

**The Effect of Rigby Literacy by Design on Student Reading Growth**

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## **Abstract**

The setting for this study was a Midwest suburban school district (Yar School District) outside of Kansas City. The population included 2009-2010 third graders, 2010-2011 fourth graders, and 2011-2012 fifth graders attending the Yar School District elementary schools during the 2009-2012 school years. During this time, the district fully implemented Rigby Literacy by Design. The purpose of this study was to investigate the effect of Rigby Literacy by Design on student reading growth, as measured by AIMSweb and MAP Communication Arts assessment scores. The dependent variable was measured as the difference in fluency scores from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade on the fluency portion of the AIMSweb assessments and the scale score from the Communication Arts part of the MAP state assessment. The independent variables in the study were test interval, gender, socio-economic status, race, and special education status of students.

Analyses used to address the first and second research questions revealed the main effect for test interval was statistically significant, indicating that students receiving Rigby Literacy by Design instruction had a positive mean score change as measured by AIMSweb. Gender had a marginally significant effect on reading achievement. Female scores went up from third grade to fourth grade and fourth grade to fifth grade, while male scores slightly decreased between the fourth grade and fifth grade. Free or reduced mean percentages increased from third grade winter to third grade spring and third grade spring to fourth grade fall. Unreduced mean percentages increased from fifth grade fall to fifth grade winter. However, race and special education status did not affect the

reading growth among students receiving Rigby Literacy by Design as measured by AIMSweb.

Analyses conducted to address the third research question indicated that students who received Rigby Literacy by Design instruction had positive mean score changes as measured by MAP Communication Arts assessment. Females outperformed males in third grade, fourth grade, and fifth grade, although gender and socio-economic status did not affect the reading growth among students receiving Rigby Literacy by Design instruction as measured by MAP Communication Arts assessment. Race and special education status affected the reading growth among students receiving Rigby Literacy by Design as measured by MAP Communication Arts assessment.

This study provides evidence that Rigby Literacy by Design has an overall effect on reading achievement. School systems searching for interventions that will provide growth for students who are not proficient readers have evidence regarding Rigby Literacy by Design's effect on overall reading growth. Recommendations for further research include modifying the study to include a longitudinal design to expand the length of the study, incorporating middle school students. A second recommendation is to add a qualitative component to the study, which would analyze student and teacher perceptions on small group reading instruction in a balance literacy format. A third recommendation is to expand the study to additional school districts with varying student populations.

## **Dedication**

This dissertation is dedicated to my loving and supportive husband, Shaun, who stood by me every step of the way. Your encouragement, hugs, smiles, and simply sitting by me as I worked through many nights carried me through this journey. I love you to the moon and back (the Neptune moon, not the one that is right here by Earth).

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## Table of Contents

Abstract .....	iii
Dedication .....	v
Acknowledgements.....	vi
Table of Contents .....	vii
List of Tables .....	xi
Chapter One: Introduction .....	1
Background.....	3
Statement of the Problem.....	10
Purpose Statement.....	11
Significance of Study.....	11
Delimitations.....	12
Assumptions.....	13
Research Questions.....	13
Definition of Terms.....	14
Overview of the Methodology .....	16
Organization of the Study .....	17
Chapter Two: Review of the Literature .....	18
Reading Instruction in America.....	18
Research-Based Methods of Reading Instruction.....	25
Balanced literacy.....	26
Phonemic awareness .....	27
Phonics.....	28

Reading fluency .....	30
Vocabulary .....	32
Reading comprehension.....	34
Literacy Instructional Strategies .....	36
Reading workshop .....	37
Reading aloud .....	39
Comprehension Strategies .....	40
Monitoring and revising comprehension .....	42
Schema.....	43
Questioning.....	45
Inference .....	46
Sensory and emotional images.....	47
Determining importance .....	48
Synthesis .....	49
Summary .....	50
Chapter Three: Methods .....	51
Research Design.....	51
Population and Sample .....	52
Sampling Procedures .....	52
AIMSweb Instrumentation.....	52
AIMSweb Measurement .....	53
AIMSweb Validity and Reliability .....	55
MAP Instrumentation.....	57



MAP Measurement .....	58
MAP Validity and Reliability .....	59
Data Collection Procedures.....	60
Data Analysis and Hypothesis Testing .....	61
Limitations .....	65
Summary .....	65
Chapter Four: Results .....	67
Descriptive Statistics.....	67
Data Analysis and Hypothesis Testing .....	68
Summary .....	85
Chapter Five: Interpretation and Recommendations .....	86
Study Summary.....	86
Overview of the Problem .....	86
Purpose Statement and Research Questions .....	87
Review of the Methodology.....	88
Major Findings.....	88
Findings Related to the Literature.....	90
Conclusions.....	92
Implications for Action.....	92
Recommendations for Future Research .....	94
Concluding Remarks.....	94
References.....	96
Appendices.....	104

Appendix A: Baker University IRB Request.....105  
Appendix B: Baker IRB Approval Letter .....110

## **List of Tables**

Table 1. Demographics of Third through Fifth Graders from 2009-2012.....	7
Table 2. Summary of the AIMSweb Assessment .....	54
Table 3. Reliability of AIMSweb Scores Obtained as Benchmarks.....	57
Table 4. Reliability in MAP Communication Arts .....	59
Table 5. AIMSweb Percentage by Test Interval .....	70
Table 6. AIMSweb Percentage by Gender .....	72
Table 7. AIMSweb Percentage by Socio-Economic Status.....	74
Table 8. AIMSweb Percentage by Race .....	76
Table 9. AIMSweb Percentage by Special Education Status .....	78
Table 10. Evidence of Reading Growth on MAP .....	80
Table 11. Scale Scores on MAP by Gender.....	81
Table 12. Scale Scores on MAP by Socio-Economic Status .....	82
Table 13. Scale Scores on MAP by Race .....	83
Table 14. Scale Scores on MAP by Special Education Status.....	84

## **Chapter One**

### **Introduction**

Reading in homes and schools across America has evolved over the years. Oral reading found in homes and classrooms has a rich history. This may have looked like children cuddling up to their mom or dad for a bedtime story, or a teacher gathering students on the carpet for a read-aloud. In fact, before television, internet, game stations, and cellular phones were so prevalent, reading and listening to the radio were central forms of entertainment for many children (Gambrell, 2007). Since the 1950s, extracurricular activities have increased and students' after-school time is scheduled with activities such as sports practice, music lessons, and video games leaving less time for reading (Gambrell, 2007). Becoming a fluent reader may not seem nearly as interesting as competing on an interactive video game or playing basketball with a friend. According to Weir (2009), a lack of interest in reading for leisure now extends beyond elementary schools all the way to our universities. He further explained that educators have noted that students' lack of interest toward reading is the result of time being spent internet surfing, playing video games, and becoming obsessed with their cell phones. Venezky (1999) stated that many professionals in the reading community believe that children who have interest in reading become better readers. According to Yopp and Yopp (2003), students' vocabulary, fluency, and comprehension improve when they are interested in spending time reading. As a result, lack of interest in reading could also contribute to declining student reading achievement.

Research clearly has shown that when students read meaningful text they connect to, the result is improved reading achievement. In one of the most extensive studies of

reading conducted to date, Anderson, Fielding, and Wilson (1988) studied a broad array of instructional strategies and their relationship to growth in reading. In their study, the time students spent reading was the best predictor of reading achievement and gains in student reading achievement. This study paved the way for current reading teaching practices as well as 21<sup>st</sup> century reading research. Over the last twenty-five years, educators have designated time for reading to promote reading achievement. Wells (1990) suggested that children learn to read by having meaningful, authentic reading experiences. In addition, research has strongly suggested that reading proficiency increases with the amount of time spent reading (Fountas & Pinnell, 2001).

Reading proficiency does not just affect student success in the classroom, but it can also greatly affect the future of our nation. Without high levels of literacy, children will not have the skills as an adult to be career ready. Therefore, we will be producing a nation that cannot compete globally. Buffum, Mattos, and Weber (2009) stated there would be an academic crisis headed toward public education if there are not changes made in educators' thinking regarding reading education. Kirsch, Braun, Yamamoto, and Sum (2007) also stated that there is a unique set of circumstances - educational, economic, and demographic - that may cause devastating results in America's literary future. It is imperative to the future of our schools and students that we begin to strengthen literacy instruction, support teachers through professional development, and promote higher levels of learning for American children.

The National Council of Teachers of English (NCTE) commented on how reading affects the future of students as well. NCTE (2006) found that the lower students' literacy skills, the less likely they will attain success in their employment. They further

stated, “The U.S. economy depends on developing new generations of workers who are competent and confident practitioners of complex and varied forms of literacy” (p. 4). Common Core State Standards in English Language Arts were designed to ensure that there are common state standards so all students, regardless of where they live, will be college and career ready (Common Core State Standards, 2012). In addition, with federal legislation and state mandates gradually increasing accountability for public school districts, educators are scrambling to find the golden ticket for improving reading.

Buffum, Mattos, and Weber (2009) believe that one solution to improve the future of our nation is to identify what all students need to learn and what educators will do when they do not learn (p. xix). Additionally, they stated this should result in the implementation of multiple instructional techniques to find the one that leads to the greatest growth. President Obama’s administration predicted that “nearly 80% of all public schools nationwide would miss the reading benchmarks required by the No Child Left Behind Act by the end of 2011” in reading (as cited in Chen, 2011, p.1). USA Today (2011) reported that nearly half of the United States’ public schools did not meet federal reading benchmarks during the 2010-2011 school year.

### **Background**

During the 2008-2009 school year, the Yar School District chose to have all kindergarten through fifth grade students use the comprehensive curriculum program, Rigby Literacy by Design. The Rigby program aligns with the Missouri Grade Level Expectations and provides teachers with a daily literary framework, structured whole group and small group lesson plans, resources, and assessments. According to the Yar School District’s Communication Arts Curriculum Coordinator, this program was

selected by the Yar School District because of the national research that supports its effects on student achievement (personal communication, February 3, 2012).

To ensure the efficacy of Rigby Literacy by Design, a large scale multisite study was conducted using a rigorous research design (Rigby & Steck-Vaughn, 2003). This study was conducted in a northeast Illinois school district during the 2002-2003 school year. The study took place as a pilot program to be implemented by first year elementary school reading teachers. First through fifth grade teachers from five schools in the district participated in the pilot program. Students were chosen who were considered high, medium, low, and identified as having special needs in reading. The treatment group included 144 students who received Rigby Literacy instruction. The researchers found that students made significant gains in reading achievement during the year of implementation of the Rigby program in comparison to typical results seen with the reading program that was used across the school district. The results of this study indicated that students who used the Rigby program increased in reading achievement from the beginning to the end of the study at a higher level of improvement from the control group of students.

Marzano, Pickering, and Pollock (2001) completed a meta-analysis of over 100 research studies of classroom instruction. Nine categories of instructional practice were identified as highly associated with improving student achievement: (a) identifying similarities and differences; (b) summarizing and note-taking; (c) reinforcing effort and providing information; (d) homework and practice; (e) nonlinguistic representations; (f) cooperative learning; (g) setting goals and providing feedback; (h) generating and testing hypotheses; and (i) cues, questions, and advanced organizers (Marzano, Pickering,

Pollock, 2001, p.13). Rigby Literacy by Design was created with these nine strategies in mind “because of the positive and immediate impact they have on academic performance” (Rigby, Saxon, & Steck-Vaughn, 2004, p. 4).

Rigby Literacy by Design utilizes the gradual release of responsibility, which is an effective model for preparing students to become better independent readers. For example, teachers define the comprehension skills for their students, model the methods to utilize the skill, offer guided practice, and, lastly, have students practice independently (Rigby, Saxon, & Steck-Vaughn, 2007). This is scaffolding of learning as the teacher first shows students, then assists students, and lastly encourages students to work independently. In addition, Rigby Literacy by Design uses two pathways to accelerate in reading ability. The first path is in whole-class settings where students are exposed to on-level skills and texts in a shared reading framework. The second path includes instruction in small-group settings, which is differentiated by ability with instructional level texts. The small-group setting includes teaching support for students who are English Language Learners (ELL) and struggling learners. In addition, Rigby Literacy by Design supports advanced students by creating learning targets. When there are clearly defined learning targets in reading, small-group experiences help learners get the most out of the print they read (Rigby, Saxon, & Steck-Vaughn, 2007).

The Yarrow School District, which began implementing Rigby Literacy by Design in 2009, is located in a suburb in western Missouri and is unique in a variety of ways. According to the Missouri Department of Elementary and Secondary Education School Data and Statistics (2011), the district serves K-12 students in three municipalities. The district boundaries surround more than thirty-two square miles of land. The Yarrow School



District operates two senior high schools, three middle schools, ten elementary schools, one early childhood center, one alternative school, one school for multi-handicapped students, and a vocational school that serves seven local districts. The student to staff ratio in 2011 was 19:1 with the student to administrator ratio being 207:1. Professional staff had an average of 10.1 years of experience. During the 2009-2012 school years, there was an average of 8,602 students enrolled each year. The student demographics for Yar School District grades 3 through 5 are shown in Table 1.

In the Yar School District, the white population has steadily decreased from 48.27 percent in the 2009-2010 school year to 45.94 percent in the 2011-2012 school year. The number of students who are Hispanic has remained stable over the three school years. In 2009-2010, 8.74 percent of students were Hispanic. During the 2010-2011 school year, there was a decrease in the Hispanic population to 8.19 percent, and then increasing in 2011-2012 to 8.88 percent. During the same timeframe, the black population increased from 39.16 to 41.20 percent. The number of students qualifying for free or reduced lunch continued to increase steadily from 45.10 percent in the 2009-2010 school year to 52.17 percent in the 2011-2012 school year. Additionally, the ELL population grew from 1.97 percent in 2010 to 3.26 in 2012; however, ELL numbers are not included in this study because of the small size. Lastly, the free or reduced percentage had a steady increase from 49.50 percent to 54.90 from the 2009 to 2012 school years (DESE, 2011).

Table 1

*Demographics of Third through Fifth Graders from 2009-2012*

		Grade 3	Grade 4	Grade 5
		2009-2010	2010-2011	2011-2012
Female	N	274	267	268
	%	49.91	49.72	50.66
Male	N	275	270	261
	%	50.09	50.28	49.34
White	N	265	260	243
	%	48.27	48.42	45.94
Non-White	N	284	277	286
	%	51.73	51.58	54.06
Special Education	N	86	83	89
	%	15.66	15.45	16.82
Free or Reduced	N	280	293	323
	%	0.51	0.5456	0.6105
Total	N	549	537	529

*Note.* Adapted from “Demographic Data,” by Missouri Department of Elementary and Secondary Education School Data and Statistics, 2011.

The Yar School District’s curriculum and professional development has evolved during the last three years. In a formal interview with Yar’s Communication Arts Curriculum Coordinator (personal communication, February 3, 2012), she described the changes in the Communication Arts curriculum over the last four years. During the 2007-2008 school year, teachers were implementing the Four Blocks framework

(Communication Arts Curriculum Coordinator, personal communication, February 3, 2012). Implementation of the Four Blocks framework included designated blocks of reading instruction, but the program did not provide teachers with specific instructional tools or a pacing guide. In addition, when teachers utilized the Four Blocks program, they had whole group instruction, and the teachers did not provide opportunities for small group instruction like the program suggested. Teachers were responsible for identifying strategies and planning lessons to teach the Missouri State Grade Level Expectations.

The Yar's Communication Arts Curriculum Coordinator (personal communication, February 3, 2012) stated that during the 2008-2009 school year, the district provided more support to teachers by purchasing a core-reading program, Rigby Literacy by Design. The purchase was made in the winter of 2008 and four elementary schools began implementing the program during the winter of 2009. This program provides teachers with a scope and sequence of objectives, materials, and lesson plans to follow, all of which are linked to, "scientific research findings in the area of literacy development" (Rigby, Saxon, & Steck-Vaughn, 2007, p. 4). The implementation of Rigby Literacy by Design also provided teachers an opportunity to facilitate small group instruction, in that the framework features cooperative learning through interactive reading and small group strategic reading, which helps students apply a specific comprehension strategy (Rigby, Saxon, & Steck-Vaughn, 2007).

According to Yar's Communication Arts Curriculum Coordinator, during the 2009-2010 school year all ten elementary schools fully implemented Rigby Literacy by Design (personal communication, February 3, 2012). Teachers became familiar with the programs, materials, and resources available. The teachers found that Rigby Literacy by

Design was the only program they had used that required them to use a “common comprehension strategy to link whole-class, small-group, and independent reading” (Rigby, Saxon, & Steck-Vaughn, 2007, p. 10). All students received comprehension instruction based around a particular skill. Then, teachers used small groups to teach the comprehension strategy at students’ instructional level. During independent reading, students read text on their independent reading level and practiced using the comprehension strategy. Administration had not yet implemented fidelity checks as the district first sought to increase teacher understanding of the new resources.

The focus of the 2010-2011 school year, according to Yar’s Communication Arts Curriculum Coordinator, was to ensure fidelity in the implementation of the Rigby Literacy by Design program (personal communication, February 3, 2012). District coordinators worked to ensure all schools were implementing the program with fidelity and began to provide teachers with professional development. The purpose of the professional development was to offer teachers the necessary background knowledge for reading instruction. Yar’s professional development supported the Rigby philosophy that “eight key research-based strategies form the foundation of comprehension instruction across all grade levels” (Rigby, Saxon, & Steck-Vaughn, 2007, p.10). These strategies include the following: make connections, determine importance, generate inferences, utilize fix-up strategies, create a synthesis, form sensory or emotional images, ask questions, and monitor understanding (Rigby, Saxon, & Steck-Vaughn, 2007). Teachers taught comprehension strategies while also beginning the process of implementing weekly data team meetings. During the data team meetings, teachers learned how to analyze data from assessments and use the data to guide instruction. According to Yar’s

Communication Arts Curriculum Coordinator (personal communication, February 3, 2012) the district geared all professional development days during the 2010-2011 school year toward increasing teacher knowledge in best practices in reading instruction as well as analyzing data.

The 2011-2012 school year reading focus took the curriculum to a deeper level. The focus was no longer on the implementation of Rigby Literacy by Design, but on helping teachers understand a gradual release of reading instruction. Palinscar and Brown's (1984) research supported the gradual release of responsibility in reading instruction. They noted that, "as the novice becomes more competent, the teacher increases her demands, requiring participation at a slightly more challenging level" (p. 169). Rigby Literacy by Design uses a research-based model, which supports teachers as they guide students through important skills and strategies, building layers of knowledge and ability (Rigby, Saxon, & Steck-Vaughn, 2007, p. 20). Teachers during the 2011-2012 school year began the process of implementing the research-based gradual release of responsibility to increase reading achievement of the students in their classrooms (Communication Arts Curriculum Coordinator, personal communication, February 3, 2012).

### **Statement of the Problem**

Educators must be successful in creating instructional environments that foster reading achievement for all children, especially those who have reading difficulties (Allington, 1998). According to the U.S. Department of Education (2003), since the passage of No Child Left Behind, schools are accountable for the reading proficiency of all students by the year 2014. Consequently, educators in the Yar School District were

looking for support from a reading program to help meet the needs of all readers (Communication Arts Curriculum Coordinator, personal communication, February 3, 2012). From 2009 to 2012, the Yar School District had undergone substantial changes to revise reading instructional practices to align with current research. After three years of implementation, educators in the Yar School District had not analyzed data to determine if Rigby Literacy by Design significantly affected reading growth and contributed to reading proficiency.

### **Purpose Statement**

Creswell (2009) suggested that the purpose statement indicates why the researcher wants to conduct the study and what the researcher intends to accomplish. The purpose of this study was to investigate the effect of Rigby Literacy by Design on student reading growth for 2009-2010 third grade reading, 2010-2011 fourth grade reading, and 2011-2012 fifth grade reading in the Yar School District, as measured by AIMSweb and Missouri Assessment Program (MAP) assessment scores. The AIMSweb assessment is a formative, fluency assessment given throughout the school year to assess reading gains. The MAP Communication Arts assessment is a summative state assessment. The second purpose of this study was to investigate whether the effect of Rigby Literacy by Design on the student reading achievement of third, fourth, and fifth grade students in Yar School District was influenced by sub-group membership (gender, socio-economic status, race, and special education status).

### **Significance of Study**

Lunenburg and Irby (2008) described the significance of the study as the researcher's argument that the study makes a considerable contribution to the field. The

focus in this study was instructional practices that directly affect growth in reading. In addition, this study could help the Yar School District determine if the Rigby Literacy by Design program supported reading growth over three years of implementation. At the time of this study, the Yar School District was failing to meet the national requirement for student reading proficiency according to the No Child Left Behind Act of 2001 (No Child Left Behind [NCLB], 2002). This study may assist the Yar School District, as well as districts across the nation with similar demographics, to determine whether the changes made in the reading program are increasing student success.

### **Delimitations**

Delimitations clarify the boundaries of the study and indicate to the reader how the researcher narrowed the focus (Roberts, 2004). The researcher used the following delimitations to narrow the focus: (a) the population included one public, suburban school district in Missouri; (b) the study excluded two of the ten elementary schools in the Yar School District because teachers were not implementing Rigby Literacy by Design in those two schools; (c) participants in the study were 2009-2010 third grade students who were followed through their 2010-2011 fourth grade school year and 2011-2012 fifth grade school year in the Yar School District; (d) reading progress was based on annual Missouri Assessment Program (MAP) assessments in the spring of 2010, 2011, and 2012; and (e) reading progress was based on the Academic Improvement Monitoring System (AIMSweb) fluency assessments from the winter to spring assessments in 2009-2010 and the fall to spring assessments in 2010-2011 and 2011-2012 for students who attended Yar all three years.

## **Assumptions**

“Assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research” (Lunenburg & Irby, 2008, p. 135). The researcher assumed that all Yar School District elementary classroom teachers, at the eight elementary schools included in the study, were provided with professional development by the Yar School District that was consistent in quality. A second assumption was that all teachers implemented Rigby Literacy by Design with fidelity. A third assumption was that all teachers provided the same quality of instruction to their students. A fourth assumption was that all students were motivated to perform their best on the assessments. Next, it was assumed that the researcher did not make mistakes during the collection of the data. Finally, it was assumed that the data were correctly entered into an Excel spreadsheet and uploaded to the IBM® SPSS® Statistics Faculty Pack 21 for Windows (SPSS).

## **Research Questions**

According to Creswell (2009), research questions derive from the broad, general purpose statement to more focused, specific questions. The following research questions guided this study:

1. To what extent is there an effect on students’ reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by Design is fully implemented?
2. To what extent is the effect of fully implementing Rigby Literacy by Design on students’ reading, as measured by AIMSweb assessment scores, influenced



by sub-group membership (gender, socio-economic status, race, and special education status)?

3. To what extent is there an effect on students' reading, as measured by changes in Missouri Assessment Program Communication Arts scale scores, when Rigby Literacy by Design is fully implemented?
4. To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by changes in MAP Communication Arts scale scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?

### **Definition of Terms**

The following terms were defined for the investigation:

**AIMSweb.** “AIMSweb is a benchmark and progress monitoring system based on direct, frequent, and continuous student assessment. The results are reported to students, parents, teachers, and administrators via a web-based data management and reporting system to determine response to intervention” (Pearson, 2010, p. 1). AIMSweb is a computerized assessment, data management, and reporting system that provides tools necessary for multi-tiered instruction.

**Annual yearly progress (AYP).** The minimum student achievement levels schools are expected to make annually, according to an accountability system mandated by the No Child Left Behind Act of 2001, defined by individual states, and approved by the U.S. Department of Education (Buffum, Mattos, & Weber, 2009).

**Communication arts.** According to Rigby Literacy by Design (2008), three major components comprise the district's reading program. Modeled reading, shared

reading, and interactive reading make up the whole class reading component.

Additionally, small group strategic reading and independent reading make up the remainder of the reading block. For the purpose of this study, Communication Arts does not include writing, speaking, or listening.

**Core curriculum.** Core curriculum is the basic course of study deemed critical and usually made mandatory for all students of a school system. The core curricula are often established by school boards, state departments of education, or other administrative agencies and must be scientific and research-based (Buffum, Mattos, & Weber, 2009, p. 206).

**Direct instruction.** “The teacher defines and teaches a concept, guides students through its application, and arranges for extended guided practice until students achieve mastery” (Glaser & Moats, 2008, p. 180).

**Fidelity of implementation.** Fidelity of implementation occurs when instruction is delivered in the way in which it was designed to be delivered (Gresham, MacMillan, Boebe-Frankenberger, & Bocian, 2000).

**Independent reading.** Independent reading is on the students’ reading level and is done voluntarily or for pleasure, rather than to develop skills or complete class assignments. The term independent reading is also used to refer to reading that is done without any assistance (“Glossary of Education”, n.d.).

**Missouri assessment program (MAP).** MAP is a series of assessments for Communication Arts, Mathematics, and Science at grades 3-8; and Communication Arts, Mathematics, Science, and Social Studies in high school. The assessments are designed to assess if students in Missouri are meeting the Show-Me Standards (Department of

Elementary and Secondary Education, 2011). For the purpose of this study, the Communication Arts assessment was utilized.

**No Child Left Behind (NCLB).** The No Child Left Behind Act of 2001 is a United States Act of Congress that concerns the education of students in public schools. George W. Bush proposed NCLB immediately after he took office. NCLB sets high standards, along with measurable goals, to improve the outcome of education. An annual assessment is given by each state to measure progress (No Child Left Behind [NCLB], 2002).

**Reading fluency.** Rasinski (2012) defines fluency as “the ability to read accurately, quickly, expressively, with good phrasing, and with good comprehension” (p. 1).

### **Overview of Methodology**

A quantitative research design was utilized for this study to help determine whether Rigby Literacy by Design’s small group reading instruction, along with appropriately leveled text during whole group and small group instruction affect students’ reading achievement. The population of this study included a cohort of fifth grade students. These students were 2009-2010 third graders, 2010-2011 fourth graders, and 2011-2012 fifth graders in the Yar School District. The researcher used archived district data for this study. The AIMSweb data, MAP Communication Arts data, and demographic data were input into an Excel spreadsheet by the researcher and analysis of variance was used to test the hypotheses.

## **Organization of the Study**

Chapter one included an introduction of the study, the problem statement, and background information for the Yar School District. The significance, purpose statement, delimitations, and assumptions of the study were provided. The research questions and definitions of terms were identified. The final component of chapter one was a brief overview of the methodology. Chapter two presents a review of the literature that provides an overview of the history of developments in reading and best practices in reading. In addition, research on Rigby Literacy by Design will be presented. Chapter three provides the research design, population and sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis testing, and concludes with the limitations of the study. Chapter four includes the descriptive statistics, hypothesis testing, and additional analyses when appropriate. Chapter five focuses on the findings related to the literature, conclusions, implications for action, and recommendations for future research.

## **Chapter Two**

### **Review of Literature**

Hess and Petrilli (2006) described No Child Left Behind (NCLB) as one of the most influential pieces of federal legislation in the history of America for growth expectations in reading. NCLB legislation was designed to ensure proficiency of American students in the core subject areas of mathematics, science, and reading by the year 2014. As teachers look to find the answer for students not reaching reading proficiency, it is important to investigate what research states is the most effective means to facilitate growth in reading.

This chapter, which is divided into three sections, presents the literature relevant to small group instruction and reading achievement. First, a historical perspective on reading instruction in American society is presented. Second, research based methods of reading instruction are discussed. The methods included are aligned with the literacy instruction components of Rigby Literacy by Design. Third, effective models of literacy instruction are investigated.

#### **Reading Instruction in America**

In the 20<sup>th</sup> century, from roughly 1935 to 1965, the look-say approach gained momentum. This approach introduced high-frequency words, which were practiced in stories, and then phonics instruction based on the words already known. Look-say is also synonymous with whole word or sight-reading. In the 1960s, approximately 90% of students learned to read using the look-say approach (Pearson, 2002).

The Carnegie Corporation of New York solicited Jeanne Chall, who was an established reading researcher, to determine how best to teach reading. In her book,

*Learning to Read: The Great Debate*, Chall (1967) shared her belief that early goals of reading should include comprehension, interpretation, application, and word recognition. Through decoding, students are able to obtain stronger word recognition and the ability to spell fluently. Decoding, she found, also supported students in furthering their comprehension. Furthermore, Chall (1967) believed that children should use texts repeatedly to ensure mastery. In fact, she found that student knowledge of letters and sounds has a larger influence on reading achievement than mental ability.

By the 1960s, workbooks accompanied by skill-based lessons became more elaborate (Pearson, 2002). Teacher manuals became more sophisticated and were as long and detailed as the student text. The basal material was still carefully controlled as students read stories and practiced skills. For example, in the early readers, vocabulary was sequenced in a specific order of decreasing frequency of word usage. This still supported the whole-word or look-say characteristics. Additionally, students were seen as receiving knowledge from their teachers. Silent reading and comprehension activities were on the rise; however, comprehension was still viewed as the product of decoding and listening (Pearson, 2002).

By the mid 1960s, Lyndon Johnson's Elementary and Secondary Education Act brought funding to schools through a program called Title 1. This program focused on the right of each child to learn to read. Americans were optimistic that new answers would be available about teaching reading. The Cooperative Branch of the United States Office of Education funded an elaborate study, known simply as *The First-Grade Studies* (Bond & Dykstra, 1967). Findings from 27 individual projects conducted from 1964-1967 established which approaches to reading instruction produced the highest level of

reading proficiency and spelling fluency by the end of first grade. Although classroom research demonstrated that students who were taught phonics had a stronger foundation for reading than children who were not taught phonics, there was still not one instructional method that prevailed. There was considerable variation among classroom teachers employing a particular method of reading instruction, as well as the actual methods used. Therefore, Dykstra (1968) wrote, “Reading instruction is more likely to improve as a result of improved selection and training of teachers, improved in-service training programs, and improved school learning climates, rather than minor changes in instructional materials” (p. 66). Following Bond and Dykstra’s (1967) study, basals were never utilized in quite the same way.

Between the 1970s and 1980s, basal programs debuted again, but were drastically different from those of the 1930s to 1960s. Phonics with sight words made a comeback at the beginning of first grade. Scott Foresman’s *Dick and Jane* books were retired from first grade curriculum and replaced by reading with a wider array of stories and characters. By the 1970s, more of the selections used in a classroom were adaptations of children’s literature rather than stories that fit a readability formula. Students were assessed on single-component tests such as each phonic skill, each comprehension skill, alphabetical order, etc. (Pearson, 2002). Through the 1970s, teachers used their basal manuals to pour knowledge upon students. Students were merely considered recipients of learning versus active participants.

In the 1970s, researchers began to systematically study reading in a scientific manner (Marzano et al., 2001). Before this time, researchers did not feel the need to look at the effects of reading instruction because school was not considered to make a

significant difference in students' reading ability (Marzano et al., 2001). The National Assessment of Educational Progress (NAEP) was administered for the first time in the late 1970s. At that time, policymakers began to recognize the scope and nature of reading problems in American society (Glaser & Moats, 2008). Glaser and Moats (2008) stated that national concern had escalated, as higher levels of literacy became an expectation in the workplace. "At the beginning of the 1970s, however, researchers began to look at the effects of instruction on student learning" (Marzano et al., 2001, p. 1). At this time, reading continued to attract scholars from multiple fields. "Reading is considered by so many to be a key to success in other endeavors in and out of school" (Pearson, 2002, p. 429) and it appeared as if educational researchers could have it all wrong. For example, linguists took on reading research, as they wanted to convince others that reading was a language process that closely aligned with writing, speaking, and listening. Psycholinguistics began to study language with complex theoretical tools that were firmly established. They found that children did not imitate written language; however, they participated in language where they created their own rules about how language worked. Research demonstrates how vital the ability to read is for economic and social well-being (Glaser & Moats, 2008). "Simply put, if students don't read well, they are less likely to succeed in life" (p. 9).

In 1976, the National Institute of Education issued a Request for Proposal (RFP) expressing the need for a study in reading regarding comprehension (Durkin, 1978-1979). Up until this point, a significant amount of research had been conducted on decoding, but much less was known about comprehending written text. Through observations, Durkin (1978-1979) had seen very little instruction in the area of reading comprehension in



classrooms. Once students reached third grade, the amount of time given to reading instruction was decreasing while the amount of written assignments was increasing. This was true for even the most proficient readers. Durkin (1978-1979) stated that comprehension instruction has transfer value, which helps children connect text not used during daily instruction. Teachers could use questioning for comprehension instruction as long as it was advancing children's comprehension ability. On the other hand, if questioning was used as a way to determine 'right or wrong', this was merely an assessment of comprehension. Durkin (1978-1979) found that teachers were mere "mentioners" of comprehension versus facilitators (p. 573). Problems specific to the instruction of reading comprehension were evident and the solution was not easy. Thorndike (1973) conducted an international study, which compared comprehension test scores. The author concluded that there was "little guidance for the improvement of the educational enterprise" (p. 99). It appeared as if a common definition of comprehension instruction was missing.

In the late 1980s, literature became an explosive component in reading curriculum (Pearson, 2002). In the publication, *Becoming a Nation of Readers*, Anderson, Hiebert, Scott, and Wilkinson (1985) and their colleagues documented how important it was just for students to read as a critical component of all reading programs. The movement led to increased amounts of children's literature published annually. Additionally, Atwell's (1987) publication told her story regarding work with middle school students. She introduced her work with reluctant middle school readers and shared how she invited them into the world of reading. Her writing was persuasive in convincing thousands of classroom teachers to implement reading workshops versus basal programs.

Soon after, comprehension questions were replaced with reflective responses to literature activities through book clubs or literature circles. “The underlying logic of book clubs is the need to engage children in the reading of literature in the same way as adults engage one another in voluntary reading circles” (Pearson, 2002, p.1). Such structures were found likely to increase participation and motivation as students learned to appreciate the text they were reading.

As whole language emerged, basal texts showed dramatic changes in the 1990s. Whole language was considered one of the most significant movements in reading curriculum in the last 30 years (Pearson, 2002). The whole language approach to reading instruction put comprehension, literature-based reading, integrated instruction, and process writing into practice. This movement was quickly confused with the mindset that whole language meant that all students get the same thing through the same text. When, in fact, the idea was quite different. Teachers were to observe children during reading, diagnose what they needed, and arrange learning to allow students to discover those insights in reading and writing (Pearson, 2002).

Understanding this research, reading instruction must be strengthened to impact the future of our nation in a positive manner. Teachers must become empowered and fight to ensure high levels of learning for all students in literacy. American society is aware of the number of people who have trouble reading and the social consequences that are associated with not learning to read well (Glaser & Moats, 2008). In fact, “In the year 2003, 22 percent of all adults in the United States were functionally illiterate” (p. 9). According to Kirsch, Braun, Yamamoto, & Sum (2007), there are three forces that will most likely affect America’s future. The first is wide disparity with literacy and

numeracy skills among school-aged and adult population. Second, the labor market is very different from that of earlier years due to technology changes. Lastly, the demographic changes will result in an increasingly more diverse America. According to the authors, “We must raise our learning levels, increase our reading and math skills and narrow the existing achievement gaps, or these forces will turn the American Dream into an American Tragedy — putting our nation at risk” (Kirsch, Braun, Yamamoto, & Sum, 2007, p. 1).

The American population continues to become more and more diverse as immigration to the United States has increased rapidly since the late 1980s (Kirsch, Braun, Yamamoto, & Sum, 2007). Between 2000 and 2005, “two thirds of U.S. labor force growth and 86% of net employment growth have been created by new immigrants” (Braun, Yamamoto, & Sum, 2007, p. xviii). Naturally, students who are immigrants are not nearly as proficient on literacy assessments as students who were born in America. Many of the immigrant students are not able to speak English when they enter schools. On the International Adult Literacy Survey given in 1995, immigrants’ average proficiency scores were more than one standard deviations lower than nonimmigrants’ scores (Sum, Kirsch, & Yamamoto, 2004). The National Center for Education Statistics conducted a study released in 2012 comparing American students to top-performing nations. “Even where U.S. student scores have improved, many other nations have improved much faster, leaving American students far behind many of their peers—especially in Asia and Europe” (Lederman, 2012).

In 2003, approximately 22% of American adults possessed minimal literacy skills (NCES, 2007). This means that they had trouble reading the newspaper, prescription

bottles, and instruction manuals. Furthermore, Fletcher, Lyon, Fuchs, & Barnes (2007) stated that approximately 17 to 20% of our student population was at serious risk for reading problems if they did not receive interventions. Glaser and Moats (2008) stated that if students are not at the 40<sup>th</sup> percentile or above on reading assessments in the primary grades, they are more at risk for failing high-stakes assessments that are administered across the nation in intermediate grades. According to the NAEP, approximately 36 to 38% of fourth graders in the United States are considered “below basic” on their reading skills (NCES, 2005). This “below basic” rate is even larger in high-poverty, minority populations. Some of the high-poverty, minority populations have as many as 70% of their fourth graders reading below proficiency (NCES, 2005).

### **Research-Based Methods of Reading Instruction**

In the last century, scientific-based research has transferred to the field of education. “Up until about 30 years ago, teaching had not been systematically studied in a scientific manner” (Marzano et al., 2001, p. 1). In education, scientific-based research has just recently begun to affect decision-making. “A science-based approach can reduce the influence of politicians, parents, school board members, and others and increase the influence of reading experts and teachers” (Vaughn & Linan-Thompson, 2004, p. 4). Identifying reading strategies that are research-based is useful in seeing significant results. Students become more knowledgeable, capable, and informed citizens when their instruction is based upon research (Vaughn & Linan-Thompson, 2004). If teachers want to accomplish national reading goals, they must start on the road to effective research-based reading practices with their students. “The first years of school establish an essential foundation of literacy that enables all future literacy achievement” (Fountas &

Pinnell, 2001, p. 2). When students are in intermediate grades, teachers use their primary grade foundation to develop literacy skills to serve them throughout their lifetime.

**Balanced literacy.** Debates regarding the issue of reading instruction have been ongoing for decades, maybe even centuries. According to Morrow, Gambrell, and Pressley (2003), a century ago the debates were about ABCs versus analytic phonics. Right after World War II, the debate focused on look-say versus phonics. In one way or another, the debate has always been about the emphasis during the earliest stages of formal reading instruction (Morrow, Gambrell, & Pressley, 2003).

Since the publication of the Report of the National Reading Panel (2000), most policy documents, assessment frameworks, and reading programs have subscribed to the idea that there are “five essential components” in reading instruction programs that most likely foster success across the range of student abilities. According to Glaser and Moats (2008), the five essential components in reading instruction that make up a balanced literacy approach are phonemic awareness, phonics, reading fluency, vocabulary, and reading comprehension. Rigby Literacy by Design implements the balanced literacy approach to instruction and includes each of these components.

In Carr’s (2007) quasi-experimental, nonequivalent control-group design study in Baltimore, Maryland, reading achievement of two first grade classes was measured. Using the Developmental Reading Assessment (DRA), a baseline reading level was established for each student in the sample of 37 students. The treatment group received balanced literacy instruction for six weeks. Balanced literacy approaches acknowledge that there is not a single way to help students obtain reading growth. In addition, in a balanced literacy environment, teachers made reading and writing more personal and

meaningful. Cultures and customs of students may be considered to help facilitate a love for reading. The control group received skills-based, basal instruction, consisting of spelling, phonics, and other isolated decoding skills. The treatment group showed a significant increase in ability from the skills-based group when comparing students' reading growth. The results of this study further supported that balanced literacy instruction had a positive effect on student reading growth in comparison to basal instruction. Additionally Carr found that students are individuals and learn accordingly. Furthermore, he determined that using a balanced literacy approach that individualizes instruction can help raise reading achievement.

**Phonemic awareness.** When words are spoken, they are the combination of sounds in speech. Phonemic Awareness is the awareness of speech sounds, and the ability to manipulate the sounds to form words (Harcourt Achieve Inc., 2008). Phonemic awareness influences outcomes in word recognition and comprehension for all students (Vaughn & Linan-Thompson, 2004). After analyzing more than 52 peer-reviewed experimental studies, the National Reading Panel (2000) concluded that when combined with instruction on letter names, there are considerable positive benefits from specific instruction in phonemic awareness. Instruction in phonemic awareness stimulates language learning, which will help students build meaningful associations so that they can make sense of how to best later use phonics when reading (Harcourt Achieve Inc., 2008). This supports the idea that “phonemic awareness is a vital link to the success of every reader” (Ellery, 2005, p. 23).

Explicit instruction in phonemic awareness is beneficial for most beginning readers, particularly those who have reading difficulties and English Language Learners

(Vaughn & Linan-Thompson, 2004). The National Reading Panel Report (2000) indicated that phonemic awareness significantly helps students who are identified as having a disability. Furthermore, students with reading deficiencies, younger students, students with various socio-economic statuses, and English Language Learner (ELL) students all benefit from phonemic awareness. The National Reading Panel Report (2000) pointed out that students, who know how to read and spell proficiently, know how to segment words into phonemes and then blend phonemes into words.

In Strout's (2008) qualitative study that included kindergarten teachers in five Florida school districts, the relationship between knowledge and skills of phonemic awareness and students' emergent literacy development were analyzed. Using the Phonemic Awareness Knowledge Survey (PAKS), teachers' knowledge about phonemic awareness pedagogy was assessed. The assessment measured the ability of the teacher to manipulate and identify phonemes in words. The results indicated that teachers lacked the basic knowledge of phonemic awareness instruction and skills, which, in turn, affected instruction. Teachers with higher educational levels performed better on the PAKS and PASS (Phonological Awareness Skills Screener). Additionally, teachers who had early childhood certification had a higher mean score on both the PAKS and PASS. Although the researcher was unable to find a direct connection between teacher phonemic awareness knowledge and students' literacy development, he concluded that teachers who scored higher on the PAKS and PASS were better prepared to teach phonemic awareness.

**Phonics.** "Phonics is a component of reading and writing that involves the reader's ability to synthesize, analyze, contextualize, pattern, spell, and recognize words"

(Ellery, 2005, p. 47). Students who are able to read and pronounce words by identifying a sound with each letter have the basis for literacy. The goal of phonics instruction is to help students see the relationship between letters and sounds. “To learn to read and spell using phonics, students have to learn the relationship between letters (graphemes) and sounds (phonemes), and then remember the exact letter patterns and sequences that represent various speech sounds” (Moats, 2000, p. 30). An effective phonics program includes direct teaching of the sounds associated with letters. “Phonics instruction provides key knowledge and skills needed for beginning reading” (Vaughn & Linan-Thompson, 2004, p. 31). Similar to other reading components, phonics cannot be the entire reading program. Instead, phonics should be integrated with other elements of reading instruction. Focusing only on phonics, students understand how to decode, but are lacking the comprehension for what they read. “There should be a balance between phonics instruction and good comprehension teaching” (Diller, 2007, p. 136). Phonics is an important part of reading, but it is not the ultimate goal for readers. Stahl (2001) stated, “Early and systematic instruction in phonics seems to lead to better achievement in reading than later and less systematic instruction” (p. 333).

Throughout the history of reading instruction, phonics has consistently been a topic of debate (Smith, 2002). One well-known review of research concerning reading comprehension and phonics was Chall’s (1967) *Learning to Read: The Great Debate*. She concluded from her comprehensive review that explicit phonics instruction leads to improved reading comprehension. Additionally, in the report *Becoming a Nation of Readers*, Anderson et al. (1985) concluded that “on the average, children who are taught



phonics get off to a better start in learning to read than those who are not taught phonics” (p. 37).

In Gottshall’s (2007) experimental study, she found that policy makers and educators have made progress toward reading achievement across America; however, 60% of boys who live in poverty are still either unable to read or two plus years below grade level. Gottshall examined a reading intervention program with a phonics-based approach to determine if there would be an increase in reading achievement of low performing, rural, first grade boys. Participants were sixteen volunteer first grade teachers and 64 randomly selected, low performing, first grade male students in a rural Texas school district. Participants in the study were selected due to their state assessment scores, gender, and socio-economic status and then randomly assigned into an experimental or control group. Over a 15-week period, experimental group students were pulled out for a 30-minute session taught by trained professionals in addition to their classroom reading instruction. Control group members only received classroom reading instruction. The findings revealed that although there were not significant gains across all reading variables, descriptive data indicated higher percentage of gains in the experimental group in four out of five reading components. Additionally, the data demonstrated that Hispanics were more likely to benefit from the phonics-based approach.

**Reading fluency.** According to Ellery (2005), “fluency represents a level of expertise in combining appropriate phrasing and intonation while reading words automatically” (p. 77). When students begin to read quickly and accurately, they become readers that are more fluent. “Fluency is the accurate and rapid naming or reading of

letters, sounds, words, sentences or passages” (Vaughn & Linan-Thompson, 2004, p. 50).

In addition, fluency is not merely speed. Fluency is also a combination of several factors - rate or speed, prosody or phrasing, expression, intonation, and pacing (Diller, 2007).

When readers are focused on decoding an unknown word within the text, they begin losing the meaning of the passage. Once a neglected part of reading instruction, fluency is considered a critical component to a balanced literacy program (Rigby Literacy by Design, 2008a). Teachers facilitate reading fluency by providing students with opportunities for repeated oral reading. Teachers can facilitate fluency growth by ensuring students are reading texts that are matched to their ability. In addition, systematic practices should be in place in classrooms to monitor student fluency progress. According to the National Reading Panel (2000), fluency develops from practice.

Fluency instruction may be the missing element in reading instruction for many reading teachers. Johns and Berglund (2006) stated that, “modeling, demonstrating, and thinking out loud are some of the explicit actions teachers can take to help students become fluent readers” (p.19). With the focus typically being on accuracy and comprehension, few educators have learned to teach students to read with prosody. “However, we have learned that fluency is an essential element that bridges the gap between word recognition and comprehension” (Vaughn & Linan-Thompson, 2004, p. 51). Providing students with structured time to read without implementing practices that improve fluency is unlikely to improve a reader’s speed, accuracy, or prosody in reading.

Rasinski (2004) discussed the “reader’s ability to develop control over surface-level text processing so that he or she can focus on understanding the deeper levels of meaning embedded in the text” (p. 46). He identified three dimensions of reading

fluency that help build the bridge to reading comprehension. The first dimension is accuracy in word decoding. Readers must know how to sound out words within a text with minimal errors. This dimension refers to phonics and other decoding skills. The second dimension is automatic processing. When readers use as little mental effort as possible to decode, they are better able to use cognitive resources to make meaning of the text. The third dimension is prosodic reading. If readers merely read quickly and accurately with no expression or sense of phrasing and ignore punctuation, it is unlikely they will fully comprehend the text. Additionally, Rasinski (2004) warned of the corruption of the concept of reading fluency where teachers have students practice reading quicker and quicker. This emphasis on speed over meaning can be detrimental to prosody and meaningful reading.

Egmon's (2008) quantitative study of first grade students was conducted in a rural school district in the southwestern part of the United States. The sample of this fluency study included 262 first grade students. For the purpose of the study, the researcher used the Texas Primary Reading Inventory (TPRI) to examine reading accuracy, reading fluency, and reading comprehension. There was a strong positive relationship between reading fluency and reading comprehension. In addition, students with low reading fluency scores had low reading comprehension. For first grade students, fluency and comprehension were related.

**Vocabulary.** Ellery (2005) found that "students need many opportunities for developing a rich vocabulary through listening, speaking, reading, and writing in an integrated manner" (p. 106). Vocabulary knowledge influences both comprehension and fluency. Receptive vocabulary is a valuable component of reading instruction. As

students begin to understand word meanings and how words are placed in text, they also begin to strengthen their comprehension of the text. Students develop receptive vocabulary when they listen to others speak and begin using similar words themselves. “Vocabulary is such an important part of comprehension” (Diller, 2007, p. 162). In addition, reading vocabulary is developed when students are actually reading text themselves and becoming familiar with words.

There is a significant discrepancy in vocabulary knowledge among learners from different socio-economic groups from toddlers to high school students (Beck, McKeown, & Kucan, 2002). Beginning with young readers, teachers can make a vast difference in vocabulary knowledge. Vaughn & Linan-Thompson (2004) stated that teachers can teach words and their meanings, provide students with opportunities to practice with key vocabulary, practice with word knowledge, and read and listen to texts. Teachers who provide systematic and explicit instruction in vocabulary will see large improvements in their students’ proficiency on state-mandated accountability assessments. Teachers need to teach words that enhance vocabulary choices, not reiterate words that students already know. Proven criteria for vocabulary instruction are as follows: provide multiple exposures, use the vocabulary words in interactive discourse, and teach vocabulary so that learning one word leads to learning many words (Glaser & Moats, 2008).

In Rausch-Aviles’ (2011) quasi-experimental study conducted in a low socioeconomic suburban school district in Pennsylvania, 53 fifth and sixth grade struggling readers were assigned to one of three treatment groups designed to improve their vocabulary knowledge. One group focused on word mapping where they found the definition and synonyms, wrote a sentence, and drew an illustration of the targeted word.

The second group received guided reading where they were presented with four different reading passages and asked to focus on and define the targeted words. The third group used flashcards and practiced to learn the targeted words. The researcher was trying to determine if word mapping, guided reading, and flashcard treatments had a significant effect on vocabulary knowledge. There were significant differences during the post-test among the three groups for word recognition and fluency. The statistical analysis indicated that there were significant effects on vocabulary knowledge in all three treatment groups. Additionally, reading fluency was affected in the guided reading and word mapping groups. The researcher concluded that repeated experiences with vocabulary are essential to the retention of word knowledge.

**Reading comprehension.** “Comprehension is the active process of constructing meaning from text” (Vaughn & Linan-Thompson, 2004, p. 98). Reading comprehension involves accessing prior knowledge, understanding vocabulary, making inferences, and linking key ideas. “Comprehension is the essence of reading; therefore, teachers should weave comprehension strategies into their everyday teaching across the curriculum” (Ellery, 2005, p. 141). Comprehension does not come through rote instruction. Instead, it requires the simultaneous use of a series of strategies that enables students to understand text. For example, students must be able to construct meaning during and after reading, understand facts and opinions, and draw logical conclusions. The most effective methods for teaching students how to comprehend text are those that foster active response, either written or spoken (Glaser & Moats, 2008). The teacher’s role is to ensure that students participate actively prior to reading, utilize strategies and skills during reading, and then provide time for students to reflect on the author’s intent and

bring their own meaning to the text. “Teachers who provide systematic and explicit comprehension instruction will see real gains in their students’ progress on these assessments, and will enhance their students’ joy in reading” (Vaughn & Linan-Thompson, 2004, p. 100).

For reading programs to be adopted in many states and districts, thorough and informed instruction surrounding each of these five components is required. In a balanced literacy program, teachers should focus and practice the five components of literacy in isolation, as well as in context (Routman, 2003). In the development of lifelong readers, it is imperative for students to know how to apply reading skills to make meaning from the text. According to Routman (2003), readers must know how to use their reading strategies and understand how the reading strategies fit into the bigger picture of literacy.

Kong (2009) conducted a quantitative study in a large inner city school district. The district served a third grade population of 865 special education students with low reading performance. Teachers of third grade special education students were taught strategies to strengthen reading comprehension. Kong (2009) examined whether the instruction of comprehension strategies raised the reading proficiency of the students, as measured by the state assessment. Post assessment data revealed that students who were a part of the study showed statistically significant gains in reading achievement. The results also indicated that teaching reading comprehension strategies to third grade special education students is a highly effective approach to strengthen reading comprehension skills (Kong, 2009).

## **Literacy Instructional Strategies**

Establishing an environment that is conducive to learning is essential when developing an effective model for literacy instruction (Ellery, 2005). Ellery (2005) further suggested the use of a comprehensive literacy block as a teaching framework in reading. The block should include a minimum of ninety minutes of literacy instruction (Ellery, 2005). Successful literacy structures will provide students the opportunity to learn to use effective components of reading instruction such as phonemic awareness, phonics, fluency, and comprehension. Typically, a full literacy curriculum includes the following component structures: reading aloud, reading workshop, independent literacy, word study, assessment, and work with struggling readers (Calkins, 2001; Ellery, 2005; Fountas & Pinnell, 2001).

In McKenna's (2008) western New York case study, an analysis and execution of an early literacy intervention program was conducted with fourth grade students. The fourth grade New York State English Language Arts assessment results created interest in this case study because 55% of the fourth grade students who took the exam were one to two grade levels behind. These students were identified as being in need of an academic intervention support. A balanced reading and writing program was implemented after such poor results were indicated on the state assessment. Teachers were provided professional development on a balanced literacy approach. Additionally, an analysis of the effect of the balanced literacy approach was completed based on the reading achievement of students over a five-year period. The study revealed that the balanced literacy approach had a positive effect on student reading achievement. State testing data revealed the majority of the identified students who received balanced literacy instruction

reached the proficiency level on the New York State assessment. This was considerable improvement from the original exam. It appeared that the balanced literacy approach was successful at helping at-risk students catch up to the proficiency level of their peers.

**Reading workshop.** Reader's workshop is structured to provide the opportunity for independent reading, teacher mini-lessons, teacher and student coaching and conferencing, and small group instruction. Keene and Zimmerman (2007) indicated that the reader's workshop structure includes four components. First, reader's workshop has a whole group instruction time where the teacher models a think-aloud regarding a comprehension strategy. Then, students are asked to share their thinking and learning with a peer or the whole group. A strategy or skill based mini-lesson focuses on one clear concept that will help students to read more effectively (Fountas & Pinnell, 2001). Second in reader's workshop, time is provided for independent reading as the teacher circulates the room and confers with students. According to Fountas and Pinnell (2001), "in independent reading you play a major instructional role and serve as a model" (p.116). Next, invitational, or needs-based groups meet with the classroom teacher during independent reading to address the specific needs of the readers. In a needs-based group, the teacher focuses on intensive instruction and discussion with students who have similar needs. Lastly, a time is given for students to reflect on their learning with the others. "This can be in the form of a large-group sharing session, book clubs, written responses, one-on-one sharing between children, or any number of discussion-based forms of sharing" (Keene & Zimmerman, 2007, p. 41). Fountas and Pinnell (2001) stated that a response to the text does not have to be a test of student knowledge. Instead, it can be a critical reflection about the text as well. The purpose of this reflective time is to



provide readers time to talk about their response to the text. When they do this, they expand their reading proficiency (Fountas & Pinnell, 2001). With these four clear components, reader's workshop provides students the opportunity for a predictable structure to work with literacy that will be changing and complex (Calkins, 2001).

Most teachers begin the reading workshop with a strong launch, or mini-lesson. A mini-lesson is a short lesson focused on a strategy or skill to help a student during independent reading. According to Fountas and Pinnell (2001), there are three kinds of literacy mini-lessons. There are "lessons on management, lessons on strategies and skills, and lessons on literary analysis" (Fountas & Pinnell, 2001, p. 128). In a management mini-lesson, students are taught the routines and processes of the workshop. Strategies and skills mini-lessons are "designed to help students improve their reading by becoming aware of information in a text and learning how to understand and utilize the information (Fountas & Pinnell, 2001, p. 129). Lastly, mini-lessons that promote literary analysis are designed to help students understand the techniques published authors use to create works of literature. Then, students can emulate their learning in their own reading or writing.

Children need at least thirty minutes a day to read books on their independent level (Calkins, 2001). During this time, the teacher confers, leads reading groups, and teaches strategy lessons. Students also need a time every day to process information at their individual level. In addition, it is important to practice new reading strategies as they are learned (Ellery, 2005). Students choose text at their reading level during independent reading. After independent reading, children and teachers have guided

conversations, followed by time for students to share their thinking. The framework is highly structured and predictable (Calkins, 2001).

Two thousand third grade students in a Phoenix, Arizona school district participated in Robbins' (2006) study that measured the effects of small group reading instruction, a component of Reader's Workshop, on reading achievement. The purpose of the study was to examine the need for educational leaders and politicians to assess the effects of small-group reading interventions on proficiency, and to determine the small-group intervention that was most effective. The third grade students received different small group reading interventions to determine if there was a statistically significant difference among the five interventions. The results of the study showed that students who were given a small-group intervention in class or pulled out for instruction had similar rates of improvement over a school year. All of the Developmental Reading Assessment (DRA) scores were significantly different between the intervention groups from the pre-assessment to the post-assessment. Closer examination of the results indicated that a reading workshop model is significantly more effective than the other interventions. All small group reading intervention models in this study were successful in raising the mean student scores.

**Reading aloud.** Reading aloud is the most important part of a student's day. According to Rasinski (2003), perhaps more than anything else, being read to is purely enjoyable. "Read aloud exposes students to texts that they may not find on their own or may not be able to read on their own" (Rasinski, 2003, p. 38). Students tend to read books on their independent reading level, whereas a read-aloud exposes them to a text

that may be above their reading level. If teachers make appropriate selections for their read-alouds, this causes students to have exposure to text with rich vocabulary.

Calkins (2001) suggested that she would never place a student teacher in the classroom of a teacher who does not read aloud each day. It is imperative that children get to listen to quality children's literature (Calkins, 2001). Anderson et al. (1985) stated that, "The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children" (p. 23). Students are influenced by text read aloud to them. Teachers often find students seeking read-aloud books in the library to emulate experiences with the teacher (Anderson et al., 1985). Miller (2002) noted that, "reading aloud motivates kids to want to learn to read, extends their oral language, and gives them opportunities to connect new information to what they already know" (p. 29). When teachers read aloud to students, they model the reading behaviors of fluent readers. Miller (2002) stated that reading aloud offers students the opportunity to hear various genres, listen to a fluent reader, build a literacy-rich community, and share the love of reading and writing. This is also an opportunity to use think-alouds to demonstrate comprehension strategies. Read-aloud time provides teachers the opportunity to expand students' vocabulary and to expose students to a variety of genres and texts. In fact, the level of vocabulary in some storybooks for preschoolers is approximately at the same level of speech between college graduates (Rasinski, 2003).

### **Comprehension Strategies**

Harvey and Goudvis (2007) noted that when Dolores Durkin published her study of reading comprehension in 1979, she had no way of knowing the findings from numerous hours of classroom observations would turn the reading world upside down.

Durkin determined that the questions found in basal texts and worksheets were the primary source for teaching reading comprehension. Teachers were confident that they were teaching comprehension using the questions at the end of the story. Durkin (1978-1979) suggested that teachers were merely assessing comprehension and not teaching it. Rigby, Saxon, and Steck-Vaughn (2004) described Rigby Literacy by Design as a comprehensive literacy program that assists in assessing comprehension by offering opportunity for modeled, shared, interactive, guided, and independent reading. The program implements comprehension strategy instruction within real reading practice. The comprehension strategies have built in assessments to inform instruction, monitor the progress, and help teachers meet accountability standards (Rigby, Saxon, & Steck-Vaughn, 2004).

Since Durkin's study more than thirty years ago, methods for teaching reading comprehension, such as those included in the Rigby Literacy by Design program, have exploded. In the past ten years, educators have adapted comprehension strategies to meet the needs of their students. "We explicitly teach the comprehension strategies to ensure children don't simply become expert decoders but also learn to create meaning naturally and subconsciously as they read, far earlier than in the past" (Keene & Zimmerman, 2007, p. 32). Other times, teachers should ask their students to employ comprehension strategies to deepen their understanding. "The purpose of teaching comprehension strategies is to enable children to read with deeper, longer-lasting understanding" (Keene & Zimmerman, 2007, p. 33). Comprehension instruction is about teaching students to use strategies in a purposeful way to walk away with a new understanding that could generate more learning. Teachers should show students how comprehension strategies

overlap and connect. Good readers weave the strategies together for a more “engaged, rewarding read” (Harvey & Goudvis, 2007, p. 33). Although the research does not indicate a particular order in which to teach comprehension strategies, teaching them cumulatively seems to be the most effective (Keene & Zimmerman, 2007). The following comprehension strategies help to make a comprehension task more understandable.

**Monitoring and revising comprehension.** “Proficient readers monitor their comprehension during reading” (Keene & Zimmerman, 2007, p. 63). Making connections to the text can further understanding and lead to comprehension. “Good comprehension occurs when readers anticipate meaning by predicting ahead of time what they will find in a passage” (Duffy, 2003, p. 87). When readers monitor and revise comprehension, they are digging up the complicated structure that is buried under the simple structure of the text. “Comprehension means that readers think not only about what they are reading but about what they are learning” (Harvey & Goudvis, 2007, p. 15). Metacognition is often used for this comprehension strategy. When teachers model metacognitive thinking, they are encouraging students to think when they read and be aware of when they comprehend and when they do not comprehend. Proficient readers will pause, reread, skim, scan, and reflect to understand the text. Good readers are actively engaged in determining meaning from the text (Duffy, 2003). This mental activity occurs rapidly for proficient readers as they continuously revise their thinking. Monitoring and revising comprehension are said to be the strategic heart of the comprehension process (Duffy, 2003).

In two 2008 experiments conducted by Roth, comprehension monitoring was assessed to determine if it could be a primary or secondary deficit to a student with a reading disability. Participants in the study were part of a sample from the Colorado Learning Disabilities Research Center and were recruited based on either teacher or parent referral for reading disabilities. Fifteen of the 30 participants had identified reading disabilities, and 15 were like-age students without reading disabilities. In the first experiment, readers had to not only read and understand text, but also decode at various levels of difficulty. Text was presented with virtually identical meaning but varied in ease of decoding. Both attempts in the first experiment resulted in decreased monitoring performance when the level of decoding was more difficult. In the second experiment, the researcher evaluated whether decoding problems in a student who has a reading disability affect monitoring performance. The level of decoding was manipulated. Similar to the first experiment, when decoding was easier, students with reading disabilities were able to comprehend at a higher level of understanding. Both experiments suggest that when decoding problems are eliminated, individuals with reading disabilities are able to monitor their understanding just as well as grade level readers.

**Schema.** According to Keene and Zimmerman (2007), one of the most significant areas of research has been in schema theory. In the 1980s, cognitive psychologists fashioned the term *schema theory* to explain how previous experiences, knowledge, emotions, and understandings influence what and how we learn (Anderson & Pearson, 1984). Readers have schemata for reading processes such as decoding,

skimming, and inferencing. A reader's schemata for these reading processes directly affect reading comprehension (Anderson & Pearson, 1984).

Schema also explains how we store our knowledge and how we remember what we have learned. When applied to reading, "understanding schema sheds light on the ways children connect the new to the known, recall relevant information, and enhance their comprehension with insights only they can bring" (Keene & Zimmerman, 2007, p. 71-72). One of the best ways to improve comprehension while reading is to activate the mental files stored before, during, and after reading. "The background knowledge we bring to our reading colors every aspect of our learning and understanding (Harvey & Goudvis, 2007, p. 92). Activating children's background knowledge facilitates deeper meaning while reading. Personal experience varies from person to person. A child's schema can be radically different from that of the other students and teacher. Schema is developed from exposure. Readers have a natural way of connecting what they read to something in their own lives (Harvey & Goudvis, 2007). If schema is at the conceptual level for a particular content, additional background knowledge around the subject prior to reading deepens the literary experience.

In a mixed-methods study conducted by Gutkind (2012), the use of schema with third and fourth grade boys with reading challenges was investigated over a period of one semester. Thirty-two third grade boys and 81 fourth grade boys participated in the study. The students in the study were defined as being below, on, and above average in reading comprehension. The researcher examined the reading comprehension of the population and their ability to understand text based on their schema. The cognitive processes and strategies that occurred while reading were assessed by verbal protocols, or think-alouds,

and comparisons were made based on comprehension. The findings of this study indicated that the third and fourth graders with reading challenges displayed inefficient types of strategies when attempting to comprehend text (Gutkind, 2012). The other comparison groups demonstrated a mixed level of comprehension. Regardless of the comprehension level, a weakness with implementing schema to comprehend was evident.

**Questioning.** Keene and Zimmerman (2007) stated that of all comprehension strategies, questioning is the most natural. When good readers are curious, they ask questions. When good readers are confused, they ask questions. “Children who struggle to read don’t consistently ask questions as they read—not before, during, or after” (Keene & Zimmerman, 2007, p. 106). There is a question whether teachers encourage, or even allow, students to ask questions. Kids do not grow up knowing that good readers ask questions as they read (Harvey & Goudvis, 2007). In fact, some schools appear more interested in teaching students the answers instead of teaching them how to pose questions. Authentic questions, real questions, come from the true desire to probe deeper and know more. Teachers need to encourage students to stop, think, and record their questions throughout their reading. “A reader with no questions might as well abandon the book” (Harvey & Goudvis, 2007, p. 109). The actual act of questioning leads students to deeper thinking and understanding. Children are natural questioners. They ask questions to make sense of the world around them. Teachers can model questioning through read-alouds. Sometimes when students begin questioning, it could cause them “to sense something that isn’t stated directly in the text” (Keene & Zimmerman, 2007, p. 111).



In her study, Taboada (2003) found that many past instructional studies revealed that students who question as they read are more successful with comprehending. However, she found that past studies did not investigate how student-generated questioning improves reading comprehension. The purpose of this study was to investigate the relationship of questioning and prior knowledge on reading comprehension. A questioning hierarchy was created to examine the extent to which the level of questioning affects understanding. One hundred ninety-six third grade students from four elementary schools in a small mid-Atlantic state were the participants in this study. All four schools in the study had approximately the same number of male and female students, and there were approximately 25 students who were identified as receiving special education services. Participants of the study were given science text to read on specific topics and then given questioning tasks. Student questions for each task were found to be correlated with various measures of reading comprehension on the questioning hierarchy. In addition, student questioning accounted for a significant amount of variance in reading comprehension, even above the variance accounted for prior knowledge. In other words, student questioning seemed to affect reading comprehension more than prior knowledge. Student questioning that requested only yes or no answers were associated with lower levels of comprehension. Questions that requested answers that are more sophisticated were associated with higher levels of comprehension.

**Inference.** “Inferring is the ability to read between the lines or to get the meaning an author implies but does not state directly” (Duffy, 2003, p. 102). Inferring gives the reader an opportunity to sense meaning from the text that is not explicit. “Inference is

part rational, part mystical, part definable, and part beyond definition” (Keene & Zimmerman, 2007, p. 145). Often, teachers ask questions about the text that are literal. These questions have answers that can be found directly in the text. Inferring is not when students are merely asked to recall facts. “Inferring involves merging background knowledge with text clues to come up with an idea that is not explicitly stated in the text” (Harvey & Goudvis, 2007, p. 131). When a reader infers, the inference is something a reader knows from reading, but the author does not include the information in the book. Teachers can encourage students to take risks while inferring by asking a question such as, “I know you don’t know, but if you did know, what would you say?” (Keene & Zimmerman, 2007). Each inference is personal and unique. Based on schema, students can make various inferences from the text. When proficient readers infer, it may cause them to read more slowly to pause and reflect.

**Sensory and emotional images.** “Text comes alive through the creation of sensory images” (Keene & Zimmerman, 2007, p. 176). Many proficient readers believe that reading a good book is very similar to watching a movie (Duffy, 2003). The images that our minds create as we read are like paint on a canvas. Some teachers ask students to make “movies in the mind” (Harvey & Goudvis, 2007, 132). Imaging is one of the easier comprehension strategies to teach students. Students are encouraged to try to see and hear what is happening in the text. When teachers think aloud while creating mental images, students learn to do the same. Students can also turn and talk about what they envision or actually sketch what they imagine. As our thinking gets deeper with a text, our mental images can change as well. Fluent readers create images from their personal experiences, also known as their schema. When reading a text that a student has little

schema for, it is possible to take students on a virtual field trip to begin creating some visual cues while reading. Vivid “imagery is particularly important to reading success because it is often the image that makes a story vibrant and alive” for the reader (Duffy, 2003, p. 95).

**Determining importance.** As proficient readers engage in text, they begin determining the most important aspects of the text. Sometimes, readers determine what is important because of the influences in their background knowledge. When many ideas seem important in a text, it is necessary to find the main idea. Teachers often begin teaching the strategy of determining importance using nonfiction texts. Nonfiction reading is often what students read to learn. Readers of nonfiction have to decide what is important to remember in the text to learn. Nonfiction is one of the most accessible genres for determining importance because it provides scaffolds that highlight important details. For example, teachers can note differences in fonts, titles, illustrations and photographs, and signal words and phrases to determine importance (Harvey & Goudvis, 2007). Consequently, “when kids read and understand nonfiction, they build background for the topic and acquire new knowledge” (Harvey & Goudvis, 2007, p.156). Students can determine importance by finding words, sentences, and ideas that carry the weight of the text (Keene & Zimmerman, 2007). In non-fiction reading, students often sacrifice the other comprehension strategies for the sake of focusing on what is important in the text. “Students should be able to articulate how they make decisions about what is important in a given context and how those decisions enhance their overall comprehension of the piece” (Keene & Zimmerman, 2007, p. 222).

**Synthesis.** Keene and Zimmerman (2007) described synthesis as creating a beautiful mosaic of meaning. To synthesize is to create a mental plan for what is being read and then continually revising the plan as new information is encountered. Synthesizing is taking pieces of information and combining them into masses of new information. When we summarize information during reading, we determine the most important details and then put them in our own words to help remember them. When reading, we have the opportunity to construct our own meaning. Sometimes we synthesize and confirm what we already know. Other times, “we merge new information with existing knowledge to understand a new perspective, a new line of thinking, or even an original idea” (Harvey & Goudvis, 2007, p. 179). Synthesis is a way of saying, “I have been there, this is what I remember, and this is what I believe about what I know” (Keene & Zimmerman, 2007, p. 229). The further students read into a text, the different ideas and conclusions they gather. A synthesis is the sum of information from the text that helps readers better understand what they have read.

When teachers begin explaining synthesis to students, they encourage students to stop periodically and take stock in what they have read. This includes summarizing information to add to a reader’s schema. Teachers should look for evidence that students are picking out the most important details and merging their thinking with the new learning. “We look for evidence that students use authentic questions, inferences, and interpretations to synthesize information and teach it to others through a variety of projects and products” (Harvey & Goudvis, 2007, p. 199).

## **Summary**

This review of the literature served as an overview of the historical perspective on reading instruction in American society, research based methods of reading instruction, and effective models of literacy instruction. Also included were the five components to reading instruction. An introduction of research-based practices in reading instruction was also included. Lastly, comprehension strategies were introduced with their impact on growth in reading. Next, in chapter three, the researcher discusses the study's research design, population, sample, and sampling procedures including the instrumentation and measurement tools. In addition, an articulation of the study's data collection procedures is provided, as well as a description of the study's data analysis, hypothesis tests, and limitations.

## **Chapter Three**

### **Methods**

The Yar School District underwent substantial changes in its reading programming over a three-year span. The problem identified in this study was that Yar was fully implementing the reading program, Rigby Literacy by Design, without assurance that the program was positively affecting student reading growth. The purpose of the study was to determine how student achievement, as measured by AIMSweb and MAP Communication Arts data, evolved as Yar School District implemented Rigby Literacy by Design. Additionally, the purpose of the study was to analyze reading progress of student sub-groups when Rigby Literacy by Design was fully implemented.

In this chapter, the methodology used while conducting the research study is presented. Included is a description of the research design, population, and sample studied. The data collection process is described with a detailed explanation of the procedures followed in the study. Next, the data analysis and hypotheses testing are introduced. The chapter concludes with the limitations of the study.

#### **Research Design**

The research design utilized for the study was quantitative. According to Creswell (2009), a quantitative research design best addresses the problem by identifying what factors or variables influence an outcome. The dependent variable, growth in reading, was measured by AIMSweb and MAP Communication Arts scale scores from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade when Rigby Literacy by Design was fully implemented. The independent variables in the study were the test intervals noted above, as well as gender, socio-economic status, race, and

special education status of students. For the purpose of this study, non-white was identified as Asian, black, Hispanic, and Native American/Alaskan Native and non-minority was identified as white.

### **Population and Sample**

Lunenburg and Irby (2008) stated, “The target population is the group of interest to the research, the group to which you would like the results of the study to be generalizable” (pg.167). The population for the study included 2009-2010 third graders, 2010-2011 fourth graders and 2011-2012 fifth graders attending Yar School District elementary schools during the 2009-2012 school years. The demographics of the district were reported in chapter one (see Table 1). The students represent a variety of diverse backgrounds. Members of the cohort were identified in Table 1. The table identifies the number of students in the study and outlines student demographics.

### **Sampling Procedures**

Purposive sampling, which was used to choose the subjects, “involves selecting a sample based on the researcher’s experience or knowledge of the group to be samples” (Lunenburg & Irby, 2008, p. 175). The researcher chose the sample based on knowledge held regarding the Yar School District and the reading program in place, Rigby Literacy by Design. Students in two elementary schools in the Yar School District were excluded from this research because the schools were utilizing a different program for reading during the time the study was conducted.

### **AIMSweb Instrumentation**

The first instrument used in the Yar School District to measure student growth in reading in 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade was the AIMSweb assessment. AIMSweb is a

benchmark and progress monitoring assessment that gives direct and frequent feedback on student achievement (Pearson, 2010). AIMSweb is utilized for universal screenings and benchmark testing for at-risk students. Teachers can utilize the data from AIMSweb to inform daily teaching practices.

According to Pearson (2010), more than 200 journal articles and chapters from books have been published documenting AIMSweb effectiveness. AIMSweb is a computerized, progress-monitoring tool that is a scientifically based measure to assess students' academic performance and evaluate the effectiveness of instruction. Progress monitoring is a large component of AIMSweb and can be completed independently or with a whole group. To progress monitor effectively, students' current levels of performance are determined and goals are identified for learning that must take place over an established time. A student's academic performance is measured on a regular basis (weekly or monthly) using the computerized program. Then, expected rates of learning are compared to actual rates of learning and teaching is adjusted accordingly. Students' progression of achievement is monitored and instructional techniques are adjusted to meet the needs of individual learners.

**AIMSweb measurement.** "Education has its own set of indicators of general basic skill success in students' reading" (Shinn & Shinn, 2002, p. 6). AIMSweb measures a student's oral reading fluency. Some general considerations are made while administering the assessment. According to Shinn & Shinn (2002), "examiner talk" should be kept to a minimum. Students read aloud for one minute from meaningful, connected, and graded passages of text. The number of words read correctly and the errors are counted. The score involves first recording the total number of words read and



then subtracting the number of errors to obtain the Words Read Correctly (WRC) (Shinn & Shinn, 2002). The WRC and errors are reported in the following format: WRC/Errors. For example, if a student reads 145 words in one minute and makes three errors, the score is 142/3 (Shinn & Shinn, 2002). A summary of the test, how long the test is, how students are assessed, and what is scored are shown in Table 2.

Table 2

*Summary of the AIMSweb Assessment*

Area	Timing	Test	
		Arrangements	What is Scored
CBM Oral Reading Fluency (CBM)	1 minute	Individual	# of Words Read Correctly (WRC) and # of Errors

Note. Adapted from *AIMSweb training workbook* by M. Shinn, & M. Shinn, 2002, p. 7.

During the AIMSweb assessment, students always read standard assessment passages to the person administering the test. The passages are typically 250-300 words long and begin with an informative first sentence. All passages are on grade level, in the same font size and style, and do not include pictures, which could be distracting during testing.

The directions for the one-minute administration are as follows:

1. Place the unnumbered copy in front of the student.
2. Place the numbered copy in front of you but shielded so the student cannot see what you record.
3. Say: *‘When I say begin, start reading aloud at the top of this page. Read across the page (demonstrate by pointing). Try to read each word. If you come*

*to a word you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?*

4. Say: 'Begin' and start your stopwatch when the student says the first word. If the student fails to say the first word of the passage after 3 seconds, tell them the word, mark it as incorrect, then start your stopwatch.
5. Follow along on your copy. Put a slash through words read incorrectly.
6. At the end of 1 minute, place a bracket after the last word and say, 'Stop'.
7. Score and summarize by writing WRC/Errors" (Shinn & Shinn, 2002, p. 12).

Upon the completion of the test administration, scoring is completed. Words Read Correctly (WRCs) are words pronounced correctly within context. In addition, WRCs could also be when a student self-corrects within within three seconds. An error is counted when there is a mispronunciation of the word, a substitution, omission, or three-second pause or struggle (Shinn & Shinn, 2002).

Lastly, a score is calculated by subtracting third grade scores from fourth grade scores, fourth grade scores from fifth grade scores, and third grade scores from fifth grade scores. For this study, accuracy percentages were calculated by looking at the final scoring, such as 142/3. For this example there were 145 words read, with 142 being accurate, therefore resulting in a  $142 / 145 = 98\%$  accuracy score (Shinn & Shinn, 2002).

**AIMSweb validity and reliability.** According to Messick (1989), validity is "an integrated and evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of inferences and actions based on test scores or other modes of assessment" (p. 13). With the AIMSweb assessment, fluency is measured by the number of words read correctly in a fixed amount

of time (usually indexed by a minute). Accuracy is the percentage of words read correctly. In research conducted by Shinn and Shinn (2002), the following conclusions were made: “Achievement can be improved by testing students (1) using standard, valid assessments, (2) that measured something important, (3) on tasks of about equal difficulty tied to general curriculum, and (4) over time” (Shinn & Shinn, 2002, p. 7), and the AIMSweb assessment does this.

In addition, AIMSweb has been “researched with respect to psychometric properties of reliability and validity” (Shinn & Shinn, 2002, p. 8). Christ and Silberglitt (2007) evaluated the benchmark data of 8,200 students in 1<sup>st</sup> through 5<sup>th</sup> grades in rural and suburban school districts in the Midwest. Data were collected while using three AIMSweb probes. Each benchmark score was the median of the three scores. Table 3 shows the reliability coefficients between the benchmark scores. This study indicated that the reliability of AIMSweb benchmark scores is around .90.

Table 3

*Reliability of AIMSweb scores obtained as benchmarks*

Grade	Fall-Winter	Winter-Spring
1	--	0.88
2	0.93	0.94
3	0.94	0.95
4	0.95	0.95
5	0.92	0.93

Note. Adapted from *Reliability of AIMSweb R-CBM* by M.H. Daniel, 2010, p. 3.

Multiple validity coefficients are available for each grade level, based on different students and reading curricula. AIMSweb “reading validity coefficients are in the .60 to .80 range” which to some extent supports the construct validity of the assessment (as cited in Shinn & Shinn, 2002, p. 35).

### **MAP Instrumentation**

The second instrument used in this study to measure growth in reading was the Missouri Assessment Program (MAP) Communication Arts Assessment utilized in 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grades. The MAP Communication Arts Assessment takes approximately three to five hours to complete and is administered in three sessions. The assessment contains constructed-response questions, selected-response questions, and a performance event. The constructed-response requires students to supply an appropriate answer, rather than select it from choices. A selected-response item, also known as multiple choice, presents students with a question followed by three to five response options. A performance event is a more complicated item. Often, performance events have more than one approach to provide the correct answer. This test item allows students to demonstrate their ability to apply knowledge and understanding in real-life situations (CTB McGraw-Hill, 2011). According to CTB McGraw-Hill (2011), students are expected to be proficient and show knowledge in the following Communication Arts Content Standards:

1. Speaking and writing Standard English;
2. Reading and evaluating fiction, poetry, and drama;
3. Reading and evaluating nonfiction works and material;
4. Writing formally;

5. Comprehending and evaluating the content and artistic aspects of oral and visual presentations;
6. Participating in formal and informal presentations and discussions of issues and ideas;
7. Identifying and evaluating relationships between language and culture. (p. 2)

The MAP Communication Arts test was administered to third grade students in the study sample in April 2010. The MAP Communication Arts test was administered to the same students during their fourth grade year in April 2011. In April 2012, the MAP Communication Arts test was administered to the same cohort during their fifth grade year.

CTB/McGraw-Hill uses the students' correct answers to derive MAP scale scores. "The scale score describes achievement on a continuum that in most cases spans the complete range of grades 3-8" (DESE, 2011, p. 4). The Communication Arts scale scores range in value from 455 to 875. Higher scale scores indicate higher levels of achievement. Scale scores are also linked to four performance or achievement levels. Student performance is reported at one of the following achievement levels: below basic, basic, proficient, or advanced. These four levels describe "a pathway to proficiency" (p. 4). After finding a scale score, students are assigned below basic, basic, proficient, or advanced. MAP data were scaled scores with percentages of students scoring proficient or advanced.

**MAP measurement.** The MAP Communication Arts Assessment is used by the Yar School District to determine if students met proficiency targets during their third, fourth, and fifth grade years. For this study, student scale scores were identified for third,

fourth, and fifth grade years to determine if there was an increase over the three years (DESE, 2011). The third grade proficiency target in 2010 was a scale score of 648 to 790. A proficient score in 2011 for fourth grade was a scale score of 662 to 820. Lastly, a proficient scale score in 2012 for fifth grade was 675 to 840. To demonstrate growth, an increase in the scale score was expected from year to year.

**MAP validity and reliability.** In 2009, the Missouri Department of Elementary and Secondary Education, along with CTB/McGraw-Hill, published a technical report providing information regarding the validity and reliability of the MAP test scores. According to DESE and CTB/McGraw-Hill, “validity is the overarching component of the MAP testing program” (DESE, 2009, p. 20). In the early stages of planning and development, considerations were made for a test that was valid for all examinees. Furthermore, DESE (2009) indicated that, “by eliminating irrelevant skills or knowledge from the items, the possibility of bias was reduced” (p. 184). Careful attention was given to item statistics. Attempts were made to avoid using or reusing items with poor statistical fit or poor distracters (DESE, 2009, p. 174).

Table 4

*Reliability in MAP Communication Arts*

Grade	Number of Items	Number of Score Points	Cronbach’s Alpha
3	58	62	0.91
4	58	62	0.92
5	56	61	0.91

Note. Adapted from *Missouri Assessment Program Grade-Level Assessments: Technical Report* by CTB/McGraw-Hill, 2009, p. 26.

The reliability coefficients, according to CTB/McGraw-Hill (2009), for the Communication Arts MAP assessment are reported in Table 4. The number of items, number of possible points, and Cronbach's Alpha statistics are presented. All of the reliability statistics are 0.90 or greater for third, fourth, and fifth grade scores in Communication Arts, which would provide strong evidence for the reliability of the test.

### **Data Collection Procedures**

Before beginning data collection for this research study, the researcher requested in person the consent of the Yar School District through the verbal submission of a proposal to the Deputy Superintendent of Curriculum and Instruction. In the meeting, the Deputy Superintendent of Curriculum and Instruction verbally approved the data collection process for the study and asked the students and the district remain anonymous. The researcher also applied to the Baker University Institutional Review Board for permission to conduct the study (see Appendix A) and began data collection upon approval (see Appendix B).

Upon request, the researcher received the archived data from the Yar School District's Communication Arts Curriculum Coordinator. The data were downloaded from the AIMSweb database and entered into an Excel spreadsheet. On the spreadsheet, the students and buildings remained anonymous. A student number was utilized instead of a name. Gender, socio-economic status, race, and special education status were imported. Eight AIMSweb scores were entered after each student's number. These included the students' third grade winter and spring scores, their fourth grade fall, winter, and spring scores, and their fifth grade fall, winter, and spring scores. The students' MAP scale scores, found on the DESE website, were also entered for third, fourth, and

fifth grade. Next, all data were uploaded into the IBM® SPSS® Statistics Faculty Pack 21for Windows by the researcher.

### **Data Analysis and Hypothesis Testing**

Hypotheses were developed to address each of the research questions in the study. Each research question is listed below followed by the hypothesis and the analysis used. Some research questions had one hypothesis, while others had more. For example, research question one was addressed with one hypothesis, and research question two was addressed using four hypothesis tests. A two-factor analysis of variance (ANOVA) was conducted to address each of the hypotheses related to each research question. Each research question is listed below with the appropriate hypothesis(es), and the ANOVA used to address it.

**Research question one:** To what extent is there an effect on students' reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by Design is fully implemented?

**Hypothesis one:** There is an effect on students' reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by design is fully implemented.

A two-factor analysis of variance (ANOVA) was conducted to address research question one and research question two using the three AIMSweb growth scores ( $\alpha = .05$ ). The two categorical variables used to group the students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and gender. The two-factor ANOVA can be used to test three hypotheses including a main effect for test interval, a main effect for gender (male and female), and a two-way interaction effect



(Test Interval x Gender). The main effect for test interval was used to test hypothesis one.

**Research question two:** To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by AIMSweb assessment scores, influenced by sub-group membership (gender, SES, race, and special education status)?

**Hypothesis two:** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by gender.

To test hypothesis two, the researcher used the interaction effect for test interval by gender (Test Interval x Gender) from the first ANOVA. Growth was analyzed for male and female students on the AIMSweb CBM assessment. Third, fourth, and fifth grade growth were compared for male and female students.

**Hypothesis three:** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by SES.

A second two factor ANOVA was conducted. The two categorical variables used to group the students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and SES. The interaction effect (Test Interval x SES) was used to test hypothesis three.

**Hypothesis four:** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by race.

A third two factor ANOVA was conducted. The two categorical variables used to group the students' scores were test interval (third grade winter, third grade spring, fourth

grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and race. The interaction effect (Test Interval x Race) was used to test hypothesis four.

**Hypothesis five:** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by special education status.

A fourth two factor ANOVA was conducted. The two categorical variables used to group the students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and special education status. The interaction effect (Test Interval x Special Education status) was used to test hypothesis five.

**Research question three:** To what extent is there an effect on students' reading, as measured by changes in MAP Communication Arts scale scores, when Rigby Literacy by Design is fully implemented?

**Hypothesis six:** There is an effect on students' reading, as measured by changes in MAP Communication Arts scale scores, when Rigby Literacy by design is fully implemented.

A fifth two-factor analysis of variance (ANOVA) was conducted to address research question three and RQ4 for MAP scores ( $\alpha = .05$ ). The two categorical variables used to group the students' scores were test interval (third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade) and gender (male, female). The two-factor ANOVA can be used to test three hypotheses including a main effect for test interval, a main effect for gender, and a two-way interaction effect (Test Interval x Gender). The main effect for test interval was used to test hypothesis six.

**Research question four:** To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by changes in MAP Communication Arts scale scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?

**Hypothesis seven:** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by gender.

To test hypothesis seven, the researcher used the interaction effect for test interval by gender from the fifth two-factor ANOVA. The two categorical variables used to group the students' scores were test interval (third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade) and gender. The interaction effect (Test Interval x Gender) was used to test hypothesis seven.

**Hypothesis eight:** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by SES.

To test hypothesis eight, the researcher used a sixth two-factor ANOVA. The two categorical variables used to group the students' scores were test interval (third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade) and SES. The interaction effect (Test Interval x SES) was used to test hypothesis eight.

**Hypothesis nine:** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by race.

To test hypothesis nine, the researcher used a seventh two-factor ANOVA. The two categorical variables used to group the students' scores were test interval (third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade) and race. The interaction effect (Test Interval x Race) was used to test hypothesis nine.

***Hypothesis ten:*** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by special education status.

To test hypothesis ten, the researcher used an eighth two-factor ANOVA. The two categorical variables used to group the students' scores were test interval (third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade) and special education status. The interaction effect (Test Interval x Special Education status) was used to test hypothesis ten.

### **Limitations**

Limitations of a study are not within the researcher's control, but "may have an effect on the interpretation of the findings or on the generalizability of the results" (Lunenberg & Irby, 2008, p. 133). This study potentially had the following limitations.

1. The students took the AIMSweb assessment with their classroom teachers as their test examiners; therefore, testing environments were not standardized. This could potentially limit the study if discrepancies were found in the testing environments.
2. The fall 2009 AIMSweb CBM scores are not included in the data set because Rigby Literacy by Design had not been adopted then.
3. The students took the MAP assessment with their classroom teachers as their test examiners. This could potentially limit the study if discrepancies were found in the testing environments.

### **Summary**

Chapter three provided an overview of the quantitative research study. The research design was explained in detail, and the population and sample were thoroughly

introduced. AIMSweb and MAP assessments were explained in detail. In addition, the research questions were outlined along with the hypotheses and research analysis. In chapter four, the results of the hypothesis testing are presented to determine to what extent there is an effect on students' reading growth when fully implementing Rigby Literacy by Design.

## Chapter Four

### Results

The purpose of this study was to investigate the effect of Rigby Literacy by Design on student reading growth for 2009-2010 third grade reading, 2010-2011 fourth grade reading, and 2011-2012 fifth grade reading in the Yar School District, as measured by AIMSweb and Missouri Assessment Program (MAP) scores. The AIMSweb assessment is a formative, fluency assessment given throughout the school year to assess reading gains. The communication arts MAP assessment is a summative state assessment. The second purpose of this study was to investigate whether the effect of Rigby Literacy by Design on the student reading achievement of third, fourth, and fifth grade students in Yar School District was influenced by sub-group membership (gender, socio-economic status, race, and special education status). This analysis was conducted to determine whether a cohort of students receiving Rigby Literacy by Design instruction had increased reading proficiency over three school years. The current chapter provides results from the quantitative data analysis used to address the four research questions. The findings are presented beginning with an explanation of the descriptive statistics followed by hypothesis testing results.

#### Descriptive Statistics

The population for this study was elementary students in grades 3-5. The sample for the study included a cohort of students who were 2009-2010 third graders, 2010-2011 fourth graders, and 2011-2012 fifth graders. The students were enrolled in eight out of ten elementary schools in the Yar School District. The sample was  $N = 302$  students who were enrolled from 2009-2012 in the Yar School District and participated in AIMSweb

and MAP testing all three school years. The IBM SPSS Statistics 21.0 Faculty pack for Windows statistical program was used to analyze the data for this study. The sample included 165 (54.6%) female and 137 (45.4%) male students, 146 (48.3%) free or reduced lunch students and 156 (51.7%) unreduced students, 140 (46.4%) minority and 162 (53.6%) nonminority students, and 41 (13.6%) special education and 261 (86.4%) regular education students.

### **Data Analysis and Hypothesis Testing**

The results of the hypothesis testing to address the four research questions presented in the study are discussed in this section. Each research question is followed by the hypothesis. The method used to test each hypothesis is described along with the results of each test.

**Research question one.** To what extent is there an effect on students' reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by Design is fully implemented?

**Hypothesis one.** There is an effect on students' reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by design is fully implemented.

A two-factor analysis of variance (ANOVA), which addressed research question one and research question two, was conducted to test hypothesis one. The two categorical variables used to group the students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, fifth grade spring) and gender (male, female). The two factor ANOVA can be used to test three hypotheses including a main effect for test interval, a main effect for gender, and a two way interaction effect (Test Interval x

Gender). The main effect for gender was not of interest for this question. The main effect for test interval was used to address research question one. The two-way interaction effect (Test Interval x Gender) was used to address research question two.

The results of the analysis for hypothesis one indicated a statistically significant difference between at least two of the means on the AIMSweb assessment ( $F = 61.46$ ,  $df = 7, 2100$ ,  $p = .000$ ). See Table 5 for the means and standard deviations for this analysis. A follow up post hoc, Tukey's Honestly Significant Difference (HSD), was conducted to determine which pairs of means were different. The HSD critical value was .028. The difference between the means had to be greater than this value to be considered significantly different ( $\alpha = .05$ ). The third grade winter percentage ( $M = 83.51\%$ ) was less than the third grade spring percentage ( $M = 88.14\%$ ). The third grade spring percentage ( $M = 88.14\%$ ) was less than the fourth grade fall percentage ( $M = 92.88\%$ ). The fifth grade fall percentage ( $M = .9463$ ) was less than the fifth grade winter percentage ( $M = 98.41\%$ ).



Table 5

*AIMSweb Percentage by Test Interval*

Test Interval	<i>M</i>	<i>SD</i>	<i>N</i>
3 - Winter	.8351	.3772	302
3 - Spring	.8814	.3384	302
4 - Fall	.9288	.3692	302
4 - Winter	.9349	.3159	302
4 - Spring	.9536	.2969	302
5 - Fall	.9463	.3333	302
5 - Winter	.9841	.2955	302
5 - Spring	.9952	.2834	302

Note. Percentages were calculated by dividing the score of each student by the target score.

**Research question two.** To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by AIMSweb assessment scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?

**Hypothesis two.** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by gender.

The interaction effect (Test Interval x Gender) from the first ANOVA was analyzed to test hypothesis two, which addressed research question two. The two categorical variables used to group the students' AIMSweb scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, fifth grade spring) and gender (male and female). The results of the analysis indicated a marginally significant difference between

at least two of the means ( $F = 1.995$ ,  $df = 7, 2100$ ,  $p = .052$ ). No follow-up post hoc was warranted. See Table 6 for the means and standard deviations for this analysis. Though not statistically significant, there were some differences among the means. Across all test intervals, females tended to outperform males. In addition, across the test intervals females' percentage correct stayed the same or increased while males slightly decreased between 4<sup>th</sup> and 5<sup>th</sup> grade.

Table 6

*AIMSweb Percentage by Gender*

Test Interval	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
3 - Winter	Male	.8014	.3841	137
	Female	.8631	.3702	165
3 - Spring	Male	.8420	.3383	137
	Female	.9141	.3360	165
4 - Fall	Male	.8853	.3709	137
	Female	.9649	.3649	165
4 - Winter	Male	.8973	.3165	137
	Female	.9662	.3129	165
4 - Spring	Male	.9226	.2984	137
	Female	.9794	.2942	165
5 - Fall	Male	.8943	.3332	137
	Female	.9895	.3281	165
5 - Winter	Male	.9249	.2735	137
	Female	1.0332	.3048	165
5 - Spring	Male	.9410	.2715	137
	Female	1.0401	.2861	165

Note. Percentages were calculated by dividing the score of each student by the target score.

***Hypothesis three.*** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by SES.

A second two factor ANOVA was conducted to test hypothesis three, which addressed research question two. The two categorical variables used to group the students' AIMSweb scores were test interval (third grade winter, third grade spring,

fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and SES (free or reduced lunch and unreduced lunch). The results of the analysis indicated a statistically significant difference between at least two of the means ( $F = 4.122$ ,  $df = 7, 2100$ ,  $p = .000$ ). See Table 6 for the means and standard deviations for this analysis. A follow up post hoc was conducted to determine which pairs of means were different. The Tukey's Significant Difference (HSD) critical value was .041. The difference between the means had to be greater than this value to be considered significantly different ( $\alpha = .05$ ). The third grade winter percentage for free or reduced lunch ( $M = 73.32\%$ ) was less than the third grade spring percentage for free or reduced lunch ( $M = 79.70\%$ ). The third grade spring percentage for unreduced ( $M = 96.03\%$ ) was less than the fourth grade fall percentage for unreduced ( $M = 103.18\%$ ). The fifth grade fall percentage for free or reduced ( $M = 84.54\%$ ) was less than the fifth grade winter free or reduced lunch percentage ( $M = 90.59\%$ ).

Table 7

*AIMSweb Percentage by Socio-Economic Status*

Test Interval	SES Status	<i>M</i>	<i>SD</i>	<i>N</i>
3 - Winter	Free or Reduced	.7332	.3399	146
	Unreduced	.9305	.3864	156
3 - Spring	Free or Reduced	.7970	.3198	146
	Unreduced	.9603	.3373	156
4 - Fall	Free or Reduced	.8187	.3485	146
	Unreduced	1.0318	.3591	156
4 - Winter	Free or Reduced	.8405	.2929	146
	Unreduced	1.0233	.3119	156
4 - Spring	Free or Reduced	.8638	.2741	146
	Unreduced	1.0377	.2937	156
5 - Fall	Free or Reduced	.8454	.3143	146
	Unreduced	1.0407	.3236	156
5 - Winter	Free or Reduced	.9059	.2868	146
	Unreduced	1.0572	.2855	156
5 - Spring	Free or Reduced	.9272	.2719	146
	Unreduced	1.0587	.2800	156

Note. Percentages were calculated by dividing the score of each student by the target score.

***Hypothesis four.*** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by race.

A third two factor ANOVA was conducted to test hypothesis four, which addressed research question two. The two categorical variables used to group the

students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and race (minority and non-minority). The results of the analysis indicated there is not a statistically significant difference between at least two of the means ( $F = .565, df = 7, 2100, p = .785$ ). No follow-up post hoc was warranted. See Table 8 for the means and standard deviations for this analysis.

Table 8

*AIMSweb Percentage by Race*

Test Interval	Race	<i>M</i>	<i>SD</i>	<i>N</i>
3 - Winter	Minority	.8016	.3255	140
	Non-Minority	.8641	.4156	162
3 - Spring	Minority	.8498	.3002	140
	Non-Minority	.9086	.3670	162
4 - Fall	Minority	.8956	.3349	140
	Non-Minority	.9575	.3952	162
4 - Winter	Minority	.8929	.2853	140
	Non-Minority	.9713	.3368	162
4 - Spring	Minority	.9201	.2658	140
	Non-Minority	.9826	.3195	162
5 - Fall	Minority	.9205	.2952	140
	Non-Minority	.9685	.3625	162
5 - Winter	Minority	.9590	.2691	140
	Non-Minority	1.0057	.3157	162
5 - Spring	Minority	.9655	.2656	140
	Non-Minority	1.0207	.2965	162

Note. Percentages were calculated by dividing the score of each student by the target score.

***Hypothesis five.*** The effect of fully implementing Rigby Literacy by Design on students' AIMSweb assessment score is influenced by special education status.

A fourth two factor ANOVA was conducted to test hypothesis five, which addressed research question two. The two categorical variables used to group the

students' scores were test interval (third grade winter, third grade spring, fourth grade fall, fourth grade winter, fourth grade spring, fifth grade fall, fifth grade winter, and fifth grade spring) and special education status (special education or regular education). The results of the analysis indicated there was not a statistically significant difference between at least two of the means ( $F = 1.644$ ,  $df = 7, 2100$ ,  $p = .119$ ). No follow-up post hoc was warranted. See Table 9 for the means and standard deviations for this analysis.



Table 9

*AIMSweb Percentage by Special Education (SpEd) Status*

Test Interval	SpEd Status	<i>M</i>	<i>SD</i>	<i>N</i>
3 - Winter	SpEd	.4261	.2897	41
	Regular Ed.	.8994	.3482	261
3 - Spring	SpEd	.5012	.2994	41
	Regular Ed.	.9411	.3040	261
4 - Fall	SpEd	.5229	.3447	41
	Regular Ed.	.9926	.3308	261
4 - Winter	SpEd	.5596	.2762	41
	Regular Ed.	.9939	.2795	261
4 - Spring	SpEd	.5929	.2681	41
	Regular Ed.	1.0103	.2594	261
5 - Fall	SpEd	.5590	.2788	41
	Regular Ed.	1.0071	.2987	261
5 - Winter	SpEd	.6177	.2931	41
	Regular Ed.	1.0416	.2517	261
5 - Spring	SpEd	.6477	.2708	41
	Regular Ed.	1.0497	.2443	261

Note. Percentages were calculated by dividing the score of each student by the target score.

**Research question three.** To what extent is there an effect on students' reading, as measured by changes in Missouri Assessment Program Communication Arts scale scores, when Rigby Literacy by Design is fully implemented?

*Hypothesis six.* There is an effect on students' reading, as measured by changes in MAP Communication Arts scale scores, when Rigby Literacy by design is fully implemented.

A fifth two-factor ANOVA was conducted to test hypothesis six, which addressed research question three and research question four. The two categorical variables used to group the students' scores were test interval (third grade, fourth grade, and fifth grade) and gender (male, female). The two factor ANOVA can be used to test three hypotheses including a main effect for test interval, a main effect for gender, and a two way interaction effect (Test Interval x Gender). The main effect for test interval was used to address research question three. The two-way interaction effect (Test Interval x Gender) was used to test hypothesis seven, which addressed research question four.

The results of the analysis indicated a statistically significant difference between at least two of the MAP Communication Arts means ( $F = 454.430$ ,  $df = 2, 600$ ,  $p = .000$ ). See Table 10 for the means and standard deviations for this analysis. A follow up post hoc was conducted to determine which pairs of means were different. The Tukey's Honestly Significant Difference (HSD) critical value was 3.052507. The difference between the means had to be greater than this value to be considered significantly different ( $\alpha = .05$ ). The third grade scale score mean ( $M = 633.6689$ ) was less than the fourth grade scale score mean ( $M = 658.6391$ ). The fourth grade scale score mean ( $M = 658.6391$ ) was less than fifth grade scale score mean ( $M = 672.9305$ ). The third grade scale score mean ( $M = 633.6689$ ) was less than the fifth grade scale score mean ( $M = 672.9305$ ).

Table 10

*Evidence of Reading Growth on MAP*

Grade	<i>M</i>	<i>SD</i>	<i>N</i>
3	633.6689	38.1939	302
4	658.6391	38.4748	302
5	672.9305	35.8282	302

**Research question four.** To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by changes in MAP Communication Arts scale scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?

**Hypothesis seven.** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by gender.

The interaction effect (Test Interval x Gender) from the fifth two-factor ANOVA was used to address hypothesis seven, which addressed research question four. The two categorical variables used to group the students' scores were test interval (third grade, fourth grade, and fifth grade) and gender (male and female). The results of the analysis indicated there was not a significant difference between at least two of the means ( $F = .365$ ,  $df = 2, 600$ ,  $p = .694$ ). No follow-up post hoc was warranted. See Table 11 for the means and standard deviations for this analysis.

Table 11

*Scale Score on MAP by Gender*

Grade	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
3	Male	629.1168	36.6957	137
	Female	637.4485	39.1029	165
4	Male	653.2409	39.5791	137
	Female	663.1212	37.0581	165
5	Male	668.7299	35.5014	137
	Female	676.4182	35.8308	165

***Hypothesis eight.*** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by SES.

A sixth two-factor ANOVA was conducted to test hypothesis eight, which addressed research question four. The two categorical variables used to group the students' scores were test interval (third grade, fourth grade, and fifth grade) and SES (free or reduced lunch and unreduced lunch). The results of the analysis indicated there is not a statistically significant difference between at least two of the means ( $F = .331, df = 2, 600, p = .719$ ). No follow-up post hoc was warranted. See Table 8 for the means and standard deviations for this analysis.

Table 12

*Scale Score on MAP by Socio-Economic Status*

Grade	SES Status	<i>M</i>	<i>SD</i>	<i>N</i>
3	Free or Reduced	622.1849	35.3643	146
	Unreduced	644.4167	37.7151	156
4	Free or Reduced	647.4932	38.6059	146
	Unreduced	669.0705	36.4101	156
5	Free or Reduced	660.7055	35.2442	146
	Unreduced	684.3718	32.5307	156

***Hypothesis nine.*** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by race.

A seventh two-factor ANOVA was conducted to test hypothesis nine, which addressed research question four. The two categorical variables used to group the students' scores were test interval (third grade, fourth grade, and fifth grade) and race (minority and non-minority). The results of the analysis indicated there is a statistically significant difference between at least two of the means ( $F = 4.465$ ,  $df = 2, 600$ ,  $p = .012$ ). See Table 13 for the means and standard deviations for this analysis. A follow up post hoc, Tukey's Honestly Significant Difference (HSD), was conducted to determine which pair of means had to be greater than this value to be considered significantly different ( $\alpha = .05$ ). The third grade minority scale score mean ( $M = 627.89$ ) was less than the fourth grade minority scale score mean ( $M = 652.76$ ). The fourth grade minority scale score mean ( $M = 652.76$ ) was less than the fifth grade minority scale score mean ( $M = 663.47$ ). The third grade minority scale score mean ( $M = 627.89$ ) was less than the

fifth grade minority scale score mean ( $M = 663.47$ ). Additionally, the third grade non-minority scale score mean ( $M = 638.67$ ) was less than the fourth grade non-minority scale score mean ( $M = 663.72$ ). The fourth grade non-minority scale score mean ( $M = 663.72$ ) was less than the fifth grade non-minority scale score mean ( $M = 681.10$ ). The third grade non-minority scale score mean ( $M = 638.67$ ) was less than the fifth grade minority scale score mean ( $M = 681.10$ ).

Table 13

*Scale Scores on MAP by Race*

Grade	Race	$M$	$SD$	$N$
3	Minority	627.8857	37.3045	140
	Non-Minority	638.6667	38.3615	162
4	Minority	652.7643	36.8463	140
	Non-Minority	663.7160	39.2359	162
5	Minority	663.4714	36.5467	140
	Non-Minority	681.1049	33.1918	162

**Hypothesis ten.** The effect of fully implementing Rigby Literacy by Design on students' MAP Communication Arts scale scores is influenced by special education status.

An eighth two-factor ANOVA was conducted to test hypothesis eight, which addressed research question four. The two categorical variables used to group the students' scores were test interval (third grade, fourth grade, and fifth grade) and special education status (special education or regular education). The results of the analysis indicated there is a statistically significant difference between at least two of the means

( $F = 3.040$ ,  $df = 2, 600$ ,  $p = .049$ ). See Table 14 for the means and standard deviations for this analysis.

Table 14

*Scale Scores on MAP by Special Education Status*

Grade	SpEd Status	<i>M</i>	<i>SD</i>	<i>N</i>
3	SpEd	595.2927	43.3608	41
	Regular Ed.	639.6973	33.6280	261
4	SpEd	617.3902	43.0348	41
	Regular Ed.	665.1188	33.4419	261
5	SpEd	639.7073	48.0824	41
	Regular Ed.	678.1494	30.4796	261

A follow up post hoc, Tukey's Honestly Significant Difference (HSD), was conducted to determine which pair of means were different. The Tukey's Honestly Significant Difference (HSD) critical value was 7.69. The third grade special education scale score mean ( $M = 595.29$ ) was less than the fourth grade special education scale score mean ( $M = 617.39$ ). The fourth grade special education scale score mean ( $M = 617.39$ ) was less than the fifth grade special education scale score mean ( $M = 639.71$ ). The third grade special education scale score mean ( $M = 595.29$ ) was less than the fifth grade special education scale score mean ( $M = 639.71$ ). Additionally, the third grade regular education scale score mean ( $M = 639.70$ ) was less than the fourth grade regular education scale score mean ( $M = 665.12$ ). The fourth grade regular education scale score mean ( $M = 665.12$ ) was less than the fifth grade regular education scale score mean ( $M = 678.15$ ).

The third grade regular education scale score mean ( $M = 639.70$ ) was less than the fifth grade regular education scale score mean ( $M = 678.15$ ).

### **Summary**

This chapter utilized descriptive statistics to describe the size, gender, socio-economic status, race, and special education status for the cohort of students receiving Rigby Literacy by Design instruction. The results of the study's hypothesis testing were also presented in this chapter. The results of the ANOVAs provided evidence of statistically significant growth for students receiving Rigby Literacy by Design instruction, as measured by AIMSweb and MAP Communication Arts. Chapter five describes the findings related to literature, implications for action, conclusions, and recommendations for future research.



## Chapter Five

### Interpretation and Recommendations

The purpose of this study was to investigate the effect of Rigby Literacy by Design on student reading growth for 2009-2010 third grade reading, 2010-2011 fourth grade reading, and 2011-2012 fifth grade reading in the Yar School District, as measured by AIMSweb and Missouri Assessment Program (MAP) assessment scores. This chapter contains a summary of the study including an overview of the problem, purpose statement and research questions, and a review of the methodology. Also included in this chapter are the major findings of the study and how these findings are related to the literature. Finally, implications for action and recommendations for future research are shared.

#### Study Summary

The first section of this chapter provides a brief summary of the study. To begin, the study summary contains an overview of the problem and why the Yar School District adopted Rigby Literacy by Design. The next section includes the purpose of the study and the research questions. The third section reviews the methodology used in the study, and the fourth presents major findings of the study. Lastly, the fourth section is findings related to the literature.

**Overview of the problem.** Since the passage of No Child Left Behind, schools across America are being held accountable for reading proficiency of all students by the year 2014 (U.S. Department of Education, 2003). Administration in the Yar School District was seeking a reading program that was both high quality and rigorous to help meet the needs of their readers. During the 2009-2010 through the 2011-2012 school

years, the Yar School District went through significant changes to revise reading instruction to align with current research. After the adoption of Rigby Literacy by Design, educators had not yet analyzed data to determine the effectiveness of the reading program.

**Purpose statement and research questions.** The purpose of this study was to investigate the effect of Rigby Literacy by Design on student reading growth over the 2009-2010 through the 2011-2012 school years, as measured by AIMSweb and MAP assessment scores. The second purpose of this study was to investigate whether the effect of Rigby Literacy by Design on the student reading achievement of third, fourth, and fifth grade students in Yar School District was influenced by sub-group membership (gender, socio-economic status, race, and special education status).

The following research questions were used to guide the study.

1. To what extent is there an effect on students' reading, as measured by changes in AIMSweb assessment scores, when Rigby Literacy by Design is fully implemented?
2. To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by AIMSweb assessment scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?
3. To what extent is there an effect on students' reading, as measured by changes in Missouri Assessment Program Communication Arts scale scores, when Rigby Literacy by Design is fully implemented?

4. To what extent is the effect of fully implementing Rigby Literacy by Design on students' reading, as measured by changes in MAP Communication Arts scale scores, influenced by sub-group membership (gender, socio-economic status, race, and special education status)?

**Review of the methodology.** This quantitative study involved the Yar School District, a suburban school district in western Missouri. The researcher utilized student cohort data from third, fourth and fifth grades. These students were assessed using AIMSweb and MAP Communication Arts after receiving reading instruction through Rigby Literacy by Design. The dependent variable, growth in reading, was measured as the difference in fluency scores from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade on the fluency portion of the AIMSweb assessments and the scale score from the Communication Arts portion of the MAP state assessment when Rigby Literacy by Design was fully implemented. The independent variables in the study were test interval, gender, socio-economic status, race, and special education status of students. Multiple ANOVAs were conducted to determine the effect of Rigby Literacy by Design on the reading achievement of students.

**Major findings.** The researcher investigated AIMSweb and MAP Communication Arts score changes for students enrolled in the Yar School District for their third, fourth, and fifth grade years and received reading instruction according to Rigby Literacy by Design. The investigation only included students who were a part of the cohort for all three school years, eliminating transiency as an influencing factor when considering achievement.

In analyzing ANOVA results for fluency percentages on the AIMSweb, there was an overall statistically significant difference for test interval. This indicated an overall positive mean percentage score change from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade. There was a marginally significant difference between the means when the data were disaggregated by gender on the AIMSweb assessment. Third grade, fourth grade, and fifth grade scores indicated that females outperformed males. Also, female percentage scores went up from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade while male percentage scores slightly went down between fourth grade and fifth grade. Additionally, the results indicated a statistically significant difference when the data were disaggregated by socioeconomic status. There was a positive mean percentage score change from third grade winter to third grade spring and fifth grade fall to fifth grade winter for free or reduced and unreduced students. There was a positive mean percentage score change from third grade spring to fourth grade fall. There was no significant difference across the test intervals for minority students and non-minority students, as well as for special education students and regular education students. Overall, the results of this study indicated a positive effect on student reading achievement when Rigby Literacy by Design is fully implemented as measured by AIMSweb.

In analyzing ANOVA results for scale scores on the MAP, there was an overall statistically significant difference for test interval. This indicated a positive mean score change from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade. There was a marginally significant difference in the scale scores across test intervals when the data was disaggregated by gender on the MAP. Each year, females

outperformed the males. Additionally, there was not a statistically significant difference for socio-economic status. There was a statistically significant difference in the scale scores across test intervals when disaggregated by minority and non-minority students. There was also a statistically significant difference in the scale scores when disaggregated data by special education students and regular education students. Overall, the results of this study indicated a positive effect on student reading achievement when Rigby Literacy by Design is fully implemented as measured by MAP Communication Arts.

### **Findings Related to the Literature**

When connecting the findings of the current study with those reviewed in chapter two, some similarities and differences were identified. Evidence for the similarities and differences is provided. The findings related to the literature are described in the same order as the research questions and hypothesis testing results that were presented in chapter four.

The results of the study have provided evidence that students receiving Rigby Literacy by Design instruction experienced overall growth as measured by AIMSweb and MAP. Socio-economic status affected performance for students according to AIMSweb. Race and special education status affected performance for students according to MAP. This indicates that a significant amount of students receiving Rigby Literacy by Design instruction showed a positive change in assessment results from third grade to fourth grade, fourth grade to fifth grade, and third grade to fifth grade. These results are consistent with Carr's (2007) findings, which indicated that students participating in a balanced literacy program obtain reading growth in comparison to those receiving basal instruction. Carr utilized the DRA to assess the reading level of students, while this study

utilized AIMSweb and MAP. DRA is more aligned with MAP testing results than the AIMSweb assessment. AIMSweb is only assessing fluency, while DRA also addresses comprehension, fluency, and vocabulary. Both studies found that utilizing a balanced literacy approach that individualized instruction can help raise reading achievement.

This study is also in agreement with the results of Egmon's (2008) quantitative study, which examined reading accuracy, reading fluency, and reading comprehension of first grade students on the Texas Primary Reading Inventory (TPRI). Egmon's study showed a positive relationship between reading fluency and reading comprehension. In contrast, during this study, students with special education needs did not have statistically significant differences in means on the fluency assessment, AIMSweb, while they did show statistically significant differences in means on the MAP Communication Arts assessment. The MAP Communication Arts assessment incorporates fluency, comprehension, and skills.

Participation in Rigby Literacy by Design results in increased achievement on formative assessments and statewide standardized assessments. In contrast, the socio-economic status of students did not affect scale scores on the MAP assessment. These results are in contrast with Beck, McKeown, & Kucan's (2002) research that found a significant discrepancy in vocabulary knowledge among learners from different socio-economic groups.

A significant difference in growth in special education students' scale scores, as measured by MAP, was found as a result of the current study. This study was similar to Kong's (2009) study as both assessed intermediate students. Kong's study only looked at pre and post assessment data for students with special needs. This study was in

agreement with Kong's study as post assessment data revealed that special education students who received reading comprehension instruction showed statistically significant gains in reading achievement. When measuring comprehension on the MAP Communication Arts assessment, special education students had a positive mean score change, indicating reading growth after the implementation of Rigby Literacy by Design.

This study also aligned with the results of the Rigby Literacy (2003) study that piloted the Rigby Literacy by Design program. The Rigby Literacy study's sample was first through fifth grade students. The purpose of the study was to determine if the Rigby Literacy by Design program had an effect on reading achievement. The Rigby study and this study demonstrated overall gains in reading achievement from the beginning to the end with the implementation of Rigby Literacy by Design.

## **Conclusions**

As addressed in chapter one, school districts across America are faced with the challenge of selecting a reading program that will have a positive impact on reading achievement. The Yar School District provided accelerated reading growth for students through Rigby Literacy by Design and the effects on reading growth. The findings from this study have implications for stakeholders ranging from district level administrators to those creating education expectations on a state and national level. The following section outlines implications for action

**Implications for action.** On the AIMSweb and MAP Communication Arts assessments, there was an overall positive mean score change from third grade to fifth grade. However, on both assessments females tended to outperform males, demonstrating that gender created a marginal difference on reading growth.

Consequently, this creates an implication for action for the Yar School District. The district should consider completing fidelity checks to ensure that small group instruction is in place and is rigorous. In addition, areas of weakness should be identified for male students and incorporated into small group instruction. More individualized instruction may be necessary to meet the needs of male students.

There was a statistically significant effect for socio-economic status on reading growth as measured by the AIMSweb assessment, but there was not a statistically significant effect on reading growth on the MAP Communication Arts assessment. The district should consider the difference in the two assessments and how instruction with Rigby Literacy by Design prepares students for both assessments. For example, the AIMSweb assessment is a much shorter assessment than the MAP Communication Arts assessment. Students from lower socio-economic status may require more time to build stamina for assessing.

Additionally, there was not a statistically significant effect for race and special education reading growth as measured by AIMSweb, but there was a statistically significant effect on reading growth as measured by the MAP Communication Arts assessment. Having consulted a district curriculum coordinator for input about the program implementation within the Yar School District, the researcher predicted that the increase in scores on the MAP assessment might have been due to smaller class sizes in the testing environment for special education students. The AIMSweb assessment is typically given in the regular education setting by the regular education teacher. The Yar School District may want to consider making accommodations for special education students to assess in a small group setting on both assessments.



**Recommendations for future research.** Several recommendations have been developed to help further analyze the effect of Rigby Literacy by Design instruction on student reading achievement. A first recommendation is to use a longitudinal design to expand the length of the study. A study could follow the same cohort of students through their sixth grade, seventh grade, and eighth grade years receiving either Rigby Literacy by Design instruction or a similar balanced literacy approach. This balanced approach to literacy instruction could be measured on the students' 8<sup>th</sup> grade MAP Communication Arts assessment.

A second recommendation would be to add a qualitative component to determine the effect of Rigby Literacy by Design on student and teacher feelings towards reading achievement and instruction. The qualitative research could document student perceptions of small-group instruction in a balanced literacy setting. Student confidence and feelings towards reading should be analyzed. Additionally, teacher perspectives regarding the effect of the reading program on overall student reading achievement should be determined.

A third recommendation would be to expand the study to include additional school districts with varying student populations who are using Rigby Literacy by Design. Including diverse school districts would help to expand the generalizability of the study.

**Concluding remarks.** This study examined the effect of the Rigby Literacy by Design program on reading growth of students participating in the program as measured by AIMSweb and MAP Communication Arts assessments. Data were analyzed to determine whether gender, socio-economic status, race, and special education status had a

significant impact on the reading achievement on students receiving Rigby Literacy by Design instruction. Study results indicated that students receiving Rigby Literacy by Design instruction overall improved their AIMSweb percentages and MAP Communication Arts scale scores. Socio-economic status made a difference on the AIMSweb assessment, while gender, race, and special education status did not. Race and special education status made a difference on MAP Communication Arts, while gender and socio-economic status did not.

The ability to read fluently and comprehend text are skills that all students deserve to obtain to become contributing members of society who are college and career ready. Sadly, literacy across America continues to be a concern that affects society. The challenges associated with educating the growing percentage of struggling readers is difficult as school districts look to find the best reading programs. Districts, similar to the Yar School District, must continue to invest in reading instruction that improves reading achievement. Reading programs should be carefully analyzed to ensure the desired effect on reading achievement, but more importantly, how they affect a student's passion for reading.

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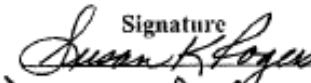
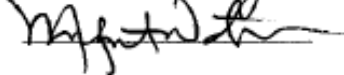
## Appendices

**Appendix A: Baker University IRB Request**


Date: May, 2012SCHOOL OF EDUCATION  
GRADUATE DEPARTMENTIRB PROTOCOL NUMBER \_\_\_\_\_  
(IRB USE ONLY)

**IRB REQUEST**  
**Proposal for Research**  
**Submitted to the Baker University Institutional Review Board**

**I. Research Investigator(s)** (Students must list faculty sponsor first)Department(s) School of Education Graduate Department

Name	Signature	Title
1. Dr. Susan Rogers		Major Advisor
2. Ms. Margaret Waterman		Research Analyst
3. Dr. Patricia Bandre'		University Committee Member
4. Dr. Steve Shelton		External Committee Member

Principal Investigator: Anna Marie McGraw  
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 Mailing address: 2530 SW Golden Eagle Rd.  
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Faculty sponsor: Dr. Susan Rogers  
 Phone: 913-344-1226  
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Expected Category of Review:  Exempt  Expedited  Full**II: Protocol Title****The Effect of Rigby Literacy by Design on Student Reading Growth**

### **Summary**

The following summary must accompany the proposal. Be specific about exactly what participants will experience, and about the protections that have been included to safeguard participants from harm. Careful attention to the following may help facilitate the review process:

**In a sentence or two, please describe the background and purpose of the research.**

The purpose of this study is to explore the effect of Rigby Literacy by Design on student reading growth in the Raytown School District. For confidentiality purposes, the Raytown School District will be referred to as the Yar School District in the study. The researcher will determine if there is a relationship between scores in reading on AIMSweb's Curriculum Based Measurements (CBM) and scale scores in reading on the Missouri Assessment Program (MAP). The study followed 2009-2010 third graders through their 2010-2011 fourth grade year and their 2011-2012 fifth grade year in the Raytown School District. An additional purpose was to determine if demographics (gender, SES, race, and ELL) affect the relationship between Rigby Literacy by Design and reading growth on AIMSweb's CBM assessments and the state-mandated MAP assessments.

**Briefly describe each condition or manipulation to be included within the study.**

There are no conditions or manipulations.

**What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.**

Teachers will fully implement Rigby Literacy by Design. The researcher will determine the effect of Rigby Literacy by Design on student reading growth and demographic data (gender, SES, race, and ELL status). The independent variable is the degree of implementation of Rigby Literacy by Design over the 2009-2010, 2010-2011, and 2011-2012 school years. The dependent variables are student scores on the AIMSweb Reading Curriculum-Based Measure (R-CBM) and the Communication Arts MAP Assessment (3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade).

No questionnaires or other instruments will be utilized in the study.

**Will the subjects encounter the risk of psychological, social, physical, or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.**

The subjects will not encounter any psychological, social, physical, or legal risk in this study.

**Will any stress to subjects be involved? If so, please describe.**

No stress will be experienced by any of the subjects in this study.

**Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.**

The subjects will not be deceived or misled in any way.

**Will there be a request for information that subjects might consider to be personal or sensitive? If so, please include a description.**

No personal or sensitive information will be requested from the subjects. All personal demographic data is archival and currently available from the Raytown School District.

**Will the subjects be presented with materials that might be considered to be offensive, threatening, or degrading? If so, please describe.**

The subjects will not be presented with materials that might be considered offensive, threatening, or degrading.

**Approximately how much time will be demanded of each subject?**

No time will be demanded of the subjects. AIMSweb and MAP assessments are already part of the Raytown School District's assessment expectations.

**Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.**

The subjects in this study are 2009-2010 third grade students, 2010-2011 fourth grade students, and 2011-2012 fifth grade students in the Raytown School District. Students will not be solicited or contracted for this study. Dr. Janie Pyle, Deputy Superintendent for the Raytown School District gave approval pending the IRB committee's approval.

**What steps will be taken to ensure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?**

No subjects will be contacted for this study.

**How will you ensure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.**

As no subjects will be contacted in this study, written consent is not necessary.

**Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.**

No data from this study will become part of any permanent record that can be identified with a student or teacher in the Raytown School District. All data utilized in the study will be coded for anonymity. The data analyzed for this study is already a part of the district's students'

permanent records; however, the results from the study will not be added to the permanent record.

**Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.**

No, participation information will not be made part of any permanent record.

**What steps will be taken to ensure the confidentiality of the data?**

Data gathered will be reviewed by the researcher and will remain confidential. Individual names will not be associated with personal data or in the results of the study. The researcher will retrieve data from the computer database for the participants who take the AIMSweb and MAP assessments. Data will be entered into an Excel document by the researcher. Data from the Excel document will be destroyed after the study. Data available to teachers and administrators is data that the school district collects during the regular school day.

**If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?**

There are no risks involved in this study. This study will add to the findings of earlier studies that investigated reading growth from Rigby Literacy by Design. Additionally, this study will help educators understand how different subgroups based on gender, SES, race and ELL may respond differently to Rigby Literacy by Design instruction on AIMSweb's CBM assessments and MAP assessments.

**Will any data from files or archival data be used? If so, please describe.**

AIMSweb and MAP data from 2009-2012 will be retrieved from the Raytown School District's electronic archives located in the AIMSweb database and the DESE database. Data will be collected for 2009-2010 third graders through their 2010-2011 fourth grade year, and their 2011-2012 fifth grade year in the Raytown School District. Individual students will not be identified in this study.



**Appendix B: Baker IRB Approval Letter**



May 14, 2012

Anna Marie McGraw  
2530 SW Golden Eagle Rd.  
Lee's Summit, MO 64057

Dear Ms. McGraw:

The Baker University IRB has reviewed your research project application (M-0136-0508-0514-G) and approved this project under Exempt Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

The Baker University IRB requires that your consent form must include the date of approval and expiration date (one year from today). Please be aware of the following:

1. At designated intervals (usually annually) until the project is completed, a Project Status Report must be returned to the IRB.
2. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
3. Notify the OIR about any new investigators not named in original application.
4. Any injury to a subject because of the research procedure must be reported to the IRB Chair or representative immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.

Please inform Office of Institutional Research (OIR) or myself when this project is terminated. As noted above, you must also provide OIR with an annual status report and receive approval for maintaining your status. If your project receives funding which requests an annual update approval, you must request this from the IRB one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Carolyn Doolittle, EdD  
Chair, Baker University IRB