized Educational Plan.

No students in the control or intervention group had been retained. According to

information provided by the school's registrar, approximately 27% of students participate

in free-reduced lunch programs. The students were also somewhat diverse in terms of

Table 1

Research Design

Condition	Pre-test	Instrument	Intervention Elements	Post-test	Instrument
Control	Fluency	*Rate and Accuracy* AIMS-web R-CBM	Repeated reading	Fluency	*Rate and Accuracy* AIMS-web R-CBM
		Prosody Multi-dimensional Fluency Rating Scale (MDFS)	Self-graphing		*Prosody* Multi-dimensional Fluency Rating Scale (MDFS)
	Comprehension	AIMS-web Maze		Comprehension	AIMS-web Maze
Intervention	Fluency	*Rate and Accuracy* AIMS-web R-CBM	Repeated reading	Fluency	*Rate and Accuracy* AIMS-web R-CBM
		Prosody Multi-dimensional Fluency Rating Scale (MDFS)	Self-graphing Instruction in prosody		*Prosody* Multi-dimensional Fluency Rating Scale (MDFS)
	Comprehension	AIMS-web Maze		Comprehension	AIMS-web Maze

Table 2

Demographics

	Control	%	Intervention	%	Total	%
Race						
Hispanic	2	10.0	3	15.0	5	25.0
African-American	2	10.0	2	10.0	4	20.0
Asian	3	15.0	2	10.0	5	25.0
Caucasian	3	15.0	3	15.0	6	30.0
Gender						
Male	6	30.0	5	25.0	11	55.0
Female	4	20.0	5	25.0	9	45.0

baseline oral reading fluency levels and reading comprehension levels, as shown in Figure 2.

Definition of Variables

The following list of definitions defines the terms used in this study. The independent variable that was manipulated in the study was prosody instruction. The data collected to answer the research questions, the dependent variables, included growth in oral reading fluency's basic elements of rate and accuracy as measured with AIMS-web R-CBM, growth in oral reading fluency's expressive element of prosody as measured by the Multidimensional Fluency Scale (Zutell & Rasinski, 1991), and growth in reading comprehension as measured by the AIMS-web Maze-CBM test.
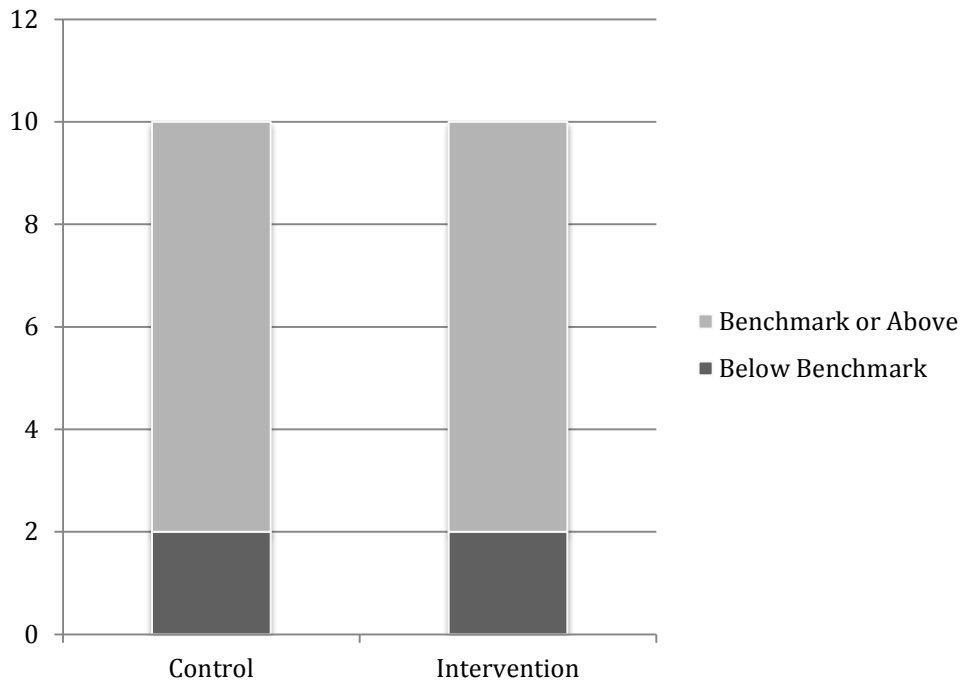
Figure 2. Students' comprehension level at baseline testing.

Prosody Instruction: This instruction included lessons on how to read with expression and other methods of improving prosody. This instruction occurred three times per week with the intervention group. The minilessons typically lasted from 10 to 20 minutes.

Growth in oral reading fluency's dimension of accuracy: The increase in the percentage of words read correctly on the median of three 1-minute timings.

Growth in oral reading fluency's dimension of rate: The increase in the number of words read correctly on the median of three 1-minute timings.

Growth in oral reading fluency's dimension of prosody: The increase in the overall score on a multidimensional fluency rubric**.**

Growth in reading comprehension: Improvement on reading comprehension as measured on benchmark maze passages from AIMS-web.

Intervention Group: Third-grade students who practiced repeated reading of fluency passages with their peers and recorded their number of words read correctly for each reading on a grid. This group also received instruction three times each week in prosody.

Control Group: Third-grade students who practiced repeated reading of fluency passages with their peers and recorded their number of words read correctly for each reading on grids.

<div align="center">

Instrumentation

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The study examined the research questions based on the data from several instruments. The third-graders from the study were tested before the study's onset, at the 3-week mark, the 6-week mark, and finally at the 9-week mark, which was post-study using three instruments: the AIMS-web R-CBM, the AIMS-web Maze-CBM, and the Multidimensional Fluency Scale.

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Instrument 1: AIMS-web Reading-Curriculum-based Measure

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The AIMS-web Reading-Curriculum-based Measure (R-CBM) benchmark probes were used to determine rate and accuracy levels of oral reading fluency. The R-CBM is used to assess students' general reading achievement skills. Shinn and Shinn (2002) explain the procedures used when testing with R-CBM. These include an individual administration of the probe during which a student read aloud for 1-minute and the

number of words read correctly was counted. The reliability of AIMS-web Reading

Curriculum-based Measure has been well researched. According to Daniel (2010),

> For a speed measure such as oral reading fluency, which is scored on the number
> of words read correctly in 1 minute, reliability must be based on scores from
> independent administration. For these reasons, the ideal type of reliability study
> for AIMSweb R-CBM is one in which scores on parallel (alternate) forms are
> obtained on the same day or within a span of no more than 2 weeks. (p. 1)

If the test is to be deemed reliable, the results from different administrations given

during a close period of time should be consistent. For the AIMS-web R-CBM materials

to be reliable, the various forms of the test at each grade level should be equivalent.

AIMS-web has achieved that reliability within each grade level by using readability

analyses to control for content and by conducting research on how well the probes

correlate within each grade level (Daniel, 2010). When a single benchmark probe was

tested at each grade level for alternate-form reliability, the reliability values in one study

(n=04) ranged from .79 to .90 across first-grade through eighth-grade level probes.

When three probes are given in a single session and a median score is used, which was

the procedure in this study, the reliability of alternate forms ranges from .92 to .97.

According to Daniel (2010), the true reliability of the AIMS-web R-CBM lies between

the single probe level and the median probe level.

Another study was completed to study the test-retest reliability of AIMS-web R-

CBM across 4 months. Christ and Silberglitt (2007) examined benchmark data over an

8-year time period with students in Grades 1-5 in the Midwest (n=8,200). They found

that within each grade level the correlations between benchmark scores at adjacent

testings (fall-winter or winter-spring) ranged from .88-.95, which are quite high despite

changes due to the passage of time, indicating a high level of reliability of this instrument.

In regard to the validity of the R-CBM, the R-CBM has a correlation of .70 when compared with state reading tests in Grades 3-5, which is an acceptable measure of criterion validity. The .70 validity level of the AIMS-web R-CBM has further been confirmed in several other studies when the criterion and the R-CBM were administered within 1 year of each other (Andren, 2010).

Instrument 2: AIMS-web Reading Maze Measure

To test for reading comprehension, I used the AIMS-web Reading Maze Measure (CBM Maze) benchmark probes. I used the set of three Standard Reading Assessment Passages, which are multiple-choice measures of reading comprehension. The passages used were third-grade level as this is the grade of the students in the study. AIMS-web developed the CBM Maze to use "as a corroborative or supplemental measure to provide a more complete picture of students' reading skills" (Shinn & Shinn, 2002, p. 7). The CBM Maze was designed to use in conjunction with the R-CBM. Maze tests are designed to be general outcome measures (GOM). GOMs allow educators to assess students and find "indicators of general basic skill success" (Shinn & Shinn, 2002, p. 7). GOMs are likened to measuring height, weight, blood pressure, and temperature as routine measures that inform medical decision making (Shinn & Shinn, 2002, p. 6). While GOMs do not give the full picture of students' academic abilities, they can provide indications of them.

The passages used in the AIMS-web CBM Maze are narrative, fictional passages that have been written and tested in a manner that helps ensure that grade level passages

are of similar difficulty. A maze test entails having students complete a multiple-choice cloze passage while reading silently. In common cloze form, the first sentence is left intact, and every seventh word thereafter is replaced with three words in parentheses. One word is the correct answer (the word originally used in the passage), one word is a near distractor that is the same type as the correct answer, and one word is a far distractor. For example, if the original word is a noun, the near distractor will also be a noun, but it will be a noun that does not preserve meaning within the passage. The third word is a far distractor that is not the same type of word as the correct answer, but rather is a word randomly chosen from the story that does not make sense (Shinn & Shinn, 2002, p. 7). An example of this from AIMS-web training materials follows, "Once upon a time there was a merchant whose wife died, leaving him with three daughters. The two older daughters were good-looking (but, stand, then) very disagreeable" (Shinn & Shinn, 2002, p. 10).

The AIMS-web CBM Maze is standardized and thus has a standardized administration. Students are given the maze with a cover sheet to prevent them from beginning before timing is begun. At the onset of this study, students were trained per recommendations in AIMS-web test administration guidelines in how to properly complete the CBM Maze by circling the correct answer from the three possible answers provided. As directed by the AIMS-web Maze-CBM instructional manual, students who finished before the 3 minutes were up had their tests pro-rated to include the number of answers they would have provided had they had enough passage to keep them working for the entirety of the test time.

Validity of the AIMS-web CBM Maze has been examined and found to be at acceptable levels. Marcotte and Hintze (2009) compared the AIMS-web CBM Maze with results from Massachusetts' Group Reading assessment and Diagnostic Evaluation (GRADE). They report a correlation of .67 between the two measures in terms of comprehension. In that same sample, a similar correlation (.72) was found between the AIMS-web CBM Maze and the AIMS-web R-CBM.

The internal constancy reliability of the AIMS-web CBM Maze was tested by comparing it with the third-grade New England Common Assessment Program (NECAP) measure of reading achievement, a high-stakes reading assessment (Andren, 2010). Using multiple regression analyses, Andren (2010) found the predictive validity to be .621. The AIMS-web CBM Maze also had a correlation from fall to winter testing of $r=.746$, which is an acceptable level of reliability.

AIMS-web National Norming of the R-CBM and CBM-Maze

In 2011 AIMS-web completed a study documenting national norm for Grades K-8 students in the United States (Pearson Education, 2012a). Using the mid-interval method of calculating percentiles for norms, AIMS-web documented norms for all English-language measures in reading, math, and language arts. Data were collected from the AIMS-web database from schools that conducted universal screening with at least 95% of their enrolled students. Only scores from students who were tested in fall, winter, and spring were included. The number of cases for the norm samples varied by grade and by test with a high of $n=55,158$ in first grade, to a low of $n=5,048$ for eighth grade for the R-CBM test. For the AIMS-web Reading Maze Measure, $n=25,418$ for fifth grade was the highest sample and $n=3,513$ for first grade. The final sample was chosen by AIMS-web

to match the national population in several areas including gender, ethnicity, and socioeconomic status. Students' average rate of improvement was calculated with norms divided into five levels for initial scores: very low, low, average, high, and very high. Growth norms varied depending on initial performance (NCS Pearson, 2012).

Forms Usage for Benchmarking

I followed recommendations and guidelines provided by the creators of AIMS-web (Pearson Education, 2012b). To do benchmark testing of oral reading fluency, I used the three R-CBM designated probes for each student's current grade level. At least 2 weeks of time was allowed between each testing session, as recommended by AIMS-web publishers, to prevent students from becoming familiar with the test and scoring better based on their memory of the probes rather than due to true learning.

Instrument 3: Multidimensional Fluency Scale

While the AIMS-web Reading-Curriculum-based Measure (R-CBM) benchmark probes can be used to determine oral reading fluency's dimensions of rate and accuracy, other dimensions of fluency are less readily discoverable, which has contributed to the common yet inaccurate practice of measuring rate and accuracy as the only features of fluency because they are so easily quantified. However, the expressive reading of text, or prosody, can be more problematic to assess accurately. One type of assessment that allows researchers to quantify prosodic elements of fluency is the utilization of a rubric that, in addition to rate, addresses the expressiveness and volume, phrasing, and smoothness of reading.

Zutell and Rasinski (1991) developed the rubric that was chosen for use in this study. These researchers explain that those who are trained in the scale can apply them accurately and consistently, citing earlier research (Rasinski, 1985; Zutell, 1988). Since those studies, little research has been conducted by these researchers or others to measure reliability or validity with their scale or any other fluency rating scale. However, very recently Moser, Sudweeks, Morrison, and Wilcox (2014) examined Rasinski's Multidimensional Fluency Scale (MDFS) and found it to be highly reliable with reliability coefficients ranging from .92 to .98 for narrative text and from .92 to .98 for informational text when a minimum of two, but preferably three, equivalent passages, two raters, and one scoring occasion were used.

A similar rubric, the Multidimensional Fluency Scoring Guide (MFSG) (Rasinski, 2004; Zutell & Rasinski, 1991), an elaboration of the rubric used by the NAEP (Pinnell et al., 1995), reported high predictive validity with significant correlations between silent reading comprehension and oral reading prosody in fourth-grade classrooms. The MFSG was evaluated by a team of reading experts who unanimously agreed that the instrument has face validity for the assessment of prosody. An earlier version of the rubric was found to have a test-retest reliability of .90 and an inter-rater reliability of .96 when used to rate the reading of third-graders.

According to Rasinski (2012a), the MDFS can be used with confidence because after the researcher listens to a 60-second timing, he or she is able to make valid and reliable measurements (Rasinski, 2012a). Since all raters need to share a well-established sense of what each level of the rubric sounds like, I was the only rater for pretesting, progress-monitoring, and post-testing. To ensure that I maintained reliability with the

prosody testing using the MDFS, another person was trained using the MDFS. That person rated three students at the baseline testing, at the 3rd-, at the 6th-, and at the 9th-week testing. Each time, students' recordings were randomly chosen for this cross-checking. The scores were compared with those I generated. Discrepancies of no more than one point on any area of the rubric between my scores and the checker's scores were averaged. If any difference greater than one point had been found between the two raters, the checker and I planned to hold joint sessions to listen to that recording again to analyze and discuss score adjustment. However, this was not needed, as the raters had high inter-rater reliability.

In another study in which Rasinski (1985) adapted a 6-point rubric, the instrument was established as being highly reliable (test-retest reliability = .90). According to Rasinski (2012a), fluency rubrics "provide valid measurements of the third component of reading fluency—prosodic reading. In the hands of knowledgeable teachers, rubrics provide valid and reliable information on students' development and progress in interpretive reading" (p. 19). Table 3 presents the validity and reliability of the MDFS along with the other instruments used in the study.

Procedure

Procuring the Site and Sample

At the study's onset, I discussed its purpose with the principal of the school chosen as the desired test site. Permission to conduct the research was granted. The principal was given a letter that formally explained the study's purpose and was asked to sign a consent form as required by the International Review Board. He gave his consent in a

formal letter. I asked the third-grade teacher to participate in the study, and her consent

was received. The school was provided with a parent-notification letter that was

used to inform parents of the study and a consent form seeking permission for their

children to participate. Students were also provided with an assent form, which

explained in simple terms the purpose of the study and their right to choose to be in the

study or to not participate. All students in the class were given permission by their

parents to participate in the study, and all students agreed to participate and signed the

assent form.

Table 3

Reliability and Validity of Instruments Measuring Dependent Variables

Variables	Instruments	Validity	Reliability
Dependent			
Growth in oral reading fluency rate	AIMS-web R-CBM	.70 (Andren, 2010)	.92 - .97 (Daniel, 2010) .88-.95 (Christ & Silberglitt, 2007)
Growth in multiple dimensions of fluency	Multi-dimensional Fluency Scale (MDFS)	High degree of validity (Rasinski, 2012a)	.92 - .98 (Moser et al., 2014)
Growth in reading comprehension	AIMS-web Maze	.67 (Marcotte & Hintze, 2009)— when compared to GRADE	.75 from fall to winter (Andren, 2010) Internal constancy = .62 (Andren, 2010)

Random Selection of Groups Using Matched Pairs

Prior to the study, I asked the third-grade teacher to rank the students (n=20) in regard to their reading proficiency.   Students were ranked based on their teacher's informal assessment results for reading comprehension and reading fluency by using the students' raw scores from the MASI-R Oral Reading Fluency Measures and CORE Reading Maze Comprehension Test (Diamond & Thorsnes, 2008).The top two students were matched, then the next top two, then the next two, etc. This process resulted in the number 1 student and the number 2 student in terms of reading proficiency becoming a matched pair. The number 3 student and the number 4 student became a matched pair. The number 5 student and the number 6 were a matched pair. The process continued on until the number 19 student and the number 20 student (the two lowest readers in the class) were matched as a pair. One student from each pair was randomly chosen to be in Group A (control) or Group B (intervention.) To randomly choose the students for assignment to a group, I wrote the names of each matched pair of the students in the class on equally sized slips of paper and folded them. The folded slips were placed in a container, stirred, and one slip was drawn out. That student whose name was drawn first from the pair was placed in the intervention group while the name remaining in the container was placed in the control group. This process was repeated until all pairs were distributed with one student from each pair being assigned to each group. This allowed me to be more certain that random placement of students into groups did not result in either the control group or the treatment group receiving an imbalanced amount of students who were high readers, average readers, or low readers.

Pre-testing

       Pretest data collection commenced in February 2014. To initiate the data collection process, I conducted baseline testing for fluency's rate and accuracy components using AIMS-web Reading-Curriculum-based Measure (R-CBM) benchmark probes. Also, I conducted baseline testing for prosody using the Multidimensional Fluency Scale (MDFS) by recording the students as they read the R-CBM benchmark probes. Of the three passages read, students' scores on rate and accuracy were taken from the median score as recommended by Shinn and Good (1992). Each student's median passage was used to score the MDFS for prosody. Comprehension was assessed using the AIMS-web Reading Maze Measure benchmark probe 1. Additionally, I asked students in the intervention group to write out what they knew about reading fluency and what it is. Many had not heard the term before or only in regard to the ability to speak a language. Those who did respond gave a variety of responses. One said, "It's having a good and loud voice." Another responded: "It's using good expression. Reading in a calm, happy, not-too-loud voice." Another answered, "It's reading in an exciting way with expression." Students in the control group were not asked this question, as I wanted to prevent any bleed-over effects between the intervention and control groups and did not want to encourage students in the control to dialogue between groups or with their teacher or parents about what reading fluency entails in a manner that might have altered their performance in any manner.

Additional Data Collection Points

Both Group A and Group B were assessed for comprehension using AIMS-web Reading Maze Measure benchmark probes on Weeks 3 (Passage 2) and 6 (Passage 3). Benchmark Passage 1 was used for pre-testing in Week 1 and for post-testing in Week 9.

In addition to pre-testing in Week 1 and post-testing in Week 9, at the 3- and 6-week marks, students' oral reading accuracy and rate were assessed using AIMS-web Reading-Curriculum-based Measure (R-CBM) benchmark probes, which require an individual administration. Also on each of those weeks, students' prosody levels were assessed using the Multidimensional Fluency Scale. As students read the AIMS-web R-CBM, I used a digital recording device (an iPad with the application AudioMemos) to record students as they read their R-CBM probes aloud. Rather than marking passages for rate and accuracy while simultaneously listening for prosody, I chose to record miscues while students read, and later I listened to the recordings in order to score the MDFS for prosody. The 9-week mark was post-intervention, so all areas (accuracy and rate, prosody, comprehension) were retested using benchmark probes.

Maintaining Reliability With the MDFS

To ensure that reliability was maintained with the prosody testing using the MDFS, another person, a senior from the undergraduate education program, was trained to use the MDFS. This individual scored the recordings of three randomly chosen students from the set of baseline testing recordings and from the 4th-, 6th-, and 9th-week test periods. The scores were compared with those I generated. Discrepancies of no more than one point on any area of the rubric were considered minimal. At no point in the cross-checking was a score generated that resulted in a difference greater than one

point between the two raters in an area of the rubric. The inter-rater reliability was found to be .83.

Control Group Treatment Condition 1

Group A received treatment condition 1. For this treatment, the classroom teacher or her assistant (who were both trained by me and spot-checked for fidelity) conducted sessions three times per week. These sessions included a repeated reading and self-graphing intervention using AIMS-web R-CBM progress monitoring probes and were conducted for 7 weeks. Students were matched with a peer of similar reading ability to practice repeatedly reading their passages. I provided the passages each week. These passages were initially a grade level below each student's independent reading level, which had been determined by the teacher in her classroom assessment procedures. Students were given passages below their independent reading level on the first week of the intervention in order to instill confidence in their ability to do repeated reading and self-graphing. Each student was given a folder with two copies of a passage and a graph. I collected these folders daily, and provided new passages and graphs each week.

Peer Training for All Students in Both Groups

As part of the repeated reading and graphing intervention, which was used with both the control and the intervention groups, students were paired with a partner of similar reading level to practice reading fluency passages that were on their independent reading levels. Before this practice with peers began, peer-monitors were trained in small groups on how to administer, score, and graph oral reading probes. The specific training procedures included (a) modeling of the administration of an oral reading passage, (b)

practice in administering an oral reading passage with corrective feedback provided by the researcher during the practice session, (c) practice in scoring the oral reading passage for time (1 minute) as well as for accuracy (words correct, words self-correct, errors), and (d) graphing of rates. Students were taught to listen carefully while their partners read aloud and to mark any words that were skipped or read incorrectly. Students were then taught how to determine the total number of words read by looking at the running word count at the end of each line of text. In the case that students were not at the end of a line of text when the 1 minute of time was over, students were trained to look at the line of text just before the line that was not completed to find a partial total and to then count up from that partial total to the point on the next line where the timer sounded. Students then learned to count the number of errors (words said incorrectly or omitted) and to subtract that amount from the total words read to find the total words read correctly per minute (WCPM).

In each peer practice pair, the reader and the marker worked together to ensure accuracy in finding the total for each minute of reading. Students were also taught how to write their WCPM on a graph and to color in a bar graph to match the WCPM. The process of teaching students to do this was completed in the second week of the study after the first week of benchmark pre-testing was done. Students in the control group were simply told to do their best reading. The teacher or her assistant held a timer and asked student pairs to get ready to read. When the teacher or her assistant said "begin," the student who was reading first read the passage aloud while the other student in the pair, the checker, read along on another copy marking errors until the teacher called time for them to stop. The reader student read three consecutive times and recorded WCPM

before switching roles with his or her partner, who then also read and recorded WCPM three times.

<div align="center">Intervention Group Treatment Condition 2</div>

Group B received treatment condition 2, which I administered in a separate location than the regular classroom, as the teacher was simultaneously administering treatment condition 1 in the classroom. For treatment condition 2, I conducted sessions three times per week using a repeated reading and self-graphing intervention for 7 weeks using AIMS-web R-CBM progress monitoring probes as the passages for students to repeatedly read. This portion of the treatment condition was conducted exactly as it was with the students in Group A; I did the timing rather than the teacher or her assistant. The difference between treatment condition 1 and 2 was that in addition to the repeated reading and self-graphing, I taught a lesson on prosody during each session with the Group B students.

Prosody lessons were as follows. (See Appendix E.) During Weeks 1 and 2 (after pretesting week), students received explicit instruction and modeling of examples and non-examples in each of the dimensions of fluency. In Weeks 3 and 4, students were given individualized instruction with their peer partners on the elements of fluency that were their weakest. For example, if students read very quickly with little expression, they were taught to modify their rate and to read with more expression. If students read in a word-by-word manner, they were taught with echo reading and phrase parsing when to pause. All students were taught to attend to punctuation and to know how intonation and stress are affected by punctuation. During Weeks 5 and 6, students worked in small groups to practice and then perform reader's theater passages with a focus on prosody

during practice and performance. During Week 7 (before post-testing week), students

were allowed to choose from a poem to read aloud to the group on the final day. They

practiced, prepared, and performed their poems with enthusiasm and excellent prosody.

Most of the students verbalized their dismay when they learned that the

intervention had ended and expressed strong desire to continue the reader's theater

practices and performances. They demanded copies of the scripts and poems to take to

their classroom and their homes. After post-testing, students were given copies of scripts

and poems. The students' engagement in reader's theater led to excellent practice

sessions and performance. Students spontaneously formed groups, altered scripts and

poems for various combinations of voices, and added rhythmic elements.

Post-testing

The 9-week mark was post-study, and all areas (accuracy and rate, prosody,

comprehension) were retested using AIMS-web Reading-Curriculum-based Measure (R-

CBM) benchmark probes for rate and accuracy.   Students were recorded as they read

these probes, and their median reading was also scored for prosody using the MDFS.

Reading comprehension was assessed using the AIMS-web Maze-CBM to allow for

comparison of pre- and post-study fluency and comprehension levels.

Data Analysis

In addition to using SPSS software to prepare descriptive statistics, I used SPSS to

conduct a repeated-measures ANOVA to analyze the results of this study. The results

from the dependent measures were analyzed to determine the impact of prosody

instruction on students' growth in oral reading fluency rate and accuracy, the prosodic dimension of oral reading fluency, and reading comprehension.

Treatment of Data

Prior to the analysis of data, I completed two treatments of the data. First, one student was absent for several days at the time of post-testing due to illness. For this reason, I used linear regression techniques to predict this student's scores on the post-test measures of rate, accuracy, and prosody. The regression analyzed how the class as a whole changed in regard to each post-test measure and generated a formula in which the sick student's scores on each of the three previous testings were inserted. This allowed me to predict what the student would have scored on the post-tests in prosody, rate, and accuracy. The student was present on the day that comprehension post-testing was completed, so her actual score was used.

On the final test of oral reading fluency using the AIMS-web R-CBM, one student from the control group was intent on finishing the entire passage before the 1-minute timing elapsed. He raced through each passage and managed to finish each one, but in the process, he accrued over 100 errors on his median score. This was an extreme departure from his previous three testings and an extreme outlier in the data. I decided to compute this student's error rate on the previous testing at the third data collection point and to use that error rate percentage to generate an estimate of what the student's error rate would have been had he not raced through the passage.

Summary

      This third chapter has delineated the research methodology used during this study of the effect of an instructional focus on prosody on the multiple dimensions of fluency and on comprehension of third-grade students who were also using just-right practice through repeated reading and self-graphing while working with peers. A complete description of the participants, the setting, the variables, the instrumentation, the procedures, the design, and the statistical analyses performed has been included. This study has contributed to the research literature by examining effects of an instructional focus that aims to develop both expressive and basic fluency through prosody instruction, repeated reading, and self-graphing as compared to an instructional focus that aims to develop basic fluency through repeated reading and self-graphing.

CHAPTER 4

RESULTS

Introduction

In previous chapters, the problem of the continuing low levels of reading

proficiency of students in America's schools despite a renewed focus on fluency has been

discussed. Also, subsequent gains in basic fluency's elements of rate and accuracy and

their inconsistent link to gains in comprehension were delineated. The manner in which

fluency has been reduced in its definition, its instruction, and its assessment (to its easily

quantifiable elements of rate and accuracy) has been described. Current instructional

techniques in fluency were described, including details from various studies about the

effectiveness of those techniques. The proposed strengthening of the link between

fluency and comprehension by a re-broadening of fluency's definition, instruction, and

assessment to include the multiple dimensions of fluency has also been introduced and

discussed. This study used a pretest-posttest control group design to examine whether an

instructional approach in prosody combined with repeated reading and self-graphing

could produce greater improvements in expressive fluency's elements of prosody and

reading comprehension than repeated reading and self-graphing alone.

Description of the Sample

Participants in this study (*n*=20) were from an ethnically diverse class of third-graders at a private school located in a small Midwestern town. (See Table 2 above.) Two of the students were English Language Learners (1 in the control group and 1 in the intervention), but neither had an Individualized Educational Plan. The students were also somewhat diverse in terms of baseline oral reading fluency levels and reading comprehension levels; however, only 20% of the students in the class (10% in the control group and 10% in the intervention group) were below benchmark in comprehension as measured by the pre-test of the AIMS-web Maze-CBM at the studies onset. (See Figure 2 above.)

Results by Research Question

The assumptions for a repeated-measures ANOVA include normal distributions and equal variances of populations for each treatment as well as sphericity; thus, the population variances within each condition and among the different conditions should be the same (Howell, 2010). Equality of population variance-covariance is tested using Box's M while sphericity is tested by Mauchly's test. When sphericity cannot be assumed as indicated by a significant result on the Mauchly's Test of Sphericity, the data should be interpreted using an alternate result (Howell, 2010). In this study, when sphericity could not be assumed, which was the case with the ANOVA completed for rate and the one for accuracy, data were interpreted using a comparison F statistic that calculates data using alternate degrees of freedom—the Greenhouse-Geisser.

Research question 1 studied the effect of an instructional focus on prosody on the oral reading fluency skills of rate, accuracy, and prosody by examining results on

pretests, two mid-intervention assessments, and posttests of students who received an

instructional emphasis on basic fluency's dimensions of rate and accuracy through the

use of just-right practice in the form of repeated reading and self-graphing (treatment

condition 1) and comparing those results to those students who received an instructional

emphasis on basic fluency's dimensions of rate and accuracy through the use of repeated

reading and self-graphing plus an instructional focus on expressive fluency's dimension

of reading prosody (treatment condition 2).

Research Question 1: Prosody

Table 4 displays the means and standard deviations for the control and

intervention groups in prosody as indicated by results on the MDFS. The results of the

one between (group) and within (test period) ANOVA are displayed in Table 5. Group

main effect ($F_{(1,18)}$=0.025, p=0.88, η^2=.001) and interaction effect ($F_{(3,60)}$ =0.512, p =

.676, η^2=.028) are not statistically significant at the .05 level. Time (test period) was

statistically significant ($F_{(3,60)}$ = 6.30, p= .001, η^2=.26). Approximately 26% of the

variance in prosody scores may be explained by time (test periods). These results suggest

that, although scores on prosody improved over time, the improvement was not related to

treatment conditions (group). That is, instruction focusing on prosody was not

necessarily effective in helping students improve in prosody. A pairwise comparison, as

displayed in Table 6, indicates that significant improvement in prosody took place

between test periods 2 and 3 regardless of treatment conditions. No significant

improvement took place between test periods 1 and 2 and between test periods 3 and 4.

When students from both the control and intervention groups who were below benchmark

levels for reading comprehension at pre-testing were analyzed for growth, they all

showed improvement in prosody scores on the MDFS at post-testing, as shown in Figure

3.

Table 4

Prosody: Group Means and Standard Deviation Over Time

| | | Test Period | | | |
Group		1	2	3	4
Control	Mean	11.60	11.60	12.60	12.30
	SD	3.17	2.95	2.12	2.63
Intervention	Mean	11.20	10.90	12.70	12.40
	SD	4.32	4.09	3.68	3.37
Total	Mean	11.40	11.25	12.65	12.35
	SD	3.69	3.49	2.92	2.94

Table 5

Prosody: Repeated Measures ANOVA Result

Source	SS	df	MS	F	p	η²
Between subjects	733.14	19				
Groups (G)	1.01	1	1.01	.025	.876	.001
Error (within groups)	732.13	18	40.67			
Within subjects	113.26	60				
Test Period (TP)	28.74	3	9.58	6.30	.001	.259
Test Period*Group	2.34	3	.779	.512	.676	.028
Error	82.18	54	1.52			
Total	846.40	79				

Table 6

Prosody Pairwise Comparison

Test Period	Mean	2	3	4
1	11.40		*	*
2	11.25		*	*
3	12.65			
4	12.35			

*Represents significant group differences.
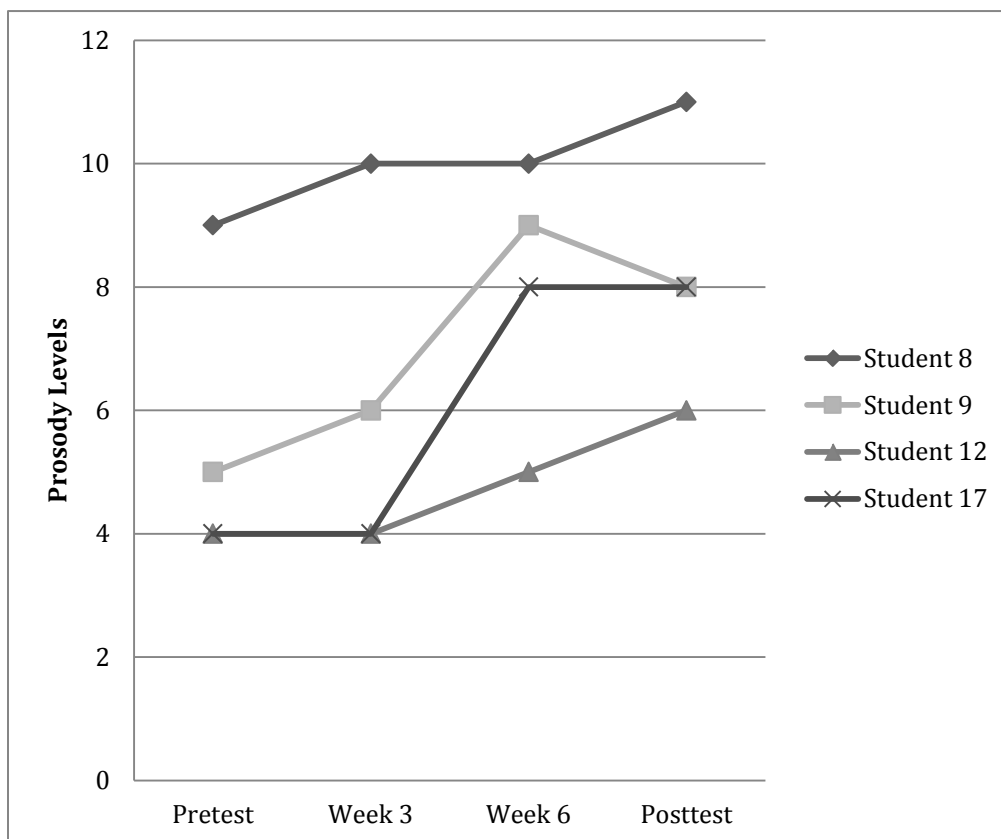
Figure 3. Struggling students' growth in prosody.

Research Question 1: Rate

Table 7 displays the means and standard deviations for the control and intervention groups in rate as indicated by results on the AIMS-web R-CBM. The results of the one between (group) and within (test period) ANOVA are displayed in Table 8. Group main effect ($F_{(1,18)}$= 1.79, p=0.198, η^2=.090) and interaction effect ($F_{(1.85, 36.91)}$ = .70, p = .491, η^2=..038) are not statistically significant at the .05 level. Time (test period) was statistically significant ($F_{(1.85, 36.91)}$ = 13.09, p = .000, η^2=.421). Approximately 42% of the variance in rate scores may be explained by time (test periods). These results

suggest that, although scores on rate improved over time, the improvement was not related to treatment conditions (group). That is, instruction focusing on prosody was not necessarily effective in helping students improve in rate. A pairwise comparison, as displayed in Table 9, indicates that significant improvement in rate took place between test periods 1 and 3, 1 and 4, 2 and 4, and 3 and 4, regardless of treatment conditions. No significant improvement took place between test periods 1 and 2 and between test periods 2 and 3. When students from both the control and intervention groups who were below benchmark levels for reading comprehension at pre-testing were analyzed for growth, three showed improvements in rate, showing significant gains in WCPM from pre-testing levels to post-testing assessment, as shown in Figure 4.

Table 7

Rate: Group Means and Standard Deviation Over Time

		Test Period			
Group		1	2	3	4
Control	Mean	116.80	126.30	134.60	151.30
	SD	27.17	34.19	31.08	40.83
Intervention	Mean	103.6	101.13	115.90	125.60
	SD	41.90	51.02	33.00	33.05
Total	Mean	110.20	113.72	125.25	138.45
	SD	35.3	44.20	32.64	38.48

Table 8

Rate: Repeated Measures ANOVA Result

Source	SS	df	MS	F	p	η²
Between subjects	94,825.78	19				
Groups (G)	8,563.59	1	8,563.59	1.79	.198	.090
Error (within groups)	86,262.19	18	4,792.34			
Within subjects	23,760.36	36.91				
Test Period (TP)	9,780.18	1.85	5,301.07	13.09	.000	.421
Test Period*Group	526.15	1.85	285.19	.70	.491	.038
Error	13,454.03	33.21	405.13			
Total	118,586.14	55.91				

Table 9

Rate: Pairwise Comparison

Test Period	Mean	2	3	4
1	110.20		*	*
2	113.72			*
3	125.25			*
4	138.45			

*Represents significant group differences.
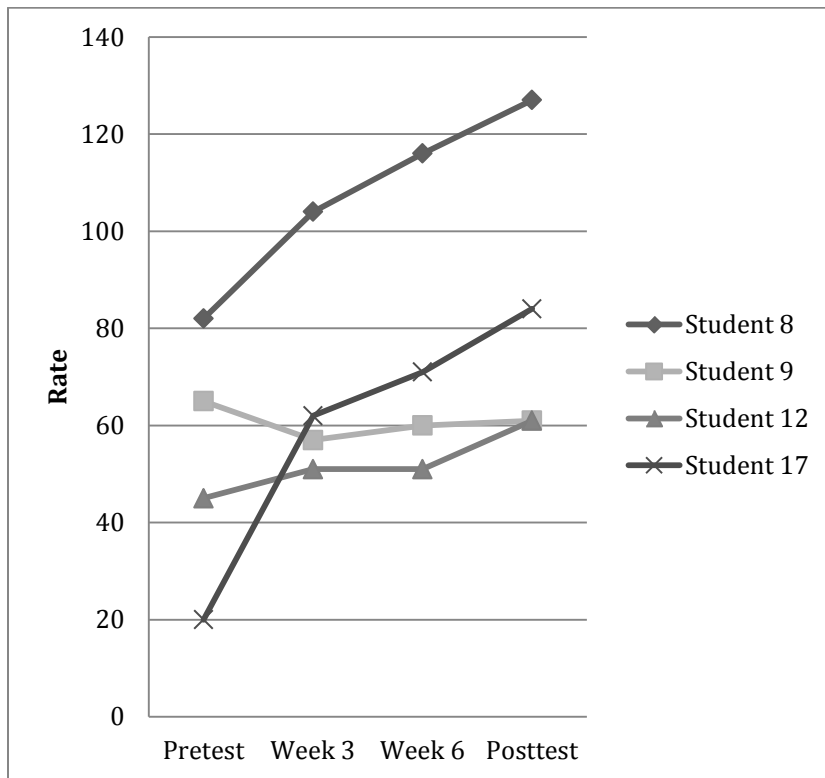
Figure 4. Struggling students' growth in rate (WCPM) on AIMS-web R-CBM.

Research Question 1: Accuracy

Table 10 displays the means and standard deviations for the control and intervention groups in accuracy as indicated by results on the AIMS-web R-CBM. The results of the one between (group) and within (test period) ANOVA are displayed in Table 11. Group main effect *(F*$_{(1,18)}$= 0.85, *p*=0.369, η^2=.045) and interaction effect (*F*$_{(1.10, 22.04)}$ = .76, *p* = .405, η^2=.041) are not statistically significant at the .05 level. Time (test period) was not statistically significant (*F*$_{(1.10, 22.04)}$ = .76, *p* = .391, η^2=.043).

Table 10

Accuracy: Group Means and Standard Deviation Over Time

Group		Test Period			
		1	2	3	4
Control	Mean	.97	.97	.87	.98
	SD	.05	.04	.06	.03
Intervention	Mean	.94	.89	.98	.97
	SD	.07	.28	.03	.02
Total	Mean	.95	.93	.97	.98
	SD	.06	.20	.05	.03

Table 11

Accuracy: Repeated Measures ANOVA Result

Source	SS	df	MS	F	p	η^2
Between subjects	.30	19				
Groups (G)	.01	1	.01	.85	.369	.045
Error (within groups)	.29	18	.02			
Within subjects	.61	22.04	.07			
Test Period (TP)	.03	1.10	.02	.76	.391	.043
Test Period*Group	.02	1.10	.02	.76	.405	.041
Error	.56	19.84	.03			
Total	.91	41.04				

These results suggest that scores on accuracy did not improve significantly over time or by group. That is, instruction focusing on prosody was not necessarily effective in helping students improve in accuracy. When students from both the control and intervention groups who were below benchmark levels for reading comprehension at pre-testing were analyzed for growth, they all showed improvements in accuracy, having higher percentages of accuracy at post-testing than baseline testing, as shown in Figure 5.
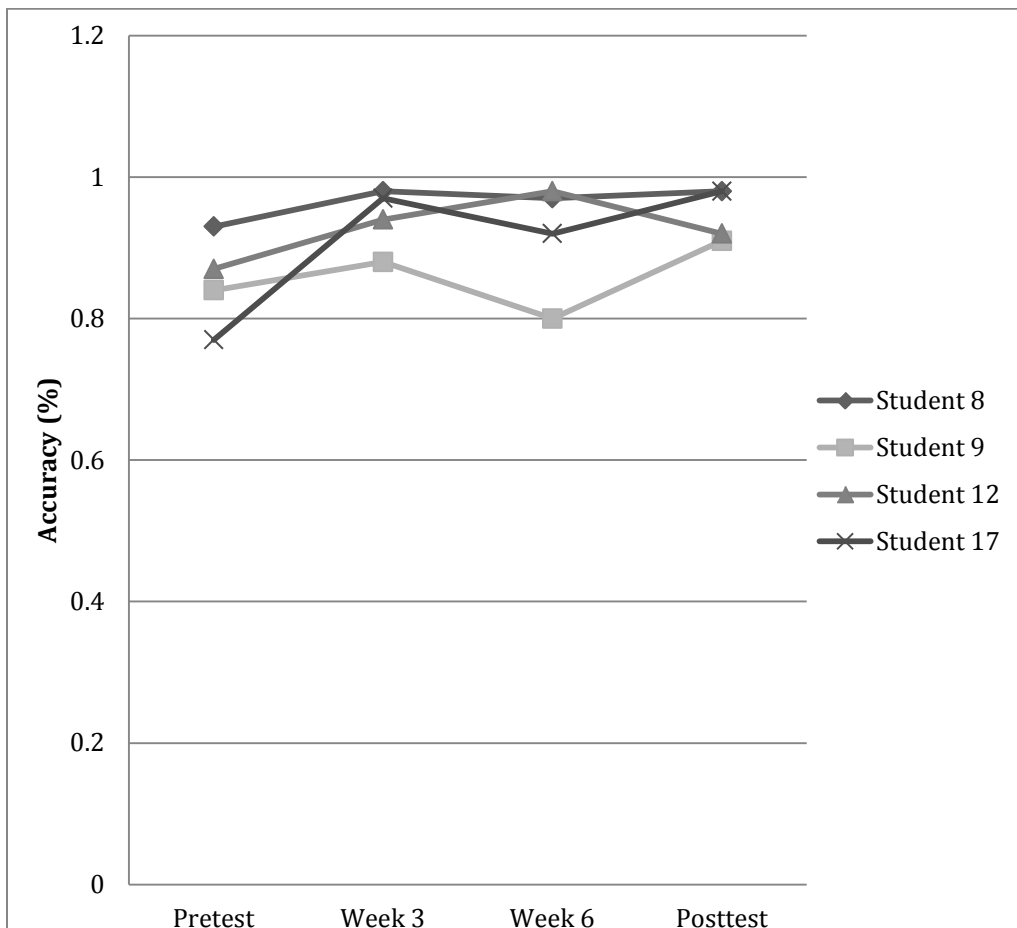

Figure 5. Struggling students' growth in accuracy on AIMS-web R-CBM.

Research Question 2

Research question 2 examined the effect of the treatment condition, an instructional focus on prosody, on reading comprehension. Table 12 displays the means and standard deviations for the control and intervention groups in reading comprehension as indicated by results on the AIMS-web Maze-CBM. The results of the one between (group) and within (test period) ANOVA are displayed in Table 13. Group main effect ($F_{(1,18)}$= 1.38, p=0.256, η^2=.071) and interaction effect ($F_{(3, 60)}$ = 1.73, p=.171, η^2=.088) are not statistically significant at the .05 level. Time (test period) was statistically significant ($F_{(3, 60)}$ = 33.20, p= .000, η^2=.648). Approximately 65% of the variance in reading comprehension scores may be explained by time (test periods). These results suggest that, although scores on reading comprehension improved over time, the improvement was not related to treatment conditions (group). That is, instruction focusing on prosody was not necessarily effective in helping students improve in reading comprehension. A pairwise comparison, as displayed in Table 14, indicates that significant improvement in reading comprehension took place between test periods 1 and 4, 1 and 4, 2 and 4, and 3 and 4, regardless of treatment conditions. No significant improvement took place between test periods 1 and 2, 1 and 3, and between test periods 2 and 3. When students from both the control and intervention groups who were below benchmark levels for reading comprehension at pre-testing were analyzed for growth, they all showed improvements in reading comprehension as shown in Figure 6, showing increases from pre-testing to post-testing on the AIMS-web Maze.

Table 12

Comprehension: Group Means and Standard Deviation Over Time

Group		Test Period			
		1	2	3	4
Control	Mean	20.32	23.60	19.40	31.20
	SD	8.02	5.95	7.69	8.85
Intervention	Mean	19.30	20.10	15.70	25.10
	SD	6.68	7.06	6.75	8.29
Total	Mean	19.80	21.85	17.55	28.15
	SD	7.21	6.60	7.29	8.92

Table 13

Comprehension: Repeated Measures ANOVA Result

Source	SS	df	MS	F	p	η^2
Between subjects	38,150.11	19				
Groups (G)	255.61	1	255.61	1.38	.256	.071
Error (within groups)	3,340.03	18	185.56			
Within subjects	1,989.26	60				
Test Period (TP)	1,247.64	3	415.88	33.20	.000	.648
Test Period*Group	65.14	3	21.71	1.73	.171	
Error	676.48	54	12.53			
Total	40,139.37	79				

Table 14

Comprehension Pairwise Comparison

Test Period	Mean	2	3	4
1	19.80			*
2	21.85			*
3	17.55			*
4	28.15			

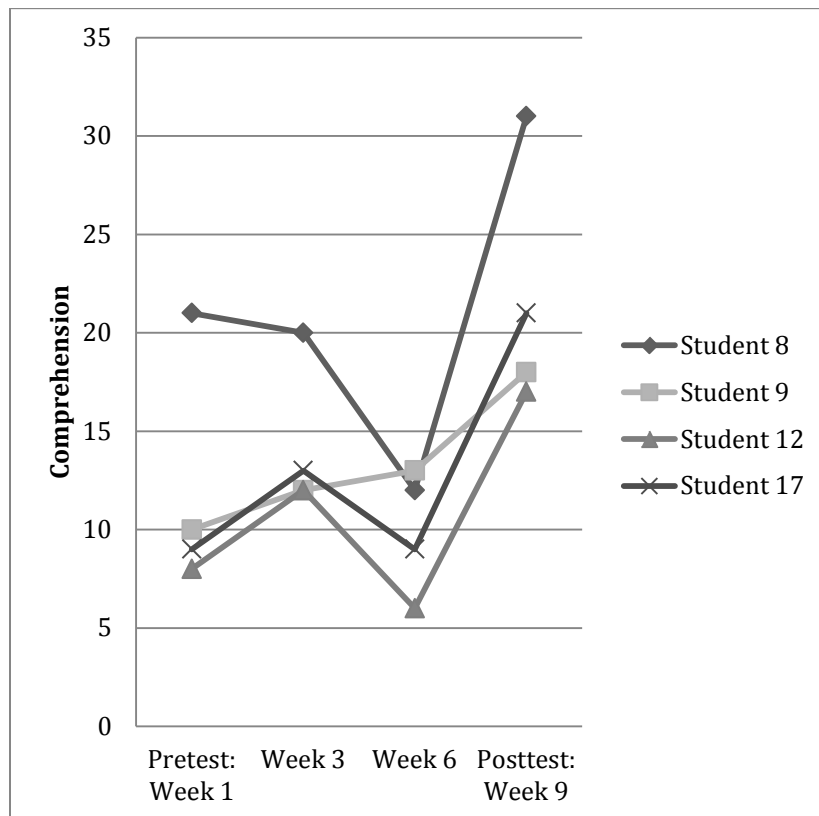*Represents significant group differences.

Figure 6. Struggling students' growth in comprehension as measured on AIMS-web Maze-CBM.

Summary of Major Findings

This chapter contains a summary and analysis of the statistical testing done to answer the research questions introduced in the first chapter. Research question 1 asked: Do the oral reading fluency skills of rate, accuracy, and prosody differ for students who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing (treatment condition 1) from those who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing plus an instructional focus on reading prosody (treatment condition 2)? The repeated-measures ANOVA indicated that an instructional focus on prosody did not have a significant impact on rate or accuracy as measured by the AIMS-web R-CBM or on prosody as measured by the MDFS.

Research question 2 asked: Does reading comprehension differ for students who receive treatment condition 1 from those who receive treatment condition 2? The repeated-measures ANOVA indicated that an instructional focus on prosody did not have a significant impact on reading comprehension as measured by the AIMS-web Maze-CBM.

This study examined the impact of an instructional focus on prosody on oral reading fluency in terms of rate, accuracy, and prosody as well as on reading comprehension. Statistical analyses indicated that the intervention did not show a significant difference between groups on either the measures of oral reading fluency or the measures of reading comprehension.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSION, AND

RECOMMENDATIONS

Introduction

Despite the current emphasis on assessment and intervention accompanying the Response to Intervention approach being used in most public schools, students in America are failing to become proficient readers (Beall et al., 2010; Carnegie Council on Advancing Adolescent Literacy, 2010; Cataldi, et al., 2014; Denton, 2012; Ehren, 2010; Fuchs & Vaughn, 2012; Graves et al., 2011; Lesgold & Welch-Ross, 2011; MacArthur & Philippakos, 2013; Macaruso & Shankweiler, 2010; Mariage et al., 2009; National Center for Educational Statistics, 2011; National Research Council, 2012; Reynolds et al., 2011; Tran et al., 2011; Wise, 2009), as evidenced by results on the 2013 National Assessment of Educational Progress (National Center for Educational Statistics, 2013), where only 5% of high-school seniors, 3% of eighth-graders, and 8% of fourth-graders performed at the advanced level in reading (in states included in this update to the 2011 results) (Carnegie Council on Advancing Adolescent Literacy, 2010; Cataldi, et al., 2014; Lesgold & Welch-Ross, 2011; National Center for Educational Statistics, 2011; Wise, 2009).

In recent years, reading fluency has come to be emphasized in both instruction and assessment, but only its easily quantifiable dimensions of rate and accuracy are currently stressed in most classrooms across the country (Applegate et al., 2009; Deeney, 2010; Dennis et al., 2012; Griffith & Rasinski, 2004; Hasbrouck & Tindal, 2006; Hicks, 2009; Kuhn et al., 2010; Murray et al., 2012; Nichols et al., 2009; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2012b; Ros Albert, 2012; Samuels, 2007; Samuels & Farstrup, 2011; Valencia et al., 2010; Walker et al., 2012). Further, oral reading fluency rates have increased to the point that norms have been adjusted (Hasbrouck & Tindal, 2006), yet corresponding growth in reading comprehension has been inconsistent (Applegate et al., 2009; Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Schrauben, 2010; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010). Some previous studies suggest the link between reading fluency and reading comprehension is strong (Begeny & Martens, 2006; Berninger et al., 2006; Courbron, 2012; Hintze et al., 2002; Kuhn et al., 2006; Paige et al., 2012; Rasinski, Rikli, & Johnston, 2009; Reis et al., 2011; Reutzel & Cooter, 2012; Wise et al., 2010), while others have not found a significant link (Applegate et al., 2009; Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Schrauben, 2010; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010).

Recent findings indicate the two aspects of reading are closely linked when fluency's definition is broadened to include prosody in addition to rate and accuracy in

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both instruction and assessment (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009).

The automaticity plus prosody (APP) model (see Figure 1) that I developed from Topping's (2012) deep processing fluency model provides a meaningful framework for understanding the relationship between the variables in this study. Basic fluency develops with just-right practice such as occurs during repeated reading and self-graphing interventions when students have appropriate support and feedback and are using materials that are right for their reading level. These methods help students develop automaticity (Begeny & Martens, 2006; Blamey, 2008; Bowers, 1993; Flood et al., 2005; Gunter et al., 2002; Gunter et al., 2003; Gray, 2004; Hapstak & Tracey, 2007; Hicks, 2009; Kihlstrom, 2008; Kostewicz & Kubina, 2010; Kulich, 2009; Nichols et al., 2009; Piluski & Chard, 2005; Roskos & Neuman, 2014; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Walker et al., 2012; Wilson, 2012).

The next level of fluency, expressive fluency, can be achieved as students develop prosody and comprehension. While reading with prosody as well as with automaticity has been linked to improvements in reading comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz

et al., 2009), reading with automaticity alone has not been as consistently linked with similar growth in comprehension (Applegate et al., 2009; Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Hawkins et al., 2010; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Ros Albert, 2012; Schrauben, 2010; Stothard & Hulmet, 1995; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010; Young et al., 1996). Thus, the analysis of the effects of a fluency instructional focus that emphasizes prosody as well as automaticity on fluency and comprehension was deemed timely and reasonable for this study.

I chose the intervention of an instructional focus on prosody based on recent findings in literature as well as my own experience as a reading teacher. I hypothesized that providing instruction directed at improving basic fluency in terms of rate and accuracy, as well as instruction aimed at improving expressive fluency's dimension of prosody, would result in students' growth in expressive fluency. Further, I surmised that this growth would be evidenced by the significant growth in prosody and comprehension, the key components of expressive fluency, in the intervention group that would be significantly greater than students in the control group's growth in prosody or comprehension. All study participants, both in the control group and the intervention group, were expected to improve in automaticity due to just-right practice through repeated reading and self-graphing since many studies have found similar results (Begeny & Martens, 2006; Blamey, 2008; Bowers, 1993; Flood et al., 2005; Gunter et al., 2002; Gunter et al., 2003; Gray, 2004; Hapstak & Tracey, 2007; Hicks, 2009; Kihlstrom, 2008; Kostewicz & Kubina, 2010; Kulich, 2009; Nichols et al., 2009; Piluski & Chard, 2005;

Roskos & Neuman, 2014; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Walker

et al., 2012; Wilson, 2012). Students in the intervention group were expected to improve

in expressive fluency's elements of prosody and comprehension because they received

direct, explicit instruction in prosody, given that recent research has found a link between

prosody and comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012;

Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige,

2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009;

Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping,

2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009). Griffith and

Rasinski (2004) report that at-risk fourth-grade students (*n*=4) made average gains of 3.2

years in grade level reading comprehension after a year of intentional instruction in

prosody. Additionally, in 20 years of teaching students to read, I have observed a strong

link between reading with prosody and reading with comprehension. In my experience,

students with the best prosody almost unvaryingly had the highest levels of

comprehension.   Further, I have seen students' prosody improve with direct, explicit

instruction similar to that used in this study. Intervention group students' improvements

in expressive fluency (prosody and comprehension) in this study were anticipated to be

greater than improvement seen in the control group since I believed that students who

learn to read with expression would better understand their reading and have improved

comprehension.

    As applied to this study, the APP model holds that one would expect the

independent variable, an instructional focus on the prosodic dimensions of oral reading

fluency (in addition to its automaticity dimensions), to influence or explain the dependent

variables' growth in the multiple dimensions of oral reading fluency as well as growth in reading comprehension because students can become more skilled readers if they are taught to attend to expressive fluency rather than solely to basic fluency. Students have the ability to self-monitor their own fluency and comprehension, as was found in studies by McCurdy and Shapiro (1992), McDevitt et al. (2008), and Morgan et al. (2012). Thus, I posited that direct and explicit instruction on the elements of prosody, on how to identify prosodic reading done by themselves and others, on the importance of reading with prosody due to its effects on reading comprehension, as well as the provision of frequent practice in prosodic reading should result in higher levels of expressive fluency for intervention students than in control group students who were only taught to attend to basic fluency.

Purpose of the Study

The purpose of this study was to demonstrate the viability of employing an instructional focus on reading prosody to improve students' expressive fluency (prosody and reading comprehension) in order to demonstrate that the current fluency instructional emphasis on basic fluency (rate and accuracy) can be improved by including an instructional emphasis on reading prosody. This study examined the relationship between the instructional focus of fluency lessons to growth in oral reading fluency as observed in basic fluency's dimensions of rate and accuracy and expressive fluency's dimensions of reading prosody and comprehension while using instructional strategies in two treatment conditions: (a) just-right practice in the form of repeated reading and self-graphing of rate and accuracy alone, or (b) just-right practice in the form of repeated reading and self-

graphing in combination with an instructional focus on prosody, controlling for baseline fluency and baseline comprehension levels of third-grade students in a private school.

Research Methods

Research Questions

Research question 1 asked: Do the oral reading fluency skills of rate, accuracy, and prosody differ for students who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing (treatment condition 1) from those who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing plus an instructional focus on reading prosody (treatment condition 2)?

Research question 2 asked: Does reading comprehension differ for students who receive treatment condition 1 from those who receive treatment condition 2?

Research Design

The current study was a quantitative, quasi-experimental, pretest/posttest design. The study used two equivalent groups, as students were randomly assigned through matched-ability pairing to the control or experimental group. Prior to the study, the third-grade teacher ranked the students ($n=20$) in regard to their reading proficiency, which she did based on the results (raw scores) of her informal assessment using the MASI-R Oral Reading Fluency Measures and CORE Reading Maze Comprehension Test (Diamond & Thorsnes, 2008). The top two students were matched, then the next top two, then the next two, etc. One from each matched pair was randomly chosen to be in Group A (control) or Group B (intervention).

Group A received treatment condition 1. For this treatment, the classroom teacher and her assistant (both of whom were trained by the researcher and spot-checked for fidelity) conducted sessions three times per week. These sessions included a repeated reading and self-graphing intervention using AIMS-web R-CBM progress monitoring probes and were conducted for 7 weeks.

For Group B, I conducted sessions three times per week using a repeated reading and self-graphing intervention for 7 weeks using AIMS-web R-CBM progress monitoring probes. This portion of the treatment condition was conducted exactly as it was with the students in Group A. The difference for the intervention group was that I also taught a lesson on prosody during each session with the Group B students, which was in addition to the repeated reading and self-graphing done in the control group's intervention.

This comparative study investigated the effects of the independent variable, prosody as a fluency instructional focus, on the dependent variables of growth in reading fluency as indicated by rate and accuracy, growth in reading prosody, and growth in reading comprehension. Students' growth in these areas was established by comparing their baseline scores to their final assessments.

Summary of Literature Review

Although few can agree on an exact definition of fluency, most reading experts agree conceptually on various common elements when defining fluency, such as reading smoothly at a reasonable rate and with expression (LaBerge & Samuels, 1974; Reutzel & Cooter, 2012). However, in the current climate of accountability driven by high-stakes test results, fluency's easily quantifiable aspects, rate and accuracy, have come to be the only elements to operationally define fluency in the way that the construct is taught and

measured in most schools (Applegate et al., 2009; Deeney, 2010; Dennis et al., 2012; Griffith & Rasinski, 2004; Hasbrouck & Tindal, 2006; Hicks, 2009; Kuhn et al., 2010; Murray et al., 2012; Nichols et al., 2009; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2012b; Ros Albert, 2012; Samuels, 2007; Samuels & Farstrup, 2011; Valencia et al., 2010; Walker et al., 2012) to the detriment of truly fluent reading, which cannot exist when reading lacks expression and comprehension (Paige, 2012). Additionally, researchers tend to disagree on whether readers comprehend because they are fluent (Gough & Tunmer, 1986; LaBerge & Samuels, 1974) or read fluently because they comprehend in conjunction with the fact that they comprehend because they read fluently (Berninger et al., 2006; Paige, 2012; Topping, 2012).

This study sought to discover more about this connection between fluency and comprehension by exploring fluency with a multidimensional approach. An important aspect of fluency is prosody, or reading with expression. Prosody, an element in expressive fluency, has received little emphasis in American schools both in instruction and in assessment. Prosody includes reading at a proper rate and with accuracy but expands on these commonly addressed elements of fluency to include reading with proper pitch and volume, rhythm, intonation, and the proper phrasing of text that illustrates that comprehension is also taking place (Deeney, 2010; Kuhn et al., 2010; Schwanenflugel & Benjamin, 2012). Also, researchers have concluded that prosody helps comprehension occur because of the element of prosody that involves the chunking of text into more easily remembered phrases (Roll et al., 2012).

While rate and accuracy are easily measured, the assessment of prosody requires a more skilled and comprehensive approach that has been challenged by some who view

prosody assessment as difficult to complete objectively with validity and reliability (Fuchs et al., 2001). Prosody can be measured very accurately with spectrographs (Benjamin et al., 2013; Miller & Schwanenflugel, 2008) and with computer programs such as FLORA (Bolanos et al., 2013), but the equipment and expertise needed to use these are prohibitive for practical use in classrooms. Rather, most teachers who assess prosody use some sort of rating scale, such as the one used in this study, the Multidimensional Fluency Scale (Zutell & Rasinski, 1991). Researchers have concluded that with minimal training, teachers can use rating scales to measure prosody and fluency's other dimensions in an accurate manner (Rasinski, 2012a; Valencia et al., 2010). Even if precision in measurement is lost when using a scale, Kuhn et al. (2012) as well as Walker et al. (2012) argue that the tradeoff is acceptable to bring balance to fluency's assessment and assessment-driven instructional practices in schools.

Commonly used fluency instructional practices in schools are repeated reading and assisted repeated reading (including performance reading, poetry cafes, reader's theater, previewing text, peer coaching, one-on-one tutoring, phrase drills, books on tape, technology-based programs, the neurological impress method, and other methods) (Begeny & Silber, 2006; Chard et al., 2009; Griffith & Rasinski, 2004; Hapstak & Tracey, 2007; Kairaluoma et al., 2007; Kuhn et al., 2006; Lipson & Wixson, 2009; Prescott-Griffin & Witherell, 2004; Rasinski, 2000; Reutzel & Cooter, 2012; Roskos & Neuman, 2014; Samuels, 2007; Therrien et al., 2006; Vaughn et al., 2000; Zutell & Rasinski, 1991). Repeated reading and self-graphing, which were used with both the control and intervention groups in this study, have been repeatedly shown to consistently increase students' rate and accuracy (Begeny & Martens, 2006; Blamey, 2008; Bowers,

1993; Flood et al., 2005; Gunter et al., 2002; Gunter et al., 2003; Gray, 2004; Hapstak & Tracey, 2007; Hicks, 2009; Kihlstrom, 2008; Kostewicz & Kubina, 2010; Kulich, 2009; Nichols et al., 2009; Piluski & Chard, 2005; Roskos & Neuman, 2014; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Walker et al., 2012; Wilson, 2012). Whether repeated reading is as effective at helping improve students' comprehension has been less consistently documented (Applegate et al., 2009; Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Frame, 2011; Hasbrouck & Tindal, 2006; Hawkins et al., 2010; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Ros Albert, 2012; Schrauben, 2010; Stothard & Hulmet, 1995; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010; Young et al., 1996).

Some researchers have speculated that the reason rate and accuracy gains do not always correspond to gains in comprehension is that instructional methods, such as repeated reading, which are most commonly used to improve fluency, often target only rate and accuracy, while ignoring fluency's critical dimension of prosody (Basaran, 2013; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Yildiz et al., 2009). Students can read quickly and accurately without attending to the text's message, which is the point of reading. However, truly fluent reading includes all prosodic elements and is difficult to produce without some degree of comprehension. Deeney (2010) and Yildiz et al. (2009) urge that prosody must be included as an instructional focus to improve fluency and comprehension. Rasinski (2010) recommends modeling through read alouds, scaffolding through choral reading, paired reading, the use of recorded materials, as well

as providing explicit instruction in parsing and other elements of prosody. Roskos and

Neuman (2014) urge that students must be taught to parse sentences by attending to

syntax in order to comprehend challenging texts. This study sought to add to the current

literature by seeking to discover if an instructional focus on prosody could be linked to

greater gains in fluency's multiple dimensions as well as to gains in comprehension than

are found when basic fluency alone is emphasized.

Summary of Findings

This study examined the impact of an instructional focus on prosody on oral

reading fluency in terms of rate, accuracy, and prosody as well as on reading

comprehension in an ethnically diverse, intact class of third-graders (n=20) attending a

private school in a small Midwestern town. Two of the students were English Language

Learners (1 in the control group and 1 in the intervention), but neither of these students

had an Individualized Educational Plan. The students were also somewhat diverse in

terms of baseline oral reading fluency levels and reading comprehension levels (20% of

each group was below benchmark in comprehension at pretesting). Statistical analyses

indicated that the intervention did not show a significant difference between students who

received and those who did not receive an instructional focus on prosody along with

repeated reading and self-graphing on either the measures of oral reading fluency or the

measure of reading comprehension. One between (treatment) and within subjects (test

period) ANOVA indicated that treatment and interaction (treatment by test period) effects

for all dependent variables (rate, accuracy, prosody, and reading comprehension) were

not statistically significant at the 0.05 level. However, test period main effect was

statistically significant for three of the four dependent variables ($p<0.05$). No significant changes over test periods were found for accuracy.

Research question 1 asked: Do the oral reading fluency skills of rate, accuracy, and prosody differ for students who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing (treatment condition 1) from those who receive an instructional emphasis on rate and accuracy through the use of repeated reading and self-graphing plus an instructional focus on reading prosody (treatment condition 2)? For prosody ($F_{(3,60)} = 6.30$, $p= .001$, $\eta^2 =.26$) as measured by the MDFS, and rate ($F_{(1.85, 36.91)} = 13.09$, $p<.001$, $\eta^2 =.42$) as measured by the AIMS-web R-CBM, significant increases took place between test period 2 (Week 3) and test period 3 (Week 6). Research question 2 asked: Does reading comprehension differ for students who receive treatment condition 1 from those who receive treatment condition 2? For reading comprehension ($F_{(3,60)=}33.20$, $p<.001$, $\eta^2 =.65$), significant change was observed between test periods 3 and 4 as measured by the AIMS-web Maze-CBM. These results indicate that students improved in rate, prosody, and reading comprehension regardless of whether or not they received instruction on prosody. Thus, for this group of third-grade students, prosody instruction appears not to have been effective in helping students improve reading fluency and comprehension.

Discussion of Major Findings

While LaBerge and Samuels's (1974) theory of automaticity has been widely used to explain fluency, recently research has explored the inconsistent results between gains in basic fluency's dimensions of rate and accuracy and expressive fluency's dimensions of growth in prosody and reading comprehension (Applegate et al., 2009;

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Begeny & Silber, 2006; Chard et al., 2012; Edmonds et al., 2009; Hasbrouck & Tindal, 2006; Hawkins et al., 2010; Kuhn et al., 2010; Miller & Schwanenflugel, 2008; Murray et al., 2012; Neddenriep et al., 2010; Rasinski et al., 2011; Ros Albert, 2012; Schrauben, 2010; Stothard & Hulmet, 1995; Valencia et al., 2010; Walker et al., 2012; Wexler et al., 2010; Young et al., 1996). I wanted to explore whether this would better explain the relationship between fluency and comprehension, as several researchers have found a significant relationship between prosody and reading comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009). While automaticity theorists believe that automaticity leads to fluency and fluency to comprehension, other theorists such as Posner and Snyder (1975), Stanovich (1980), Chall (1983), and Topping (2012) have revised LaBerge and Samuels's (1974) model to include an understanding of the interactive nature of the entire reading process, which involves both lower and higher order processes constantly comprising recursive, feedback loops. (See Appendix A.) I chose to create the APP model to link the variables in this study. Since this study involved third-graders, most of whom are working to develop basic or expressive fluency, I chose to develop this abbreviated version of Topping's (2012) DPF model to directly address the key variables affecting third-grade readers: just-right practice, automaticity, prosody, and comprehension.

The automaticity plus prosody model is well suited to third-grade readers who are or should be developing automaticity and transitioning from basic to expressive fluency but who may not be far enough along the continuum to display the deep fluency level of Topping's (2012) model.   The use of the automaticity plus prosody model as a predictive measure was supported by the results of this study. Repeated reading and self-graphing, which were used with students in both the control and intervention groups, developed students' basic fluency through just-right successful practice that led to automaticity, as was expected in light of the many other studies that have shown similar results (Begeny & Martens, 2006; Blamey, 2008; Bowers, 1993; Flood et al., 2005; Gunter et al., 2002; Gunter et al., 2003; Gray, 2004; Hapstak & Tracey, 2007; Hicks, 2009; Kihlstrom, 2008; Kostewicz & Kubina, 2010; Kulich, 2009; Nichols et al., 2009; Piluski & Chard, 2005; Roskos & Neuman, 2014; Therrien & Hughes, 2008; Therrien & Kubina, 2007; Walker et al., 2012; Wilson, 2012). These gains in basic fluency contributed to higher comprehension and oral expression, both of which are elements of expressive fluency. These results align with the APP model.   While results were non-significant to show that an instructional focus on prosody created heightened levels of fluency or comprehension beyond what students who were simply completing just-right practice achieved, the length of the study, the small sample size, and other limitations that will be discussed may not have allowed adequate opportunity to identify differences between the groups. Additionally, students in the control group followed a natural progression along the APP model, proceeding to higher levels of expressive fluency having achieved basic fluency through just-right practice. This improvement confirmed that students' fluency and comprehension levels can be significantly raised in a short period of time (Biancarosa &

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Snow, 2006; Flood et al., 2005; Hapstak & Tracey, 2007; Kuhn et al., 2006; Neddenriep et al., 2010; Rasinski & Stevenson, 2005; Therrien, 2004; Therrien & Hughes, 2008). Students in both groups made significant improvements in both comprehension and fluency's dimensions of prosody and rate.

A potential explanation for these findings is the high levels of fluency and comprehension present among students before the study began. Their growth could have been constrained by a ceiling effect (see Figures 3, 4, 5, and 6, and Tables 4, 7, 10, and 12). High initial reading proficiency was also suggested as a factor in Rasinski, Rikli, and Johnston (2009). Since 75% of the students in the current study, as indicated in Figure 2, were at or above benchmark for comprehension on the pretest, there was less room for visible growth. Also, AIMS-web cut scores from 2013-2014 for the R-CBM indicate that an oral reading rate of 101 words per minute or more is benchmark level for third-graders during the middle of the year. The third-graders in this study were in the second semester of third grade, and all but four (two in the control group and two in the intervention group) were at or above benchmark levels for oral reading rate. Furthermore, all but four (two in the control group and two in the intervention group) received a score in prosody at 10 or above on the MDFS, which indicates that they were already at or above benchmark levels for prosody. With a sample of more than 1,000 students, Rasinski, Rikli, and Johnston (2009) found a significant association between prosody and reading comprehension, with 30-40% of the variance in reading comprehension shared with variance in fluency, but these authors believe the findings would have been even more robust if the baseline levels of reading proficiency had not been so high in the test population. I also believe that initial high levels of reading

proficiency in my sample made my study's results less robust. With such a small sample size, significant results were perhaps masked in my study due to the high levels of reading proficiency in students at pre-testing.

Another possible reason for non-significant results concerns my inability to isolate control students from prosody instruction. Over the course of the entire study, students in both the control and the intervention groups also received their regular classroom reading instruction, which included occasional lessons on elements of prosody instruction, such as how to read with expression and reading at an appropriate pace, as well as whole-class read-aloud sessions and weekly work with volunteer tutors in which students read aloud and were read aloud to by the tutors. Many best practices in prosody instruction were integrated into the classroom teacher's daily instructional practices.

Further, due to scheduling issues, I had insufficient time for full lessons in prosody with students in the intervention group. If I had had more time with the intervention group, I could have been more intentional about using best practices in pedagogy by providing time for guided practice and time for independent practice (Fountas & Pinnell, 2012; Reutzel & Cooter, 2012; Roskos & Neuman, 2014; Samuels & Farstrup, 2011). Also, as I worked with students in the intervention group, if I had been able to teach them for a longer time period, I could have held individual conferences with each child.

An additional factor also relates to short intervention sessions. If I had had more time, I would have liked to make more use of what Gambrell (2007) calls "development of both the skill and will to read" (p. 16). Teachers should provide instruction that helps students to develop skill in components of reading such as decoding, fluency, and

comprehension. However, students must also be motivated to read and to do the hard work of improving their reading skills, which necessitates that teachers consider students' will (Gambrell, 2011). In my study, students were given concrete evidence of their improvement in rate and accuracy as they calculated and tracked their growth in basic fluency. However, students were given feedback only occasionally and only orally regarding their growth in the expressive elements of fluency—prosody and comprehension. If they had been included as partners in their development in this area, by teaching them how their prosody was assessed and letting them hear and rate recordings of their reading, perhaps the intervention group would have been able to use their will to make more noticeable development (Joseph & Eveleigh, 2011; Keehn, 2003; McCurdy & Shapiro, 1992; McDevitt et al., 2008).

What is of great interest to me is the small group of students from both the control and intervention groups who were below benchmark levels for oral reading fluency rate at pre-testing. When analyzed for growth, all of these struggling readers showed improvement in each of the dependent variables, including prosody as shown in Figure 2, rate as shown in Figure 3, accuracy as shown in Figure 4, and comprehension as shown in Figure 5. Student 17, who was the lowest student in the class on every measure except comprehension, where she was in the bottom 10% of the class, was in the intervention group. This student exemplified disfluent reading, as her pretest for prosody indicated. She read haltingly, in a word-by-word manner, with numerous decoding issues and low comprehension. By the time that post-testing occurred, she was much improved in every area. Her prosody scores on the MDFS doubled by post-testing, her accuracy improved by 21%, her rate improved by 64 WCPM at an average of more than 9 WCPM per week,

and her comprehension also increased by more than 50%, putting her within benchmark levels on the AIMS-web Maze-CBM.

While the analysis of the four lowest students' growth in the dependent variables does not provide evidence that the intervention of an instructional focus on prosody is statistically significant, I observed Student 17 become increasingly engaged in the process of reading and more willing to read in front of her peers. She and many of the students in the intervention group took the knowledge they gained in prosody instruction and applied it to their reading, showing excellent expressiveness in the practice activities that were used as part of the instructional process such as reading poetry and reader's theater. The students were excited to practice with and perform for their peers. Students were frequently observed giving each other positive feedback and congratulations on progress. This growth in skill and positive engagement in struggling readers is of interest.

Another possible explanation for intervention students' positive response to intervention activities is that, as often as possible, I gave students choice of materials (Gambrell, 2007). For example, when reader's theater and poetry were used, multiple choices were presented, and students chose the ones they wished to read. Their levels of engagement and desire to improve their prosody were palpable, though not measured quantitatively in this study, which does not preclude student self-selected reading being seriously considered by teachers who daily struggle to improve student engagement and motivation in reading.

Conclusion

Through the use of the APP model, repeated reading and self-graphing, which was done with students in both the control and intervention groups, developed students' basic fluency through just-right successful practice that led to automaticity. These gains in basic fluency contributed to higher comprehension and oral expression, both of which are elements of expressive fluency. However, an instructional focus on prosody was shown to be non-significant for creating heightened levels of fluency or comprehension. This outcome is thought to be due to the length of the study, the small sample size, and other limitations, which may not have allowed adequate opportunity to identify differences between the groups, not a failure of the APP model. This can be stated with surety because this study and other studies confirm that students' fluency and comprehension levels can be significantly raised in a short period of time (Biancarosa & Snow, 2006; Flood et al., 2005; Hapstak & Tracey, 2007; Kuhn et al., 2006; Neddenriep et al., 2010; Rasinski & Stevenson, 2005; Therrien, 2004; Therrien & Hughes, 2008). The positive growth in expressive fluency is a result one would expect from students who are improving in basic fluency. In this study, I attempted to show that students whose fluency is developed in a multidimensional manner will grow in comprehension, which is supported by this study's findings, as students in both the control and intervention groups grew in comprehension and prosody as they grew in rate and accuracy. I had hoped to show that receiving instruction in prosody would provide even greater growth in expressive fluency's elements, which my study did not show; however, given the limitations of the study, dismissing this idea would be premature. In light of current research, further studies that avoid these limitations should validate the idea that prosody

instruction improves comprehension (Basaran, 2013; Binder et al., 2012; Courbron, 2012; Erekson, 2010; Hicks, 2009; Kuhn et al., 2012; Mira & Schwanenflugel, 2013; Paige, 2012; Paige et al., 2012; Penner-Wilger, 2008; Rasinski, Rikli, & Johnston, 2009; Rasinski, 2010; Ravid & Mashraki, 2007; Schwanenflugel & Benjamin, 2012; Topping, 2012; Valencia et al., 2010; Whalley & Hansen, 2006; Yildiz et al., 2009).

Limitations of the Study

Despite the strong research design supporting the APP model as well as the organization of the study, several limitations must be noted. First, three-fourths of the students in the study were reading at benchmark levels at the study's onset, which can make growth more difficult to observe. These high levels of achievement may be due to several factors. First, the school involved in the study is a private school in a university community with high levels of parent interest and support, with low student-teacher ratio (21:1), and high levels of support from volunteers within the community. More robust findings might be possible in a sample that is more aligned with the general population of students found in the nation's public schools.

Second, given that students must receive evidence-based instruction that meets required educational standards for their grade, students in the control group could not be isolated from an instructional emphasis on prosody. They were taught various lessons by their classroom teacher on how to read with expression, they heard daily classroom read-alouds, and they each read with volunteer tutors weekly. This learning most likely influenced how they did on posttest measures of fluency and comprehension in addition to any growth that occurred due to their exposure to repeated reading and self-graphing.

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Additionally, students in this study were tested using separate measures for fluency and comprehension. This may have led students to read with less prosody while completing comprehension assessments, as they had not practiced reading that type of text with prosodic reading.

Finally, the study also examined prosody in the context of the English language. Other languages have varying prosodic and other linguistic elements, which would not allow generalization from this study to other languages. Further limitations include that the treatment was of short duration (7 weeks) and teaching sessions with the intervention group were short and could not be reinforced throughout the school day.

Recommendations

The current study raises several possible recommendations for both practitioners and educational researchers.

For Practice

First, practitioners should consider repeated reading and self-graphing as effective means for improving students' fluency and comprehension even through short amounts of instructional time. These gains come with minimal investment of time or resources by educators, as this intervention is easy to implement and to sustain. Joseph and Eveleigh's (2011) meta-analysis which covered two decades of self-monitoring of reading behaviors urged that self-monitoring improves reading performance. Self-graphing is an effective way to facilitate self-monitoring.

Second, students as young as third grade have demonstrated the ability to serve as peer partners to assist in the process of repeated reading and self-graphing, so teachers

should consider the use of peer tutoring with students in lower elementary just as many do with older students. Peer tutoring is effective and can be motivational (Vygotsky, 1962; What Works Clearinghouse, 2012). Teachers should make use of peer tutoring to facilitate fluency practice and should find this method successful for many students, as is evidenced by the improvements shown in both the control and intervention groups of this study, and as found in several other studies (Calhoon, 2005; Graham, Bellert, Thomas, & Pegg, 2007; Graham, Pegg, & Alder, 2007; Griffith & Rasinski, 2004; Rasinski, 2000; Shippen et al., 2005; Vernon-Feagans et al., 2007).

However, as Therrien (2004) found, teachers should consider having an adult work with students who struggle for maximum benefits in fluency and in comprehension. When students worked with an adult, Therrien (2004) found effect sizes to be three to four times larger for fluency and comprehension. In many classrooms, adults may not be available for many students, but teachers may also find that using a more able peer tutor can be effective for buddy repeated reading since repeated reading with peers may also be facilitated by having a more able peer listen to a struggling reader during repeated reading (Vygotsky, 1962). The more able peer may be able to provide better corrective feedback than a similar-ability peer, and corrective feedback is an important factor in helping students make gains in fluency and comprehension (Therrien, 2004). Additionally, Therrien (2004) recommends teachers should have students read until a specific criterion is reached with each passage, rather than having students read a fixed number of readings as was done in this study.

Furthermore, an instructional focus on prosody should be explicit and pervasive, spread throughout students' literacy instruction and practice, and possibly emphasized in

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work within other subject areas as well. As this study and one completed by Frame (2011) demonstrates, short lessons on prosody that are not reinforced throughout the school day and the school year may be ineffective at helping students improve in comprehension.

<center>For Future Research</center>

This study also raises recommendations for future research. The current study revealed interesting results that should be studied further. Future research may produce more definitive findings if the current study is replicated in populations that are more diverse in initial reading ability, with students within public school settings, with students at other grade levels, and with students who participate in longer running interventions. Studies undertaken where interventions are interrupted by breaks in schools' schedules need to incorporate more review when the study recommences than was done in this study, as many students in the current study did not continue on the same growth trajectory in the third testing period. This immediately followed the students' spring break. Therefore, there was not the same growth as observed between the other testing periods.

Furthermore, given the promising results with students who were below benchmark levels in fluency and comprehension at baseline testing in this study, future studies should explore the use of an instructional focus on prosody, combined with repeated reading and self-graphing specifically targeting struggling readers. Therrien's (2004) meta-analysis of repeated reading has shown that this method is effective for disabled and non-disabled readers, which is corroborated by the improvements that

struggling readers made in this study with a combination of repeated reading and self-graphing with or without an instructional focus in prosody.
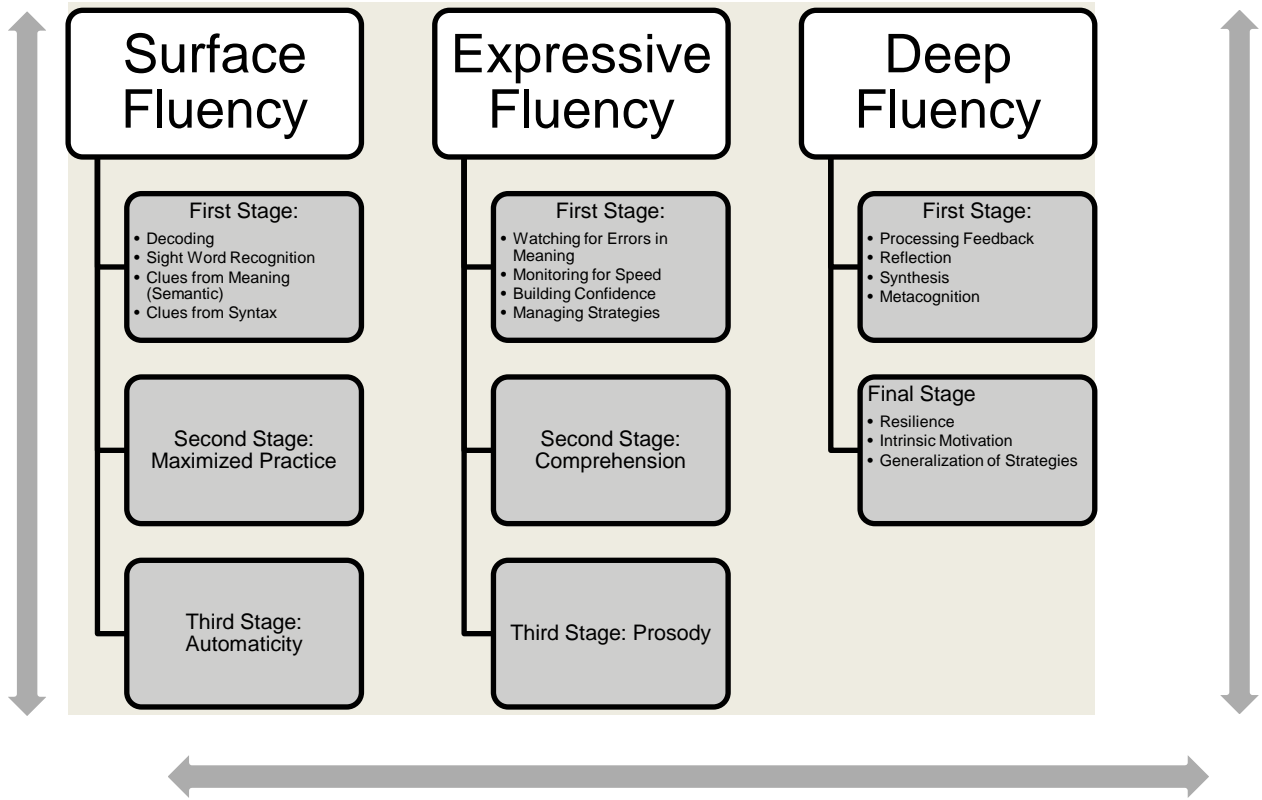
Researchers may also wish to explore whether using the same text for both fluency and comprehension assessment would possibly yield more information on the relationship between these two constructs. In this study, students' fluency was measured with the AIMS-web R-CBM while their comprehension was measured using AIMS-web Maze, which may have masked growth in each area.

Another interesting area for future researchers to explore is the relationship between peer practice and levels of engagement and motivation to read with heightened prosody, as reading with peers has been linked to gains in motivation to read as well as growth in comprehension (Gambrell, 2011). As this study and one done by McCurdy and Shapiro (1992) indicate, students in the early elementary grades can provide reliable data when monitoring their peers.

Researchers may also consider studies that target students' will by having students set goals for their reading; and few studies have been conducted in this area (Joseph & Eveleigh, 2011; McDevitt et al., 2008). Students can be guided to set reasonable goals based on their current levels compared to benchmark levels and reasonable growth rates in rate, accuracy, prosody, and comprehension (McCurdy & Shapiro, 1992). Similarly, a future study could include recording and training students to rate their own reading with a kid-friendly fluency rubric while listening to recordings of themselves. Part of such a study could include explicit instruction in the multiple dimensions of fluency as recommended by Keehn (2003). This would build on the current study as well as that of McCurdy and Shapiro (1992) by targeting students' will

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(Morgan et al., 2012) and by allowing them to be more metacognitive in their reading

through the process of helping them be cognizant of the multiple dimensions of fluency

(rate, accuracy, and prosody), and how good prosody can aid comprehension (Kuhn et al.,

2012; Mira & Schwanenflugel, 2013; Paige, 2012; Penner-Wilger, 2008; Topping, 2012).

APPENDIX A

DEEP PROCESSING FLUENCY MODEL

Surface Fluency

First Stage:
- Decoding
- Sight Word Recognition
- Clues from Meaning (Semantic)
- Clues from Syntax

Second Stage: Maximized Practice

Third Stage: Automaticity

Expressive Fluency

First Stage:
- Watching for Errors in Meaning
- Monitoring for Speed
- Building Confidence
- Managing Strategies

Second Stage: Comprehension

Third Stage: Prosody

Deep Fluency

First Stage:
- Processing Feedback
- Reflection
- Synthesis
- Metacognition

Final Stage
- Resilience
- Intrinsic Motivation
- Generalization of Strategies

Simplified version of the deep processing fluency model (Topping, 2012)

APPENDIX B

TABLE OF DEFINITIONS OF VARIABLES

Variable	Conceptual Definition	Operational Definition
Instructional focus on prosody	This instruction will be in how to read with expression and other methods of improving prosody. This instruction will occur three times per week with the intervention group. The minilessons will last five to ten minutes.	Prosody lesson delivered by researcher three times weekly for 5-10 minutes
Growth in oral reading fluency rate	The increase in the number of words read correctly on an average of three one-minute timings.	AIMS-web R-CBM Third-grade Benchmark Post-test score minus AIMS-web R-CBM Pre-test score
Growth in the multiple dimensions of oral reading fluency	The increase in the overall score on a multidimensional fluency rubric**.**	MDFS Post-test score minus MDFS Pre-test score
Growth in reading comprehension	Improvement on reading comprehension as measured on maze passages from AIMS-web.	AIMS-web Maze-CBM Third-grade Benchmark Post-test score minus Maze Pre-test score
Control Group	Third-grade students who will practice repeated reading of fluency passages with their peers. This group will record their number of words read correctly for each reading on a grid.	Third-graders (n=10) receiving control treatment of only repeated reading and self-graphing 3 times weekly.
Intervention Group	Third-grade students who will practice repeated reading of fluency passages with their peers. This group will record their number of words read correctly for each reading on a grid. This group will also receive instruction three times each week in prosody.	Third-graders (n=10) receiving intervention treatment of repeated reading, self-graphing, and lessons in prosody delivered by researcher 3 times per week.

APPENDIX C

MULTIDIMENSIONAL FLUENCY SCALE

NAME

_____

FLUENCY RUBRIC

	1	**2**	**3**	**4**
Expression and Volume	Reads in a quiet voice as if to get words out. The reading does not sound natural like talking to a friend.	Reads in a quiet voice. The reading sounds natural in part of the text, but the reader does not always sound like they are talking to a friend.	Reads with volume and expression. However, sometimes the reader slips into expressionless reading and does not sound like they are talking to a friend.	Reads with varied volume and expression. The reader sounds like they are talking to a friend with their voice matching the interpretation of the passage.
Phrasing	Reads word-by-word in a monotone voice.	Reads in two or three word phrases, not adhering to punctuation, stress and intonation.	Reads with a mixture of run-ons, mid sentence pauses for breath, and some choppiness. There is reasonable stress and intonation.	Reads with good phrasing; adhering to punctuation, stress and intonation.
Smoothness	Frequently hesitates while reading, sounds out words, and repeats words or phrases. The reader makes multiple attempts to read the same passage.	Reads with extended pauses or hesitations. The reader has many "rough spots."	Reads with occasional breaks in rhythm. The reader has difficulty with specific words and/or sentence structures.	Reads smoothly with some breaks, but self-corrects with difficult words and/ or sentence structures.
Pace	Reads slowly and laboriously.	Reads moderately slowly.	Reads fast and slow throughout reading.	Reads at a conversational pace throughout the reading.

Score _____

Scores of 10 or more indicate that the student is making good progress in fluency.
Scores below 10 indicate that the student needs additional instruction in fluency.

APPENDIX D

SAMPLE FLUENCY GRAPH

Oral Reading Fluency Graph

270

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APPENDIX E

SCHEDULE OF PROSODY LESSONS

Week 1: Whole-class lessons

Day 1: What is fluency?
Day 2: Differentiate between fluent and non-fluent reading?
Day 3: Why is it important to read fluently?

Week 2: Whole-class lessons

Day 1: Elements of Fluent Reading
- Pace
- Phrasing
- Intonation/Expression
- Punctuation

Day 2: Pace: Not Too Fast and Not Too Slow—Just-Right Pace Depends on Text Complexity
- Use miles-per-hour signs. Students decide on appropriate pace based on text.
- Students try reading sample text at varying paces and decide on appropriate pace.

Day 3: Practice with Phrasing and Intonation

Week 3: Punctuation

- Stopping at periods
- Taking breaths at commas
- Making your voice go up for question marks
- Showing excitement for exclamation points
- Using quotation marks to change voices for characters

 Day 1
1. Read aloud each group's passage to model expressive reading. (Take each instructional level group separately for this while others practice fluency.)
2. Read aloud a 2nd time, stopping to comment on phrasing, pauses, and emphasis, spending the most time on the weakest area of each student in that pair.
3. Pre-teach some words for decoding/vocabulary purposes.
4. Echo read a portion of the passage.

Day 2
1. Read passages with individual students. Make sure to stop when more modeling is needed.
2. Additional practice with peers.

Day 3
    Phrase-cued lesson (Phrasing was a difficult area for many in the group, so a whole-class lesson was taught on this element of fluency.)

1. Show where I pause using slash marks on passage while reading aloud to demonstrate.
2. Have students mark their copy and read with attention to phrase boundaries and emphasis to convey meaning.

Week 4: Phrase Cues *continued*

Day 1
1. Read aloud each group's passage to model expressive reading. (Take each instructional level group separately for this while others practice fluency.
2. Read aloud a 2nd time, stopping to comment on phrasing, pauses, and emphasis.
3. Pre-teach some words for decoding/vocabulary purposes.
4. Echo read a portion of the passage.

Day 2
1. Phrase-cued lesson
   a. Show where I pause using slash marks on passage while reading aloud to demonstrate.
   b. Have students mark their copy and read with attention to phrase boundaries and emphasis to convey meaning.

Day 3
1. Guided practice with phrase cues
2. Independent practice with phrase cues

Week 5: Expression: Reading with Feeling in Your Voice—Reader's Theater

Day 1: No Robots in Reader's Theater (Inflection and Rhythm)
- Read aloud reader's theaters to model expressive reading. Allow students to choose reader's theaters and work on part assignments using student choice and teacher judgment.
- Emphasize using appropriate inflection and rhythm.
- Practice with individuals/groups. Emphasize prosodic aspects of reading poems.

Day 2
- Practice and coaching using dimensions of fluency as a stimulus for dialogue regarding ways to improve performances.

Day 3

- Performances
- Students and teacher give positive affirmation after each reading

Week 6: Expression: Reading with Feeling in Your Voice—Reader's Theater

Day 1: Changing your voice to match a character
- Read aloud reader's theaters to model expressive reading. Allow students to choose reader's theaters and work on part assignments using student choice and teacher judgment.
- Emphasize using appropriate voice.
- Practice with individuals/groups. Emphasize prosodic aspects of reading poems.

Day 2
- Practice and coaching using dimensions of fluency as a stimulus for dialogue regarding ways to improve performances

Day 3
- Performances
- Students and teacher give positive affirmation after each reading

Week 7: Performance Reading—Poetry

Day 1
- Read aloud each poem to model expressive reading. Allow students to choose poems to practice for performance.
- Practice with individuals/groups. Emphasize prosodic aspects of reading poems.

Day 2
- Practice and coaching using dimensions of fluency as a stimulus for dialogue regarding ways to improve performances.

Day 3
- Performances
- Students and teacher give positive affirmation after each reading

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