THE EFFECTS OF AN INTERVENTION PROGRAM (VOYAGER) THROUGH RESPONSE TO INTERVENTION FRAMEWORK ON 4TH GRADE READING ACHIEVEMENT

By

Lisa Carol Harris

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The ability to read fluently has been confirmed as an indicator of good comprehension and thus academic success. Studies have shown that most students in the U.S. are reading below their grade levels. The U.S. has demanded continuously that the education system increase the outcomes of education for all children. In order to improve children's reading educational needs, effective screening, assessments, and intervention tools need to be implemented properly in U.S. school curriculums. The purpose of this nonequivalent control group study is to investigate the effectiveness of an intervention program in improving the oral reading fluency rates of fourth graders administered using STEEP (Screening to Enhance Educational Performance) procedures in a Response to Intervention structure. The selected participants for this study were 62 fourth-grade students who were receiving Tier II and II reading intervention through the fluency-based reading intervention program. The researcher used an Analysis of Covariance (ANCOVA) to analyze data to determine if the treatment group had achieved significant improvement in their oral reading fluency rates as compared to the control group, while considering the pre-test scores of the students as the covariate. After adjusting for the effect of pre-test scores on reading achievement, the scores from the treatment group were significantly higher than those in the control group after receiving intervention. After adjusting for the effect of pre-test scores on oral reading fluency, the scores from the treatment group were significantly higher than those in the control group after receiving treatment.

Keywords: STEEP (screening to enhance educational performance), reading intervention program, national reading panel, response to intervention (RTI), social development theory, social learning theory, reading comprehension.

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CHAPTER ONE: INTRODUCTION

Background

Competent reading skills are fundamental to academic success, and are important skills in day-to-day life. High levels of literacy are necessary to excel in all academic subjects. Central to high literacy levels is the ability to read fluently and naturally (Griffiths & Stuart, 2013). One of the biggest transitions in individual development is the child's entry into formal education and initiation into formal learning of reading and writing. Millions of children worldwide each year begin their primary education, and only 2 years later, many of these students experience difficulties regarding their progress in the process of reading and writing (Christopher, Hulslander, Byrne, Samuelsson, Keenan, Pennington & Olson,2013). In the specific case of Latin American, Levy and Schady (2013) noted that one out of every three children was already behind when they started formal schooling. Many of these children did not have any pre-school, and many teachers who worked with these children were not prepared to deal with the children's specific problems, which resulted in inadequate learning and repetition. Brown (2013) added that for school failure in the fourth grade, failing involved students not acquiring the basics of literacy.

According to the National Reading Panel, oral reading fluency consists of one of the most fundamental skills in reading, coming first of the other four skills, which include phonemic awareness, vocabulary, comprehension, and phonics (Samuels, 2011). Researchers have described oral reading fluency as the ability to translate text orally with accuracy and speed, or rather more naturally. This skill can be determined by recording the number of words read correctly in every minute. A student's score then can be compared with that of other students in

the same group to determine the progress of that student in his/her oral reading fluency skills (Burt, Ortlieb, & Cheek, 2013).

Oral reading fluency is an indicator of the overall comprehension and reading competence of an individual. According to Brown (2013), students who are able to identify words automatically when reading have more time to devote the needed attention to the comprehension of those words, thus increasing their chances of comprehending texts. In contrast, those who spend too much time trying to decode text focus too much attention on word recognition and thus are unable to dedicate the correct amount of time to the comprehension of text. Jenkins, Fuchs, Van den Broek, Espin, and Deno (2003) concluded, "Problems in acquiring word-level reading are the principal difficulties faced by children who encounter reading problems in the primary grades" (p. 719). Stevens et al. (2013) posited that that 80% of learning disabilities arise because of inability to read at an acceptable level.

Learning to read is an issue with which many students struggle. Many students struggle with learning to read, as well as with comprehending what they have read (Wanzek, Vaughn, Scammacca, Metz, Murray, Roberts, & Danielson, 2013). This reading failure can have immediate and long-term adverse effects on students. According to the Nation's Report Card (NRC) for 2011, 32% of fourth-graders nationwide scored at or above the proficient reading level. The rest of the fourth graders, 68%, scored below the proficient level (Jones, Brown, & Lawrence Aber, 2011).

Fourth grade is the stage at which most children perform an abundance of reading owing to the many subjects and new texts involved in the fourth grade curriculum. These new texts come with unfamiliar text structures, new vocabulary, and most of the content is usually beyond the experience and knowledge of the students (Wanzek et al., 2014). However, most of these

students are highly handicapped in terms of their vocabulary and background knowledge, which poses a challenge to their comprehension of the materials they read. Writers have commonly referred to this phenomenon as the "fourth-grade slump" (Allington, 2011; Wanzek et al., 2013).

In this respect, researchers have developed various theories in order to explain how children learn. Among these theories is the social learning theory, which holds that learning comes from external influences, such as socialization. Albert Bandura, who studied aggression, developed this theory. The theory holds that most human learn behavior by observation through modeling. In social learning theory, Bandura (1977) suggested that behavior is an aspect that one can learn from the environment through the process of observational learning. Similarly, children observe other people around them and accordingly behave in various ways. The theory supports the view that, in order for children to become better readers, they need to observe proper models of reading. Struggling readers can improve their oral reading fluency rate by consistently observing fluent readers conduct oral reading (Sheridan, MacDonald, Donlon, Kuhn, & McGovern, 2011).

Another important theory is the Social Development theory of Lev Vygotsky (1978), who suggested that learning is influenced hugely by the social environment in which the learner is living. According to Vygotsky, due this social interaction, learning is most effective when the learner is at the "zone of proximal development." Vygotsky described this zone as a situation where the learner is interacting with a competent person who can provide proper feedback and guidance to the learner until he/she has sufficiently learned the skill or task (Vygotsky, 1978). According to these two theories, students can learn more new or challenging topics more effectively, and a teacher who is modeling the correct learning behavior properly guides them through it. This teacher is therefore required to provide constructive feedback and guidance in

order to help the learner through the topic until the learner is able to learn the skill or accomplish the task independently (Vygotsky, 1978). In applying the Vygotskian concept of learning, readers who are still struggling will be able to increase their fluency levels if they are placed with a teacher who can provide feedback and proper guidance. As the teacher repeatedly models the behavior, the students will observe and internally register what the teacher is doing until eventually they can produce the same behavior themselves (Bandura, 1977).

In order to foster academic success, including critical skills such as reading, teachers must use the appropriate components (Nassaji, 2014; PASSCC, 2013). According to the Beck, McKeown, and Kucan (2013), teachers should aim to provide appropriate literacy instruction through effective and reliable approaches. This study supported quality teachers implementing the five critical reading components – comprehension, fluency, vocabulary, phonics, and phonic awareness. These authors gathered teachers' perceptions of the most effective literacy instruction methods for kindergarten and first graders with inadequate literacy development. Beck et al. (2013) asserted that teachers should build upon the foundation of a solid literacy skillset.

The National Center on Response to Intervention (2011), has defined RTI as an intervention and assessment to maximize student achievement and reduce problem behaviors using a multi-level prevention system. Schools use RTI, to determine which students are at risk for poor learning outcomes, monitor the progress of students, provide the students with evidence-based interventions, and identify which students have learning disabilities. Moreover, one of the interventions is the Voyager that provides procedures to at-risk fourth graders whom teachers have assessed using a properly identified Response to Intervention (RTI) program.

This study employed the Voyager Universal Literacy (VUL) intervention program to help improve students' oral reading fluency rates. This is a reading program, which uses individual

reading instruction, comprehension-related activities, writing, problem solving, and computer-based practice. The researcher identified this program in line with social learning theory, which holds that learning is acquired through observation and socialization. VUL is designed properly to offer explicit, systematic instructions to teachers as a way of ensuring that the necessary skills are properly modeled, sufficiently practiced, and mastered. Teachers participating in the program are provided with properly sequenced lessons containing the necessary tools and directions for assessment and instruction. The lessons mainly focus on phonological skills, fluency, language development, writing, and comprehension (Tucker & Jones, 2010).

The participant students were required to read at different levels first as a class, then in small groups, and then individually. The students were also allowed to conduct computer-based practice (Saine, Lerkkanen, Ahonen, Tolvanen, & Lyytinen, 2011). Every day during the program, teachers lead the learners in an opener which introduced the particular reading skill that the students would be practicing for that particular session. The students then participated in collaborative reading stations necessary to reinforcing their reading skills. Depending on the intervention needs and skill levels of the students, teachers lead small-group instruction at a teaching station (Wanzek et al., 2013). The teachers were required to monitor the progress of the students every week.

Problem Statement

The problem was that students are struggling with reading properly and fluently, which is affecting their overall learning. Fluency in reading indicates the ability to comprehend what is read. Researchers have shown that 80% of learning disabilities are associated with problems with reading (Stevens et al., 2013). According to the Nation's Report Card (2011), there exists a nationwide concern about children who cannot read fluently. Fluent reading is even more

essential for children in the fourth grade. This is because this is the educational level when most children are introduced to multiple subjects whose understanding depends heavily on their ability to read and comprehend what is required of them. This is where the student is set either on the path to success or to failure (Burns & Gibbons, 2013). Further, students should have learned all of the necessary basic reading skills in previous grades, and most fourth grade teachers are more focused on proceeding with syllabus requirements other than on teaching reading skills. Therefore, intervention programs are highly important at this stage (Spencer et al., 2013).

The need for intervention for fourth graders is further heightened by the findings of a study by NAEP, which revealed that only 61% of U.S. fourth graders could read fluently, which meant that almost 40% of them were struggling students (National Center for Education Statistics, 2011). This is a huge problem since students who cannot read fluently by the fourth grade may end up facing major academic difficulties in the subsequent grades if the problem is not addressed early (Burns & Gibbons, 2013). In fact, these students are already behind in their learning, since they should have mastered fluent reading in their early grades. Therefore, efforts to help them recover should be carried out as soon as they are detected, before their studies become too complicated (Mimio, 2013). Failure to address the issue at this stage may mean that the struggling student will never recover from his/her reading problem.

Purpose Statement

The purpose of this study was to examine the reading fluency by providing RTI reading interventions to fourth grade students who are having difficulties with reading. According to Lonigan, Purpura, Wilson, Walker, and Clancy-Menchetti (2013), the United States is home to over five million enrolled students. School districts use RTI as a means to identify students with learning disabilities. Fourth grade learners who are having difficulty in reading are placed in

Tier II or III intervention groups in order to identify if the students will respond to the intervention provided. There is currently a void in the research about how RTI reading intervention is implemented with fourth grade learners. More research is necessary to determine the effectiveness of this reading intervention in an effort to better meet the language and literacy needs of children learning English, specifically those children for whom English is a second language.

The dependent variable(s) and other variables of interest, which are generally defined as post-test scores of reading achievement scores and oral reading fluency and the control variable pre-test scores, were statistically controlled in this study. This study was aimed at using an in-school intervention program administered using STEEP procedures to determine how effective this strategy is as an intervention program for fourth graders who experiencing problems in their oral are were reading fluency rates. The researcher expected that the study results would prove the hypothesis that intervention programs administered using STEEP procedures and measured using a properly selected RTI are very useful in improving fourth grade students' oral reading fluency, which would support the findings of Hill (2013).

The academic achievement of children who are learning English is often below their speaking level. For instance, children learning English have the dual challenge of not only learning academic content, but also learning the English language simultaneously. Children learning English generally take longer to become readers and writers (Restrepo, Morgan, & Thompson, 2013; Swanson, Harris, & Graham, 2013). According to Restrepo et al. (2013), children learning English often struggle with learning to read; however, there is a void in the research about how RTI Tier II and III reading intervention, such as Voyager Universal Literacy program, is implemented for fourth grade students who are learning to speak English.

This study was also concerned with the implementation of Voyager Universal Literacy as RTI Tier II and III reading intervention in fourth grade students' classrooms. Gathering evidence from classroom teachers may lead to a better understanding of frequency in providing RTI Tier III reading interventions within the district and may provide several unique cases of the intervention. In addition, the researcher sought to explore the scope of students' reading progress.

Significance of the Study

The current study seeks to determine the significance of the reading intervention program Voyager Universal Literacy (VUL), together with the response to intervention framework in relation to the reading outcomes for fourth grade students. The researcher was committed to providing insights that involve perspectives on the reading interventions among fourth grade students. The traditional developmental kindergarten is rapidly becoming a relic. State policy and national policies such as the '*No child left behind* (NCLB) *Act*' often place fourth grade teachers in a predicament: either teach the curriculum or teach what is developmentally appropriate according to some experts.

The results from this research study will be significant for the various stakeholders who are involved in teaching struggling fourth graders, especially from rural districts and schools. Researchers have conducted several studies concerning the improvement of reading rates of young children in kindergarten and grade one (Saine et al., 2011). However, there is little research on how to improve the oral fluency reading rates of fourth graders (Allington, 2011). The findings of this study will therefore be important to fourth grade teachers struggling with students who cannot read fluently.

This study will help such teachers to understand how to conduct an intervention program administered using the Voyager Universal Literacy (VUL) and measured through the STEEP assessment and RTI program. The study will also be important to school administrators who are faced with the challenge of deciding which intervention program they should recommend and implement in their schools. This study will show that the Voyager Universal Literacy administered intervention program goes a long way toward improving the oral reading fluency rates of fourth graders (Penttinen, Anto, & Mikkila-Erdmann, 2013). This study will also be important to government officials and policymakers who are mandated with the task of formulating policies on intervention programs to be implemented by various schools.

Research Questions(s)

The researcher aimed to answer the following research questions, which formed the basis for the research study:

RQ1: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the reading achievement scores, as measured by the STEEP assessment model, of participating fourth grade students as compared to those not participating in the Voyager Universal Literacy intervention program?

RQ2: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the oral reading fluency, as measured by the STEEP assessment model, of participating fourth grade students compared to those not participating in the Voyager Universal Literacy intervention program?

Null Hypotheses

The null hypotheses for this study were:

$H_0$1: There is no significant difference in reading achievement scores, as measured by the STEEP assessment model, between the fourth grade students receiving Tier III interventions and students who did not receive the treatment.

$H_0$2: There is no significant difference in oral reading fluency, as measured by the STEEP assessment model, between the fourth grade students who received Tier III interventions and students who did not receive the treatment.

Definitions

The researcher used the following terms throughout this discussion to help understand the characteristics of an effective reading intervention RTI program for fourth grade students.

1. *Screening to Enhance Education Performance (STEEP)* - The STEEP program is a pre-referral screening system, which involves classroom-wide academic assessments, as well as assessment of performance or skill deficit by applying CBM (Schmitt et al., 2013).
2. *Curriculum-Based Measurement (CBM)* - This is a standardized assessment program that is used to show a student's progress (Philips, 2010).
3. *Fluent* - Fluency refers to the ability to quickly recognize selected words with meaning and precision (Christodoulou et al., 2014; NICHD, 2014).
4. *Interventions* - These are focused lessons, which are based on the specific needs of each student (Espin et al., 2013).

5. *Phonemic awareness* – This refers to the knowledge that spoken words consist of smaller segments of sound, which are known as phonemes (National Reading Panel, 2000).
6. *Progress monitoring* - These are additional tests administered on the treatment group to determine whether the intervention program is working (Espin et al., 2013).

Research Summary

For the purposes of this research study, the researcher used a non-equivalent control group with pre-test and post-test measures. This allowed for a comparison of the fluency scores and achievement for students participating in the intervention program with those in the control group in order to determine the effectiveness of the program. This kind of research design is used in three major scenarios: to ensure that the study meets the practical requirements of ethics, funding, and school administrators; to assess the effectiveness of intervention programs that have been implemented without conducting an evaluation procedure; and to allow a researcher to dedicate more resources to external and construct validity issues (Fearrington et al., 2014).

This research design was appropriate for this study in meeting ethical standards since the sample used for the study was arrived at through random sampling, which is a procedure to ensure external validity. Random assignment has to do with an assignment to a treatment and control group and is a method used to increase internal validity. The participant teachers first administer a pre-test before the introduction of the intervention program, and then administered a post-test after the intervention process for both groups. The researcher then analyzed these tests to determine whether there was any difference in oral reading fluency after the intervention program, as well as any differences between the treatment group and the control group.

CHAPTER TWO: LITERATURE REVIEW

Introduction

In this literature review, the researcher examined the existing studies on effective reading instruction for fourth grade students who enter school with inadequate literacy development. From the beginning, reading instruction has been in a constant state of flux. In order to meet the demands and standards of each era, educators made many changes which they believed better addressed the perceived needs of the children at hand. Teachers have used different methods over time to conquer reading problems because reading instruction is one of the most important aspects of education, and it remains so today.

Research have shown that the requirements of the Reading First program (NRC, 2011), such as differentiated instruction, allow each student to learn at his/her ability level and professional development. That enlightens teachers on major factors of how to accommodate students; parental support, which is an important tool for helping students build strong literacy skills; and teacher readiness, which requires highly qualified teachers, as they influence learning and have a significant effect on student achievement. Additionally, this literature review includes perspectives of reading researchers who share the thoughts of this study's author in this respect.

To perform this literature review, the researcher searched for physical and electronic dissertations, texts, peer-reviewed articles, personal library books, and scholarly journals. Key terms for this study included *kindergarten reading programs*, *early literacy*, *reading intervention*, *emerging literacy*, *history of reading instruction*, *No Child Left Behind*, and *the National Reading Panel*. The researcher reviewed literature regarding the basic components of

literacy development, which teacher use to teach reading under NCLB. These basic components are reading comprehension, fluency, vocabulary, phonics, and phonemic awareness.

School systems in the United States have been under attack by critics who have cited a host of problems, particularly for students from lower socioeconomic status and minority backgrounds. The students' lack of education and job skills can lead to poor health, poverty, higher unemployment, criminal activity, and the use of public assistance at the taxpayer's expense (Cornoldi & Oakhill, 2013). According to the US Department of Education (2012-2014), 68% of fourth grade public school students were less than proficient level in reading in 2009, while in 2007 11% repeated one or more grades since starting kindergarten. According to the NAEP reading test in 2009, 83% of fourth grade students from low-income and high poverty areas could not read at grade level. (US Department of Education, 2012-2014).

Therefore, many districts have started adopting programs to meet the Reading First Initiative of the NCLB Act, which resulted from research findings of the National Reading Panel (NRP) report in 2000. This legislation requires that all reading programs from kindergarten through the third grade contain explicit and systematic instruction in five areas: fluency, comprehension, vocabulary development, phonemic awareness, and phonics.

In kindergarten and first grade children begin to transition into a real school setting (Massachusetts Department of Elementary and Secondary Education, 2014). However, not all experts believe that children should begin their schooling as early as kindergarten; some perceive that 5-year-olds are too young for a structural environment. According to Kamil, Mosenthal, Pearson, and Barr (2014), it is a mistake to expose children to academic instruction that is not age appropriate. The authors implied that there were stages and certain age limits for learning certain reading materials. They stated, "Children will acquire these skills more easily and more

soundly if their lessons accord with the developmental sequence that parallels their cognitive development" (p. 1).

Kamil et al. (2014) agreed with Calhoun, Scarborough, and Miller (2013), who declared that early childhood students would learn at their own pace, through interaction with others. The authors posited that children should communicate with peers of the same age in an environment that would facilitate learning. They also asserted that children's literacy skills will improve, and that they will have a greater opportunity to socially, emotionally, mentally, and physically develop.

Further, Kamil et al. (2014) argued that if classroom environments are set up to mimic home environments, children would feel less threatened, and would feel more comfortable socializing with their peers (Calhoun et al., 2013). Kamil et al. (2014) declared that young children do not need "training" in order to learn. These ideas were obvious in traditional kindergarten classrooms from before the NCLB legislation.

According to Kamil et al. (2014), in a "developmentally appropriate" classroom, young children do not sit at a desk doing worksheets. Rather, they act in creative and organized spaces that promote interaction, exploration, and engagement in age-appropriate hands-on activities. Kamil et al. asserted that children should not learn literacy skills too early; rather, they should generate their cognitive skills and use them on their own, rather than being taught too early how to use them. These authors asserted that teachers should be promoters of young children's knowledge rather than direct instructors. Young children learn best when they learn on their own because group learning can diminish a child's eagerness to learn. According to Ngware et al. (2014), "Early education programs rich in self-initiated activities in a protected environment enable children to extend their intrinsic interest in learning to academic content" (p. 18).

Additionally, "Young children are intrinsically motivated to learn because learning is necessary for survival" (Ngware et al., 2014, p. 20).

Piaget (1971) theorized that children learn through making discoveries when they interact with the world on their own through different stages. Piaget posited that "the more children interact with others, the greater [their] incentives for literacy acquisition" (Piaget, 1971). The author also found that young children use schema to understand the world in which they live, and they continue to build thereon, using only the information that is needed for that purpose. Children use a cognitive ability called schemas to understand the world.

According to Piaget, children interact with different surrounding materials during play, and utilize their thought process to make sense of the world around them by combining multiple ideas (Charles, 1974). Piaget also posited that students learn from what they discover and incorporate independently (Charles, 1974). Piaget asserted that kindergarten students are most usually at the "pre-operational" stage. At this stage (ages 2 through 7 years old), most young children cannot read, nor do they comprehend what they read (Charles, 1974). Although experts have proposed a later start to reading instruction, the NCLB mandate requires that reading instruction begin in kindergarten.

The primary focus of reading instruction should be on effectiveness. This study derives from the present setting in which five essential components, which researchers have found to be key components for effective reading instruction, are part of the daily instruction (NRP, 2011). The NCLB and the Reading First initiatives have adopted these as essentials for teaching students to read proficiently.

Van Voorhis, Maier, Epstein, Lloyd, and Leuong (2013) exposed a number of substantial inaccuracies in the research by NRP. They were also critical of researchers who revealed no

long-term evidence or difference in developing reading skills. McCulley, Katz, and Vaughn (2013) stated that the body of research included several incorrect research patterns.

According to McCulley et al. (2013), the NRP's data and words revealed serious flaws in generalization, reliability, and validity. The researcher also claimed that there was evidence of inconsistencies between findings of what the NRP declared to be true and the panels own documentation of a pattern of contradictions. Further, in the NRP report, McCulley et al. (2013) claimed they found evidence of weaknesses and broken links in the report about phonics instruction. Additionally, they claimed that there were inadequacies in validity and found that the NRP report was inaccurate concerning true reading.

Theoretical Framework

Social Development Theory

Vygotsky was a seminal researcher in the field of information processing theory, which has contributed to the learning process and the development of reading comprehension. For example, Vygotsky (1978) stated that parents should educate their children with direct guidance and instruction in an effort to take them to a level beyond their capabilities. Vygotsky suggested that there is a process to learning and that some steps should not be overlooked or skipped. For example, children should not be learning sounds before they can identify letters (Vygotsky, 1978). Vygotsky's theoretical framework of social interactions is fundamental to the development of cognition. When researchers combine Vygotsky and Bandura's theories, the result is a theory called constructivism. Constructivism describes the knowledge and beliefs that are formed within the learner.

In modern classroom, there are students of many different reading levels. Teachers must be responsive to students' needs, and must use instructional approaches that match students' learning abilities and developmental levels. Vygotsky (1978) argued that students are more successful in their learning when they first utilize instruction at a lower comfort level, proceed to a higher "scaffolding" level, and gradually leave this level during independent work. Vygotsky further declared that children have a "zone of proximal development" during learning that teachers must be aware of in order to assist them as they learn. Vygotsky posited that teachers should create instruction that brings together what children know and what they can learn. Vygotsky stated, "Adults should not deny students abstract learning experiences on the basis of their supposed level of development, but rather take learners to the upper limits of their potentiality" (p. 87).

Vygotsky (1978) defined the zone of proximal development as "the distance between the actual development level as determined by and through independent problem solving under adult guidance or in collaboration with more capable peers" (pp. 84-85). The author indicated that "true learning" occurs when learning is at the student's level with assistance and experience. Kindergarten students enter school at different academic skill levels, and teachers must provide lessons tailored to the students' individual levels of understanding. Schools must provide teachers with opportunities for continual growth and professional development in order to improve students' learning.

Vygotsky (1978) posited that literacy learning often results from socialization. Vygotsky wrote that children must talk about a new concept or problem in order to comprehend or utilize it. Vygotsky noted that play is required for children to develop cognitive skills and to learn.

Children use cognitive play skills such as the understanding that one object can represent another when developing literacy skills (Vygotsky, 1978).

Vygotsky (1978) argued that as teachers carry out instructional duties, they should engage students in learning as much as possible. It is essential to engage them at their highest capacity of learning but to stay within the realm of their learning levels. Engaging students to their highest level of learning, or their zone of proximal development, can advance students to achieve proficiency more efficiently (Appendix A). The author implied that if students are abstract learners, regardless of their developmental stage, they should receive opportunities to accomplish their potential (Vygotsky, 1978). The information obtained from this study validates this study's argument that the participants understood how to present lessons that would scaffold students within their zone.

Vygotsky noted that children develop when learning is at their learning level with the assistance of an adult. Vygotsky was an active supporter of constructivist learning. The author claimed that some children learn by creating their own knowledge structures through discovery practices. After reading about constructivist learning, the current researcher came to believe that students who enter school with little or no literacy development really need more direct instruction. It is essential that lessons be differentiated to meet the academic need of every student in the classroom and teach them in their zone of proximal development (Vygotsky, 1978). The teachers must ensure that the content is engaging and appealing to the students' interest to the point of achieving mastery.

Social Learning Theory

Learning can occur based on observation of the behavior of others. Social learning (also known as modeling, imitation, vicarious learning, cognitive social learning, or observational learning) involves a situation including at least two individuals: the model, who engages in a particular behavior, and the subject, who observes such conduct and whose observation determines learning (Appendix B). Unlike learning by conditioning, in social learning, learners do not receive reinforcement. In this model, the learner does imitate the behavior of receiving reinforcement.

Although scholars first sought to understand social learning through the framework of behaviorism, it soon became apparent that this was inappropriate. Scholars soon developed the mentalist conception, as shown by the work of Albert Bandura (1977), a psychologist who systematized the theory of social learning. The author believed that it is necessary to refer to the existence of mental representations in order to understand imitation, particularly in the acquisition phase of behavior. Bandura defended the existence of two phases, each divided into two sub-phases, to explain this type of learning: the phase of acquisition of behavior, with sub-phases of attention and retention, and the phase of the implementation of behavior, with sub-phases of motor reproduction and motivation and reinforcement.

Vicarious learning for the subject presents several important advantages: it extends the subject's skills in controlling the environment, and it is less expensive and difficult than mere conditioning learning. Social learning is the basis of cultural transmission, as it allows members of the community to transfer their skills to others without the need for others to acquire those skills from their own experience. Many researchers have believed that this type of learning is unique to human beings, or to higher order animals such as primates.

Models can teach observers how to behave in a variety of situations through self-instruction, guided imagery, self-reinforcement to achieve certain objectives, and other skills. Often the success or failure of aspects of life in a culture depend on observational learning because it can be a target model (causing learning disability) or pro-social. Thus, observational learning influences the members of a society. According to Bandura (1977), learning involves information processing about one's environment that results in modified action.

Bandura (1977) affirmed that social learning theory (SLT) is a highly effective, rigorously researched intervention. Bandura stated that SLT could assist in: (a) assessment, (b) goal setting, (c) data collection, and (d) analysis. The ABA strategies, which consist of (a) direct instruction, (b) positive reinforcement, (c) prompting and (d) fading procedures, can assist in effectively meeting the needs of students with disabilities and ensure the best possible learning environment. SLT, as the theoretical framework for this study, led to the RTI Model.

Literature Framework Section

Response to Intervention Model (RTI)

NCLB included requirements for the use of research-based methodologies and materials. NCLB mandates created a sense of urgency among many educators to rethink their practices in the areas of instruction, intervention, and assessment. Shortly after NCLB was implemented, the Individuals with Disabilities in Education Act (IDEA) was reauthorized, becoming the Individuals with Disabilities in Education Improvement Act (IDEIA) of 2004. One significant provision of IDEA was Response to Intervention (RTI). RTI has been implemented primarily as a problem-solving model in which students are provided appropriate levels of support as evidenced by their responses to instruction and intervention (Appendix C).

Teachers use the RTI model to implement instruction and intervention for at-risk students (Molfese, Fletcher, & Denton, 2013). Teachers may use intervention support when students' progress-monitoring data indicate that the student is not progressing toward grade-level benchmarks (Molfese et al., 2013). Some models utilize Tier III to develop the individual education plans for special education services (Denton et al., 2013). However, in order to meet struggling readers' needs, teachers must develop the students' differentiation and reading skills (Rayner, Ardoin, & Binder, 2013).

Therefore, many states, districts, and schools use a three-tiered (III RTI) model in which the classroom teacher universally screens all students in Tier I, and then provides instruction and intervention. Students who do not make adequate progress with Tier I receive more strategic support and monitoring in Tier II. Students who do not make adequate progress in Tier II receive intensive support in Tier III. This type of RTI model requires a method for universal screening and progress monitoring through a battery of tests as early as possible, usually starting in or before kindergarten.

The framework also included three tiers - core, strategic, and intensive - which described the levels of assistance students could receive based on their responses to the previous level of instruction or intervention. Roberts, Vaughan, Fletcher, Steubing, and Barth (2013) studied reading achievement predictor variables within the context of RTI multi-tiered intervention models. The study was unique to previous studies in that it allowed the researchers to examine student characteristics measured early in the students' school career in relation to later reading achievement after students had received instructional supports. The researcher identified over 650 students in Oregon and Texas were identified for participation in the study based on

kindergarten or early first grade DIBELS performance. The study focused on the predictive validity of demographic factors (such as home language), early reading skills, and social behaviors in at-risk students' success on third grade standardized tests. Based on scatter plots of first grade measures, the researcher split into high versus low groups to better examine the interaction of the variables. The researchers found student growth to be curvilinear in fashion, decelerating slightly between second and third grades, and found that the only significant predictors of third grade SAT-10 performance were declines in first grade phoneme segmentation fluency and spring first grade passage comprehension ($R^2 = .097$, $z = 4.360$, $p < .001$). For third grade oral reading fluency, the alphabetic principle was a significant predictor only for the low academic group ($R^2 = .11$, $p < .01$) (Roberts et al., 2013).

In addition to the initial assessments completed in kindergarten and first grade, Roberts et al. (2013) periodically reassessed students through the end of third grade. Students also received interventions from school personnel during the study. The researchers felt that, because students received evidence-based reading interventions, as called for in NCLB and IDEA, this mitigated most of the early reading achievement factors. The researchers turned their attention to demographic and social behavior variables and found three that had a significant impact on student achievement: gender, Hispanic ethnicity, and social skills. They concluded that the effects of an intervention practices are changing educational contexts in meaningful ways and that researchers should continue to study a variety of factors that influence student achievement should continue to be studied. The present study examined similar demographic and reading achievement data, also in the context of the presence of a multi-tiered intervention program.

Hagan-Burke et al. (2013) reported that "by the end of third grade, 95% of students were out of risk for word attack, 93% were out of risk in word identification and passage

comprehension, and 49% were out of risk for oral reading fluency. The researchers attributed the alteration of reading status directly to the interventions provided in each grade (Hagan-Burke et al., 2013). The probability of a student who started below the 30th percentile in kindergarten and received reading interventions being out of risk by the end of third grade was nearly 93% (^{P}out of risk = .927, ^{P} still at risk = .073, $p < .05$) (Etzioni & Gulati, 2013). To explain further, when the first cohort attended kindergarten through second grade, teachers did not use a multi-tiered intervention model; that is, they instructed their assigned students within their own classroom and provided uniform reading instruction to all students in the class. Each student received one small group reading lesson per day, and the lowest four or five students may have received additional help of some sort. When the second cohort of students began kindergarten in 2008-2009, the school had shifted to a more collaborative model in which teachers shared the responsibility of providing reading instruction for all students in their grade level. Students in the second cohort all participated in a multi-tiered intervention model where the teachers worked as a grade level team, along with para-educators and support teachers, to deliver one to three doses of small group, leveled reading instruction to all students per day.

Students were grouped based on their performance on regularly administered formative assessments, and the groups were fluid and flexible, meaning that the amount of reading instruction a student received could change every few weeks. According to Channell, Loveall, and Connors (2013), the two schools that implemented the program with lower levels of attendance and completion did not show significant gains. It appears that the intervention is beneficial for both fluency and comprehension support, but due to the small sample size and participant selection process, researchers must perform study to generalize the effects to the greater population.

The third intervention type (Tier III) used by the school in the present study is teacher-created intervention. In this type of intervention, teachers use formative assessments to design interventions that assist students through games, a quiet environment after school, one-on-one attention, and/or through additional practice time with high frequency words, reading aloud, and spelling/writing activities. A review of the literature revealed a large variety of studies, but none with conclusive findings on interventions similar to the teacher interventions offered at the sample school, since the assessment requirement was crucial in this respect, and researchers have considered Voyager intervention program as an effective RTI.

Problem with Reading Fluency

Fluency is essential to students' literacy development. Fluency refers to the ability to quickly recognize selected words with meaning and precision (Christodoulou et al., 2014; NICHD, 2014). Fluency is defined more commonly as "the ability to read rapidly with ease and accuracy, and to read with appropriate expression and phrasing" (Grabe & Stoller, 2013, p. 72). Grabe and Stoller also stressed that fluency is not a learned skill, but it develops as students enhance their reading skills. When students are not fluent readers, they struggle to comprehend the text, and require assistance to build decoding skills (NICHD, 2014; Landeri et al., 2013). According to Bishop, Nation, and Patterson (2014), slow readers in the early grades often do not catch up in later grades. As a result, teachers must attempt to build fluency early on among struggling readers. Researchers have shown that different forms of reading practice can improve students' ongoing reading fluency (NICHD, 2014).

Several researchers have sought to explore the connection between text comprehension and fluency (Reed, Sorrells, Cole, & Takakawa, 2013). Teachers focus on fluency in order for students to read quickly and accurately, as well as to gain meaning from the text (Mimio, 2013).

Reed et al. (2013) wrote that when children arrive in the fourth grade without proficient reading skills, they start on the dropout track (Reed et al., 2013). Teachers use guided repeated oral reading and repeated reading as two strategies to improve fluency (Pfost, Hattie, Dorfler, & Artelt, 2013; Ashby, Dix, Bontrager, Dey, & Archer, 2013). When students read selections repeatedly, they become comfortable with the words they encounter, and they can better use quotations to support reading (NICHD, 2014).

Further, students' memories become stronger, and they can more easily remember the content of the selection (NICHD, 2014). Guided repeated oral reading helps student to build fluency (Beck et al., 2013). Researchers have shown that oral reading is significant to developing fluency and comprehension, and it increases motivation and enhances student cognitive skills (Niedo, Lee, Breznitz, & Beringer, 2013; Reach Out and Read National Program Center [ROR], 2014). A four-month study on a group of elementary students confirmed the findings of the NRP that, with repeated reading, fluency can be improved (Bolaños et al., 2013). The study consisted of 50 sessions, a 16-week treatment of repeated reading for struggling readers in grades four through eight. Students in the intervention group advanced on average (far greater than those in the control group) to 12 words per minute for newly read passages (O'Conner & Vadasy, 2011).

Students become better at reading certain words as they encounter them more often. Guthrie, Klauda, and Ho (2013) promoted word learning fluency as a precursor for reading fluency. Teachers can use several methods to improve fluency: (a) modeling the stops and starts associated with punctuation marks; (b) encouraging a rate of reading that is neither too slow nor too quick; (c) timing the student as they read different texts for 1 minute each (Countas, 2011).

One essential element for fluency instruction is to "ensure passages are within the learners' decoding range, 95% accuracy or higher" (Espin et al., 2013, p. 19). Additionally, reading-level-appropriate vocabulary encourages students' reading fluency (Hughes, Phillips, & Reed, 2013).

Professional development helps teachers to accommodate students who learn differently and is a requirement of the Reading First initiative. Hulme and Snowling (2013) declared that teachers require professional development training in order to implement differentiated approach. Differentiated instruction involves presenting lessons in different ways according to students' learning ability levels so that students can effectively acquire information necessary for learning (Eberhard-Moscicka, Jost, Raith, & Maurer, 2014). Students who can respond to instruction on their readiness level exhibit higher rates of academic success (Vygotsky, 1978).

Thus, teachers need to model fluent reading, provide repeated reading practice, and provide assistance and coaching (Abu-Hamour, Urso, & Mather, 2013). Having an effective teacher gives the struggling readers a positive message that fluency is important because the teacher is taking the time daily to read with the students (Abu-Hamour et al., 2013). Teachers' lack of knowledge regarding fluency is due to the fact that teacher preparation programs fail to provide instruction on fluency assessment and instruction (Hoffman, Afflerbach, Duffy-Hester, McCarthey, & Baumann, 2014).

Teachers require updated and effective development skills in order to prepare students to succeed. Alter, Oppenheimer, and Epley (2013) suggested that teachers require professional development in order to provide a classroom that allows students to achieve. Some children lack literacy skills prior to their schooling; therefore, teachers need to know how to meet these students' educational needs as soon as they enter formal schooling.

Niedo et al. (2013) posited that a student's pre-school reading skills can predict his or her later reading achievement. Through professional development, teachers learn how to incorporate differentiated instructional skills and to apply new ways of teaching (Klein & Riordan, 2011). Through this development, teachers are empowered to face the modern challenges of teaching in today's world.

Teachers play perhaps the most important role in a student's literacy education, acting as the catalyst for all future learning. Teachers must act as lifelong learners in order to increase their own educational performance; thus, schools must provide teachers with sufficient time to enhance their skills and knowledge through professional development (American Educational Research Association [AERA], 2013; Logan et al., 2013; Silverman, Speece, Harring, & Ritchey, 2013).

According to Logan et al., "When teachers are given professional development choices they are more likely to align student learning needs with their professional learning needs: thus influencing student achievement" (p. 2140). Researchers have agreed that teachers should choose the most suitable professional development sessions for their educational need (American Educational Research Association, 2013; Lapp, Flood, Brock, & Fisher, 2013). When teachers receive proper and appropriate training, they are empowered to fight students' literacy challenges (The Association for Supervision and Curriculum Development [ASCD], 2014). Teachers require a continuation of professional growth and development in order to be effective.

The NCLB Act mandates that all students must have access to high-quality and well-trained teachers (Phillips et al., 2014). Researchers have agreed that all schools require such teachers, but especially those schools that enroll high numbers of at-risk students (Tulis &

Fulmer, 2013). Attaining literacy objectives and goals is the product of utilizing quality teachers.

Professional development can provide teachers with the knowledge that is necessary to become quality teachers. Effective schools make students, teachers, and organizational learning a priority, utilizing professional development as a primary source (Abu-Hamour et al., 2013). Professional development offers opportunities for teachers to redefine their purpose, responsibility, and feelings for teaching young children (Genesee, Savage, Erdos, & Haligh, 2013). It is the key to enhancing both teacher knowledge and student academic success. Additionally, through professional development, teachers learn how to align instruction with students' instructional needs in order to be productive (Abu-Hamour et al., 2013). Teachers who participate in professional development are able to withstand classroom challenges in order to provide consistent quality instruction. They may learn skills such as developing new knowledge and integrated thinking (Klein & Riordan, 2011).

In order to be effective, teachers must be able to identify their students' needs, connect new knowledge to preexisting ideas, construct new ideas, and teach according to this expanded knowledge (Abu-Hamour et al., 2013). Teachers' professional development must be continuous and maintained. NRP (2011) highlighted that "There is a critical need to improve teacher knowledge about reading instruction in order to address the urgent national priority of helping all children learn to read by the end of fourth grade" (p. 378).

Reading Comprehension

Reading is a development, and reading comprehension is part of this development (Ricketts, Jones, Happe, & Charman, 2013). Ricketts et al. (2013) investigated the development of reading, and the results of their study indicated the difficulties that students face in the

developmental phases of reading. The three phases are: (a) word decoding, (b) recognizing words automatically, and (c) reaching a maximum speed in recognizing words automatically. As Niedo et al. (2013) indicated, students who make several reading mistakes and/or read slowly due to a weak phonological base, which is part of the first phase, are considered by Ricketts et al. (2013) to be 2.5-3 years behind their grade level. Students who have difficulties in the second and third phases are those who are able to decode and read, but do not have fluency while reading. These students are considered 1.5 years behind their grade level (Nobre & Salles, 2014).

According to Silva and Cain (2014), early reading ability has a lasting impact on students' academic success. These authors stated that those who are able to read fluently in first grade have a greater chance of success throughout their school careers. Greater student reading fluency is the result of constant exposure to reading materials, especially during the students' early years. This exposure to reading materials also produces a greater accumulation of vocabulary, language skills, and comprehension. Furthermore, Hughes et al. (2013) stated that oral reading fluency allows students to focus more on the comprehension of what they are reading, instead of focusing on decoding the text.

According to Cain and Bignell (2014), greater reading fluency indicates better reading comprehension. Thus, the lack of appropriate reading fluency is the manifestation of the student's slow processing of orthographic information and slower integration of new information (Miller et al., 2014). Therefore, teachers must place special emphasis on reading instruction, since fluency plays a crucial element in comprehension. As Lapp et al. (2013) indicated, reading fluency is a significant predictor of reading comprehension.

Lapp et al. (2013) described oral reading fluency as "the oral translation of text with speed and accuracy" that "represents a complicated, multifaceted performance" and a "complex orchestration, where students can read text in a fluid, automatic and seemingly effortless manner, thus directing their intellectual efforts more toward comprehension than decoding" (p. 32). Researchers have demonstrated that greater oral reading fluency results in greater reading comprehension (Miller et al., 2014).

Deacon, Tong, and Cain (2014) stated that the assessment of reading fluency is also necessary to provide more effectively instruction. This fluency assessment is done by counting the number of words read without errors in one minute. By calculating the percent of accuracy, teachers can identify students' reading level. Accurate student reading levels can assist in the development of more effective instruction, which can lead to better reading comprehension performance.

According to Mangen, Walgrermo, and Bronnick (2013), the process of reading comprehension involves: (a) decoding, (b) vocabulary knowledge, and (c) the understanding of the text. Reading involves a progression of skills; first, learners process individual letters and the sounds associated with them. Simultaneously combining all the letter sounds is what forms word recognition. This comprehension phase requires fluent articulation of these processes, from sounding out the letters, to recognizing the individual words, and eventually to full reading comprehension.

Keondu, Smith, and O'Brien (2013) posited that "Since reading comprehension is crucial to school success, it is essential to understand the difficulties children with disabilities face as they encounter new text and to identify instructional approaches that focus on learning and using the many skills that students need for successful reading" (p. 854). Although reading

comprehension relies on factors such as phonemic awareness, decoding, fluency, and vocabulary, according to Vaughn et al. (2013), a mental representation of what one is reading is at the core of reading comprehension.

In addition, Vaughn et al. (2013) observed that these reading comprehension difficulties are the result of broadly based language problems and not just word recognition. According to Quinn, Wagner, Petscher, and Lopez (2014), the following skills are requisites for reading comprehension: (a) specific comprehension skills, (b) prior knowledge, (c) vocabulary, and (d) verbal reasoning. Proficient readers make use of their preexisting vocabulary and knowledge, and are able to communicate, understand, and remember what they have read (Appendix D). Teachers can teach these skills to students in their classroom, along with other skills necessary to understand the narrative and expository texts (Rucklidge, McLean, & Bateup, 2013). However, students with moderate disabilities often do not learn in the same ways and at the same pace as their peers. This difference in learning warrants a different approach to instruction.

Skilled readers perceive reading as effortless, which in turn allows them to move away from consciously decoding the words into constructing the text's meaning (Mason, Davison, Hammer, Miller, & Glutting, 2013). Textbooks often provide a confusing multitude of activities for reading comprehension, or may demonstrate a lack of practice activities (Humphreys & Gennari, 2014). Reading comprehension instruction involves teaching strategies to students that help them to develop questioning skills and make a connection to the text (Almar, 2011). Over the past decade, fluency has become an integral part of reading comprehension and instructional decision-making (Bolaños et al., 2013).

In an effort to alleviate the issue of ineffective instruction, NCLB suggested the implementation of evidence-based practices (Humphreys & Gennari, 2014). In addition, the new

CCSS warrant a shift to more research-based practices (Bishop et al., 2014). According to Firmender, Reis, and Sweeny (2013), research-based reading comprehension instruction is helpful for students with disabilities. One of the learning opportunities that students with disabilities have with the implementation of direct instruction is reading comprehension, since students with disabilities have had a history of struggling with reading comprehension (Hollenbeck, 2013; Denckla et al., 2013). The learning opportunities that direct instruction provide to students with disabilities have led to greater student success.

The implementation of direct instruction has resulted in improvements in reading skills of students with disabilities (Firmender et al., 2013). According to Oakhill, Cain, and Elbro (2014), improvement in reading comprehension specifically has improved due to direct instruction. Almar (2011) indicated that many of the reading comprehension strategies for students with disabilities have been associated with strategies that prompt students to monitor and reflect before, during, and after reading. These strategies are in agreement with the strategies that Christopher et al.'s (2013) listed, which ask students to: a) take into account their background knowledge, b) summarize key ideas, and c) ask questions to them as they read.

Hua et al. (2012) reported that schools aim to help children become self-regulated learners. Such learners want to understand what they are reading, and notice when the content does not make sense. Such learners also try to resolve this confusion. Thus, fostering comprehension involves more than helping a student understand one text at a time; rather, teachers should be developing productive ways of thinking that will help the students' future reading (Hua et al., 2012).

Curriculum is vital to students' academic achievement. According to the Coalition for Evidence-Based Policy (CEBP, 2014), in order to promote student achievement, teachers must

select programs and practices with "today's kindergarten curriculum being fully aligned with and linked to Grades 1 through 12" (CEBP, 2014). Thus, teachers must gain knowledge about methods that have been scientifically verified as effective. According to some researchers, early school learning influences later academic success (Denckla et al., 2013; Hua et al., 2012). Under this perspective, a lack of early literacy experiences may explain reading achievement gaps.

Researchers have posited that teachers should introduce reading to students early, and should continue to build upon these early literacy skills. The State Center for Early Childhood Development (2012) reported that students' third grade achievement was influenced by whether or not they had met their kindergarten reading objectives. In order for students to be reading proficiently by the third grade, teachers must develop the students' reading skills as early as kindergarten (McNamara, 2012). Both low- and high-risk students benefit from early instruction in literacy; however, the early identification of reading problems and learning disabilities makes it more important for preventing future problems.

Learning to read is not an easy task for students who are at different learning levels. However, according to the NRP (2011), "Teachers who have a thorough understanding of the essential components of effective reading instruction are equipped to teach children to read using instructional strategies and materials that have proven to be effective" (p. 39). In order to narrow reading performance gaps, teachers must provide effective reading instruction. The NICHD (2014) reported that students' fourth grade reading level was influenced by whether they had learned to read at an early age.

Due to No Child Left Behind, education for kindergarten has gone from welcoming and adjusting students to schools into preparing for their education (Young, 2013). Researchers have proven that early literacy instruction, such as in kindergarten, improves students' reading

achievement over time. Some researchers have concluded that what students know prior to kindergarten also benefits them later. They indicated that, "Early reading skills are progressive, with later skills depending on the mastery of earlier skills" (Firmender et al., 2013, p. 12). According to Bornfreund (2012), "Failure to obtain necessary literacy skills in the early grades undermines children's ability to succeed in school and in life, as they move into the later grades and experience difficulty understanding and achieving in the content areas" (p. 2).

Students with disabilities exhibit the greatest result of direct instruction for reading comprehension (Allington, 2011). Researchers such as Allington and Bornfreund (2012) have enumerated instructional strategies that improve reading comprehension. These include: (a) use of cues to remind students what they learned; (b) small-group instruction; (c) teacher's modeling and elaboration of steps; (d) interactive dialogue; (e) scaffolding tasks based on difficulty; and (f) questioning between students and teachers.

Teacher readiness has significant influence on literacy instruction. According to Hollenbeck (2013), "Many early childhood teachers are faced with new challenges as they labor to meet the varied developmental and academic needs of young children and to accommodate the mandates, expectations, requirements, and demands that have emerged in the wake of the implementation of NCLB" (p. 120). The NRP reported that there are five components of critical reading according to Reading First and NCLB: fluency, vocabulary, phonics, phonemic awareness, and reading comprehension. Teachers must use these components during reading instruction. High-quality instructors use such evidence-based methods to adhere to the demands of policies such as NCLB, and display positive attitudes about such methods (Burns & Gibbons, 2013). Students' academic achievement improves when their teachers are knowledgeable about evidence-based programs and practices.

Teacher readiness significantly influences learning. According to Harding and Parsons (2011), "The biggest impact on student achievement is teacher quality and most important teacher qualities are the ability and the willingness to engage students" (p. 51). Teacher quality affects student achievement significantly (Harding & Parsons, 2011). According to these authors, teachers are aware of the essential skills to teach, how to teach students to get there, and what constitutes acceptable progress towards these skills. Teachers must take advantage of time and experience resources, as well as the broad spectrum of possible pedagogical practices. Teachers must invite students to learn on their own, and must mediate and negotiate this independent learning. Most importantly, teachers must impart the ability to think critically and learn independently.

Effective teachers must be able to recognize student differences and to face these differences head-on (Wormeli, 2011). These teachers are willing to dedicate the time to produce quality classroom instruction, and realize that their own training impacts students' academic success, competence, and self-confidence. For the improvement of "students' well-being and development, quality educators possess awareness of the values and goals of education as well as the concept of learning" (Happo & Maatta, 2011, p. 93).

Teachers that utilize time effectively utilize student activities that are meaningful, and ensure that students stay on task (Jones et al., 2011). Researchers have agreed that academic success increases and problem behavior decreases when teachers use a combination of differentiated instruction and effective time on task (Jones et al., 2011). According to Jones et al. (2011), "To assure that students are successful and meet goals and standards quality teachers engage in systematic planning and use academic materials that are appropriate for the student's performance level" (p. 552).

In modern classrooms, there is a mix of students at multiple levels, learning styles, and learning abilities. Hollenbeck (2013) indicated that many schools today "represent both genders and multiple cultures, students who do not speak English as a first language and generally contain students with a range of exceptionalities and markedly different experiential backgrounds" (p. 120). Such students may be learners of English as a second language, may not own their own reading materials, and may never have been in a school setting. These differences result in any number of reading and literacy deficiencies. To meet these students' needs, teachers must be able to effectively administer differentiated instructional strategies.

First implemented in the early 1970s in U.S. Public Law 91-230, teachers use differentiated instruction in order to address a classroom that is culturally or academically diverse (Tomlinson, 2005). Teachers use differentiated instructional strategies in order to meet each student's ability level. Hill (2013) found that differentiated instructional strategies facilitate students' understanding of multifaceted ideas.

Countas (2011) wrote that a differentiated instructional approach allows students to make sense of the same basic curriculum using a variety of methods. Countas posited that instructional strategies must match students' learning levels. Wormeli (2011) wrote that "to knowingly omit differentiated instruction from classroom instruction is a willful act of educational malpractice" (p. 39). It is the current researcher's belief that all classrooms could make use of differentiated learning, because all classrooms include students with varying learning styles and levels.

Teachers must consider the factors of environment, product, and process when differentiating their instructional practices (Tomlinson, 2005). The factor of process includes the activities that students will use to understand the content. The product refers to the ability of students to apply the lesson. The environment includes clear guidelines, expectations, routines,

matching of work with multicultural materials, and a quiet location in which to work. Denckla et al. (2013) wrote that differentiated instruction improves educators' ability to fulfill their responsibilities.

In order to create environments that meet students' educational needs, teachers must be aware of typical student development levels (Berkeley, Mastropieri, & Scruggs, 2011). According to McNamara (2012), teachers must match their strategies to the learning style of each student, rather than a "one-size-fits-all" curriculum. McNamara posited that if a teacher does not differentiate or scaffold his or her instruction, the majority of students in a given classroom would not comprehend the curriculum.

Young (2013) wrote that teachers can use differentiated instruction to promote academic success among students who do not learn traditionally. Teachers who cannot flexibly adjust their instruction to suit a changing population display disrespect to individual learning differences, which may lead to high dropout rates (Tomlinson, 2005). Researchers have revealed that teachers need to "[believe] in the students and [engage] them in their level of activity as often as needed" (Burt et al., 2013, p. 210). Teachers must complete ongoing professional development in differentiated instruction in order to address students' learning needs.

Factors That Predict Reading Success

A review of the existing literature revealed a number of studies that identified factors that contribute to a child's ability to read well. During the early to mid-20th century, most children were taught to read through a whole-word, meaning-first approach, also known as "look-say" (Adams, 1990, p. 38). Teachers did not commonly teach phonics. Yet even early studies dating to the 1920s found a very strong positive correlation ($r = .87$) between students' fourth grade reading ability and their ability to name the letters of the alphabet (Smith, 1928). As this strategy

came under fire as insufficient in the latter half of the 20th century, the debate about how to teach reading spurred a large number of studies about how children learn to read.

In 1967, after her involvement in the National Conference on Research in English, Chall published the seminal work, *Learning to read: The great debate*. The book was a result of three years of interviews, program evaluations, observations in schools, and a broad review of available research. Chall found a strong positive correlation between letter and phonic knowledge and reading achievement in students through third grade. Chall's recommendations included explicit, systematic phonics instruction for all beginning readers. In response to Chall's findings, many new studies were conducted on the effectiveness of different types of reading instruction and programs. Bond and Dykstra (1967) coordinated 27 projects for the United States Office of Education — called The Cooperative Research Program in Fourth Grade Reading Instruction — to study three research questions:

1. To what extent did various community, family, teacher and school characteristics influence student reading and spelling achievement in fourth grade?
2. Which approaches to initial reading instruction produced better results in reading and spelling at the end of fourth grade?
3. Did any program stand out as particularly effective for students with either high or low readiness for reading?

Collectively, the studies involved over 600 schools and more than 20,000 students across the United States. Bond and Dykstra's Coordinating Center collected, organized, analyzed, and interpreted the data collected from each study. Bond and Dykstra computed Pearson product-moment correlation coefficients to identify whether relationships existed between fourth grade reading achievement and demographic characteristics of students, teachers, and classes. Several

characteristics showed little or no relationship with fourth grade word reading achievement. For example, class size and teacher absences both showed nearly zero correlation ($r = .01$ and $r = .07$, respectively). Child age entering fourth grade had a weak correlation ($r = .17$, $p < .05$), as did teacher years of experience ($r = .27$, $p < .05$).

In contrast, when the researchers examined individual student achievement measures, fourth grade end-of-year reading achievement on the Stanford Achievement battery was strongly related to students' entering ability to name uppercase and lowercase letters, with $r > .51$ for all subtests. Overall, this single factor accounted for 25 to 36% of the variation in reading ability. The next best predictor of fourth grade end-of-year achievement on the Stanford Achievement battery was the ability to discriminate phonemes at the beginning of the year, with r values in the .40 to .50 range. The correlation between intelligence test results and Stanford Achievement battery scores was weaker, mostly in the $r = .30$ range ($p < .05$).

In addition to the correlational study, Bond and Dykstra also examined the effectiveness of the varied reading programs used in the studies. They examined data both "across projects" and then "within projects" by examining student achievement after 140 days of fourth grade instruction. They conducted Analyses of Covariance (ANCOVAs) to control for initial differences among students and chose covariates based on their potential to eliminate project by treatment interactions. For example, the letter name and phoneme subtests were both chosen as covariates for this reason. The researchers found that, regardless of the program or instructional methods used to teach reading, some students markedly outperformed others even when the differences in reading readiness were statistically controlled. After examining classroom delivery methods and program usage in the studies without finding any obvious predictors, Bond

and Dykstra concluded that both program and pedagogy influenced students' reading performance.

The research that followed Chall's (1967) and Bond and Dykstra's (1967) work confirmed over and over that letter knowledge was a strong predictor of reading achievement. However, Vellutino and Scanlon (1987) presented evidence that simply teaching students to name the letters of the alphabet was not enough to ensure that high levels of reading success were attained. Instead, the researchers found that ability to store and retrieve phonological representation corresponding to words was an important skill for success on a second and sixth grade reading measure. The study involved 565 students in three consecutive cohorts in Albany, NY. Students were tested in kindergarten and retested with an oral reading measure at the end of second and sixth grades.

Using One-Way Analyses of Covariance (ANCOVA), the researchers controlled for IQ and found that mean scores on the oral reading test showed significant differences for pseudo-word decoding in both second and sixth grades [second grade: $F(1, 139) = 166.08$, $p < .001$; sixth grade $F(1, 139) = 69.77$, $p < .001$], and phonemic segmenting in second and sixth grades [second grade: $F(1, 139) = 11.25$, $p < .001$; sixth grade $F(1, 139) = 7.65$, $p < .01$]. Several researchers found that the speed with which students could name letters was a strong predictor of reading success in both pre-readers and beginning readers. For example, Speer and Lamb (1976) found a relationship between student scores on standardized measures in fourth grade and both letter and grapheme (group of letters that make one sound, e.g., /ck/) fluency measures ($N = 25$; letter fluency $r = .68$, $p < .001$; grapheme fluency $r = .77$, $p < .001$). This finding matched Adams' (1990) assertion that students who were fluent with letter recognition (i.e., they had both speed

and accuracy with naming letters) were more confident and could more easily learn sounds and patterns of sounds that made up words.

Adams (1990), noted that phonemic awareness is not a single skill and many studies have tried to determine which sub-skill or skill-set might best predict reading ability. There are five generally agreed upon levels of phonemic awareness (PA). The first level is simply recognizing and producing sounds (phonemes). The second level involves oddity tasks in which similarities and differences are recognized, including rhyme and alliteration. The third and fourth levels require blending and segmenting phonemes to construct and deconstruct words (and nonsense words). The most complex phonemic awareness tasks involve manipulation of the phonemic structure of words to generate different words.

The level or levels of PA that are the best predictors of reading achievement continues to be studied today, with mixed results. Savage and Carless (2008) conducted a 3-year study to determine if onset-rime ability contributed to phoneme manipulation as a strong predictor of reading achievement. Onset-rime is the rhyming of the initial sound in a word rather than the final sound, and it fits within Adams' second level of PA. For example, using boat as a target word and choice words such as foot, bike, and coat, a student who says bike is the correct rhyming word would be using onset-rime to match the sounds at the beginning of the word.

Ultimately, Savage and Carless (2005) concluded that onset-rime manipulation tasks were not significant predictors of student reading success. However, their study did confirm the findings of earlier studies that phoneme manipulation skill at age 5 strongly predicted reading comprehension at age 7. Heistad's (2005) sample included students in third through fifth grade in four schools, with 78 students in a control group and 78 students in a treatment group. The researchers identified students as at-risk readers by parent and/or school recommendation, and

evaluated student achievement through three pretest/post-test measures; a standardized test administered to all students each year (to test comprehension), a standardized state assessment given to third and fifth graders each year (to test comprehension), and the Read Naturally fluency monitor assessment (to test fluency) given once in the fall and once in the spring to all students in the control and treatment groups. Each assessment was considered to be valid and reliable. The read naturally intervention was implemented for an entire school year.

CHAPTER THREE: METHODOLOGY

Design

The purpose of this quasi-experimental, non-equivalent control group with pre-test and post-test measure was to compare the oral reading fluency scores and achievement of students participating in the intervention program with those in the control group to determine the effectiveness of the program while controlling for the effect of the pre-test scores. The method for this study was a quantitative research design to explore the practices of the Voyager intervention mandates for teaching fourth grade students to read. The participant teachers first administered a pre-test before the introduction of the intervention program, and administered a post-test after the intervention process for both groups. The researcher used STEEP assessments to determine whether improvement in oral reading fluency occurred after the intervention program, and whether there were any differences between the treatment group and the control group.

The quantitative design was appropriate for this study, because this was the method which would lead the researcher to an appropriate conclusion. For this case study, the researcher found the quasi-experiment research design to be the best choice because social science and psychology researchers often use a quasi-experimental design. Although biologist and physicists dismiss the method as unreliable or unscientific, researchers frequently use this method to measure variables in social research (Creswell, 2013). The weaknesses inherent in the methodology do not undermine the validity of the data if they are recognized and permitted throughout the experimental process (Creswell,2013). A quasi-experiment resembles a quantitative or qualitative experiment, but lacks the random assignment of groups or appropriate controls; therefore, it may be difficult to create a reliable statistical analysis.

The quasi-experiment design was relevant for this study because the quasi-experimental design is the choice of groups in which researchers test a variable with no random selection or pre-selection process. For example, to make an educational experiment, a researcher could divide a class arbitrarily, alphabetically, or by seating arrangement. The division is often desirable, and especially in an educational situation, generates minimal disruption. After this selection, the experiment proceeds much like any other, with a variable to be compared between different groups or for a period (Robinson, Levin, Schraw, Patall, & Hunt, 2013). These studies are useful in situations where a researcher could not use a true experiment. Researchers using this method often perform sophisticated statistical analysis on large-scale sample survey data.

The dependent variable tested in this research study was the fourth grade student's post-test reading scores and oral reading fluency; intervention was considered as the independent variable; and the pre-test score was considered the covariate of the study. Furthermore, the most important affective dependent variables favoring reading are self-esteem, self-confidence, desire to learn, and a low-anxiety learning environment. According to Guthrie et al. (2013), fluent readers are those who can read at a rate considered natural, in accuracy, and in keeping with the appropriate expressions, since oral reading fluency is the ability to translate text orally with accuracy and speed. Teachers can measure this skill by recording the number of words read correctly in every minute. The teachers can then compare a student's score with that of other students in the same group to determine the progress of that student in his or her oral reading fluency skills, which is the dependent variable.

The researcher measured the dependent variables using the STEEP assessment, since it has a solid research base study for assisting at-risk students. This includes the Voyager intervention piece and the fluency progress monitoring (Yeo & Park, 2014). The goal of RTI is

to improve achievement. STEEP monitors this through screening, and progress monitoring. Different reports have indicated that more than 80% of school-based interventions do not succeed. Two primary reasons account for this rate of failure: (a) failure to choose the correct intervention by professionals when tackling the challenge; and (b) the failure to utilize the intervention with enough regularly to make a difference. Voyager Universal designed their program to solve these two challenges. The STEEP pre and post test scores were evaluated for their validity and it was determined that it had strong validity with a validity coefficient of .861, $p < .01$. Additionally, a Cronbach's Alpha was utilized to examine the reliability of the data collected from the maze scores and it was found that it was internally consistent with a Cronbach's Alpha of .906.

Research Questions

The researcher aimed to answering the following research questions:

RQ1: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the reading achievement scores, as measured by the STEEP assessment model, of participating fourth grade students as compared to those not participating in the Voyager Universal Literacy intervention program?

RQ2: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the oral reading fluency, as measured by the STEEP assessment model, of participating fourth grade students compared to those not participating in the Voyager Universal Literacy intervention program?

Null Hypotheses

The hypotheses that the researcher formulated and tested in this study were:

$H_0$1: There is no significant difference in reading achievement scores, as measured by the STEEP assessment model, between the fourth grade students receiving Tier III interventions and students who did not receive the treatment.

$H_0$2: There is no significant difference in oral reading fluency, as measured by the STEEP assessment model, between the fourth grade students who received Tier III interventions and students who did not receive the treatment.

Participants and Setting

The population for this study consisted of fourth grade students receiving tier instruction due to reading difficulty in the regular classroom setting. The specific setting was a rural school district in Alabama. The researcher recruited students from two rural elementary schools. In the Auburn school district, students with reading difficulties, from 3 to 21 years old, may receive reading intervention and related services from elementary school through middle and high school.

Criteria for Sampling and Selection

The quantitative data involved random sampling, and the researcher ensured that individual student in the sample group had an equal chance of being chosen (McNiff, 2013). The researcher did this so that the sample could be generalized to the larger population (Creswell, 2013). An entire group of students who share at least one characteristic is called a population (Ravid, 2011). The sample for this study was a smaller group selected from the population (Ravid, 2011). For this study, the population consisted of fourth grade students enrolled in schools located in the Auburn school district, which has 13,000 students per school year. The sample is 62 fourth grade students who attended regular classroom setting. In particular, the researcher selected the fourth grade students through a Response to Intervention model from two

rural elementary schools in Alabama. Out of these, the researcher assigned 31 students to the treatment group, while 31 composed the control group from the second school.

The criterion for participant selection is fourth grade students who are currently taught RTI Tier II or III reading intervention lessons. In this respect, teachers identified a high number of students receiving RTI Tier II or III reading intervention and indicated that their students had made adequate to exceptional reading progress. Thus, such students were sought as possible participants. Demographically, the student sample is composed of 82% white, 16% African American, and 1% of other races. 51% are female students, while 49% were male. The researcher initially conducted the qualitative survey among the teachers about the outcomes of RTI Tier III reading interventions in their classrooms, and after the teachers indicated their willingness to participate, they were asked to present their students for possible selection.

The researcher needed a large sample to determine frequency in the research phenomenon. Gray (2013) indicated that in order to yield the most accurate data, researchers need to recruit at least 50 participants for a quantitative; this study's sample exceeded the suggested sample size, in the hopes of achieving a higher response rate. The researcher asked teachers to complete the survey on a voluntary basis. In order to establish the data validity and reliability, the researcher took several measures. The researcher used a sample size of over 50 participants in order to draw inferences that would be reliable and to perform accurate statistical analyses.

The researcher obtained the sample for the study from two rural elementary schools in a district in Alabama through random sampling of at-risk fourth graders from a group that was accessible to the researcher through a Response to Intervention model. Only fourth grade students in these two schools are involved in the program. Each school has approximately 200

fourth graders, who took assessments to identify the struggling students who would then participate in the program. Further, the researcher selected 62 students for the program; 31 from the one school acted as the treatment group, while 31 from the second school acted as the control group. In order to help in the process, the researcher included data from eight teachers and other facilitators in the study. Descriptive data for the total sample was for the following characteristics: the teachers' included area of teaching degree, level of education, years of experience, years of experience teaching fourth grade students, and number of RTI Tier III reading intervention facilitated students in their classroom. The researcher needed these descriptive data to develop an overall picture of the teachers' education and experience in the district.

Instrumentation

The instrument employed in the study was the Voyager Universal Literacy intervention program to help improve students' oral reading fluency rates. The researcher measured the students' scores under the influence of the STEEP-based assessment model. The researcher administered the Voyager Universal Literacy program to students who were identified as low performers in oral reading fluency. This is a reading program which uses individual reading intervention, comprehension related activities, writing, problem solving, and computer-based practice.

Reliability is a measure of consistency within the results and interferences (Ritchie, Lewis, Nicholls, & Ormston, 2013). In this study, the researcher used a synchronic reliability method to determine degree to which the observations from the above mentioned sources can be relied upon within a specific period of time (Ritchie et al., 2013). Validity refers to "how well a specific research method measures what it claims to measure." Ritchie et al. (2013) noted that n

instrument's reliability and validity affects the extent to which researchers can use that instrument to learn about the studied phenomenon, as well as the probability that the researcher will use the instrument to draw statistically significant and meaningful findings. The quantitative research design is weak in terms of internal validity. The quantitative researcher almost never knows if it measures what the researcher wants it to, but it is strong in external validity, or the ability to generalize the result to a larger population.

The consistency of an instrument and its repeatability comprise its reliability, whereas validity refers to the instrument's ability to accurately describe a phenomenon's characteristics. An instrument may be valid in three different perspectives: first, the content of the samples and instruments should be valid; second, the criteria and selection of the instrument should be according to the established standards, relevant and valid; last, the construction of the data should be close enough to the instrument under study. Leedy and Ormrod (2005) further defined the validity of a measurement instrument as "the extent to which the instrument measures what it is supposed to measure" (p. 31).

The researcher used SPSS 20.0 to calculate the instrument data and to ensure that the data maintained internal consistency. The researcher calculated the reliability of the data using Cronbach's Alpha, revealing the reliability statistics, which represent the actual statistical figure of the questionnaire. The oral reading fluency pre and post test scores were evaluated for their validity and it was determined that it has strong validity with a validity coefficient of .828, $p < .01$. Additionally, a Cronbach's Alpha was utilized to examine the reliability of the data collected from the oral reading fluency scores and it was found that it was internally consistent with a Cronbach's Alpha of .903.

Procedures

Site Approval and Permissions

The first step in the research study was applying and gaining the permissions from Liberty University's Internal Review Board (See Appendix E). The researcher mailed the letter of intent explaining the research study to the superintendent of the participating school district in order for the researcher to gain permission to conduct the study and collect necessary data from the participants (See Appendix F). After receiving permission from the superintendent, the researcher contacted the principals of the two elementary schools explaining the study, seeking each school's participation. The letters were emailed to each principals requesting their approval of the research study (Appendix G).

The researcher established contact with each teacher in order to set a meeting with them to discuss collecting data among the students (Appendix H). During the training, teachers were provided with scripted lessons and the proper protocol to teach each lesson. The students who participated in the Response to Intervention model were selected based on random sampling. The parents of these students were asked to sign a consent form allowing their children to be included in the program if these students were to proceed with the research protocol (Appendix I). The researcher conducted teacher training to ensure that the teachers were familiar with the basic skills of implementing the process. After the completion of the teacher training within the same week, the researcher administered pre-tests to the students in both groups, after which the researcher implemented an intervention program for the treatment group (Appendix J). This Voyager intervention was administered during 20-25 minutes time frame for 50 sessions, for a total of approximately 25 hours of intervention. After that, the researcher administered post-tests

to both groups to test the effects of the program. The researcher then compared and analyzed the results.

Teacher Training

To ensure the achievement of the program, teachers conducting the process received training prior to the commencement of the project. The fourth grade teachers and other personnel assisting in the assessment and implementation of the STEEP and Voyager Universal Literacy programs were those who received training. Some of the personnel trained included psychologists and persons employed under the Pupil Appraisal Services program within the district in order to ensure their suitability for the program. These teachers received classroom training regarding the Voyager Universal Literacy system as an academic intervention program, as well as the STEEP procedures. During the training, the teachers received a Teacher's Resource kit which consist of the curriculum guide on fluency, comprehension and vocabulary.

Voyager program is a reading intervention program for struggling readers in Kindergarten through fourth-grade delivered through an explicit and systematic instruction. Voyager (Voyager Expanded Learning Systems, 2004) defines systematic instruction as "an arrangement of skills in a logical order from the easiest to the most difficult. When a teacher using a combined method of explicit and systematic instruction, students are provided with repeated practice of clearly stated skills delivered in a way that ensures understanding and minimized confusion" (p.33). The program provides intensive instruction centered on phonemic awareness, fluency, vocabulary and comprehension delivered by the teacher in a small group setting.

The researcher administered training to persons involved in the pre-program assessment process at the school. The researcher employed a "tell, show, do" method to instruct the

participant teachers in the mode of administering the CBM to students in accordance with STEEP procedures by utilizing student materials. First, the researcher described the STEEP procedures in detail, and provided the teachers with a STEEP manual. Second, the instructor demonstrated to the teachers how to implement the STEEP procedures. Third, the instructor asked the teachers to practice implementing the STEEP procedures on each other. The instructor ensured that the teachers grasped all the necessary requirements of administering the procedures. The training period lasted for approximately 2 hours. Last, the teachers were required to carry out the assessment for the study. Personnel from the research study team monitored these teachers as they carried out the assessment to ensure that they were following the steps outlined in the integrity checklists that exist. The researcher required the teachers carrying out these assessments to record and store this data.

Assessment Procedures

The researcher asked teachers who had been involved previously with the students who will be participating in the Response to Intervention model prior to the arrival of the study team to refer fourth grade children who had reading difficulties, or those whose rate of fluency in reading was slow. Specifically, the researcher asked the teachers to choose those students whom they felt will likely be referred to a School Building Level Committee (SBLC) within 1 month of the intervention program based on their observation and general opinion of the students' performance in academics before the conduction of the CBM assessments. Those children who have behavioral problems were not included in the study. The researcher then conducted the first STEEP procedures to determine whether these referrals by teachers are accurate.

The trained teachers administered and scored the assessment under the close supervision of a research study team personnel. The teachers instructed each student to read individually

with the guidance of a trained teacher for 1 minute. Then, from the results of this assessment procedure, the researcher ranked all of the students in accordance with their oral reading fluency scores. Using this data, the researcher identified those who scored below 16% in this assessment. This 16% represented the proportion of the population whose performances were below the mean by one standard deviation. After the initial assessment, the researcher provided the identified low-performing students with parallel forms of the test administered to the class in a motivational assessment to come up with the final list of the below 16% scorers. The researcher then introduced these students into an intensive instructional intervention program with the intention of improving their scores towards the end of the program. Following this intervention program, the researcher administered the second STEEP assessment to the students who participated in the program. In the second assessment, the researcher administered the different models of assessment tools just like those used in the initial assessment to the students appropriate for their fourth grade level. The procedure used in the first assessment was the same for this second assessment, followed by a motivational assessment and the bottom 16% of oral reading fluency.

Data Collection

The students found to have serious deficits in their oral reading fluency were provided with an intensive instructional intervention program, which employed the VUL. The selected students engaged in an intervention for 20-25 minutes daily for 50 sessions, for a total of approximately 25 hours of intervention using VUL program. The VUL program provided students with passages that were proper for children who have gone through the third grade. This ensured that the passages read were within the children's' grade level. The students were monitored by using reading fluency levels which were obtained during the intervention sessions

as well as through the generalization passages. The researcher expected the VUL program identify students who superseded their instructional level due to excellent fluency scores and subject them to materials of the next level in an experimental group.

Data Analysis

The specific data that was instrumental to this study were the STEEP pre-test and post-test scores for reading achievement scores and oral reading fluency. To test hypotheses one and two, the researcher analyzed the students' scores using the analysis of covariance (ANCOVA) tests to test the hypotheses that the treatment group has achieved significant improvement in their reading achievement scores and oral reading fluency rates compared to the control group. Researchers commonly use ANCOVA tests in designs that consist of pre/post-tests programs considering a covariate. The analysis was used to compare the mean difference between the two groups, which was between the students receiving Tier III interventions and students who did not receive the treatment. The covariate of the analysis is the pre-test given to the students. The researcher controlled the effect of the covariate in the ANCOVA. In the ANCOVA, the dependent variable was the fourth grade students' post-test reading scores and oral reading fluency; intervention was the independent variable; and the pre-test score was the covariate of the study. The researcher used a level of significance of 0.05 in the ANCOVA analysis. The researcher conducted further post-hoc tests if the ANCOVA showed significant differences to further investigate the significant statistics.

The researcher used Shapiro-Wilk and Levine tests to test the assumption of normality and homogeneity, respectively. According to the Shapiro-Wilk, the normality assumption holds that dependent variables are distributed normally and that there are equal variances between groups. The researcher conducted these tests on both treatment and control group to ensure that

the assumptions of normality and homogeneity were not violated. The researcher used the Levine's test since analysis of variance assumes that the variances are equal across groups or samples. The researcher used the Levine's test to verify the assumption of homogeneity of variance.

The researcher conducted descriptive analysis to summarize the data of the pre-test and post-test scores of the reading achievement and oral reading fluency. Because the reading achievement scores and oral reading fluency were operationalized as continuous measured variables, the researcher used the descriptive statistics to summarize the data using central tendency measures of means and standard deviation. The researcher conducted a means comparison to determine the differences of the pre and post-test scores between the treatment and control groups.

CHAPTER FOUR: FINDINGS

Research Questions

The following section itemizes the research questions that guided this study:

RQ1: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the reading achievement scores, as measured by the STEEP assessment model, of participating fourth grade students as compared to those not participating in the Voyager Universal Literacy intervention program?

RQ2: How does the Voyager Universal Literacy RTI Tier III reading intervention affect the oral reading fluency, as measured by the STEEP assessment model, of participating fourth grade students compared to those not participating in the Voyager Universal Literacy intervention program?

Hypotheses

In response to the research questions in this study, the researcher formulated the following hypothesis:

$H_0$1: There is no significant difference in reading achievement scores, as measured by the STEEP assessment model, between the fourth grade students receiving Tier III interventions and students who did not receive the treatment.

$H_0$2: There is no significant difference in oral reading fluency, as measured by the STEEP assessment model, between the fourth grade students who received Tier III interventions and students who did not receive the treatment.

Descriptive Statistics of the Study Variables

The researcher gathered data for the study variables through pre- and post- tests to evaluate if a Tier III reading intervention affected their reading achievement and oral reading fluency scores. The researcher measured reading achievement by a test called Maze, which "is a basic comprehension screener which consists of a sentence with a blank and three word choices for the student to select from and complete the sentence." The scores were based on how many items the students answered correct in three minutes. Oral reading fluency scores were measured by "universal screening that consisted of a passage that the student has to read while an assessor scored the passage for one minute." A control group and a treatment group took both tests, wherein each group was composed of 31 students for a total of 62 participants.

The pre-test scores for reading achievement ranged from 5 to 23, with an average score of 14.05 (*SE* = .54), while post-test scores for reading achievement ranged from 8 to 34, with an average score of 17.40 (*SE* = .71). Table 1 presents the summary statistics for the Maze pre-test, while Table 2 presents the summary statistics for the Maze post-test.

Table 1

Summary Statistics for the Maze Pre-test Scores (N=61)

Item		Statistic	Std. Error
Mean		14.0484	0.53558
95% Confidence Interval	Lower Bound	12.9774	
for Mean	Upper Bound	15.1193	
Minimum		5	
Maximum		23	

Table 2

Summary Statistics for Maze Post-test Scores (N = 61)

Item		Statistic	Std. Error
Mean		17.4032	0.71194
95% Confidence Interval	Lower Bound	15.9796	
for Mean	Upper Bound	18.8268	
Minimum		8	
Maximum		34	

The oral reading fluency pre-test scores ranged from 34 to 105, with an average score of 75.87 (*SE* = 2.22) while the oral reading fluency post-test scores ranged from 47 to 133, with an average score of 90.19 (*SE* = 2.48). Table 3 presents the summary statistics for the oral reading fluency pre-test scores while table 4 shows the summary statistics for oral reading fluency post-test scores.

Table 3

Summary Statistics for Oral Reading Fluency Pre-test Scores (N = 62)

Item		Statistic	Std. Error
Mean		75.871	2.21784
95% Confidence Interval	Lower Bound	71.4361	
for Mean	Upper Bound	80.3058	
Minimum		34	
Maximum		105	
Range		71	

Table 4

Summary Statistics for Oral Reading Fluency Post-Test Scores (N = 62)

Item		Statistic	Std. Error
Mean		90.1935	2.47983
95% Confidence Interval	Lower Bound	85.2348	
for Mean	Upper Bound	95.1523	
Minimum		47	
Maximum		133	
Range		86	

Results

Research Questions 1

Null hypothesis 1 was that "There is no significant difference in reading achievement scores, as measured by the STEEP model, between the fourth grade students receiving Tier III interventions and students who did not receive the treatment."

The researcher carried out an *ANCOVA* to examine the effect of Tier III intervention on reading achievement scores. The researcher considered the results of the analyses significant if $p < .05$. Prior to conducting the *ANCOVA*, for equality of error variances and test for normality were conducted on the study variables to ascertain if they met the assumptions of the ANCOVA. The results for Levene's Test for equality of variances indicated that the variances were equal, $p > .05$. The Shapiro-Wilk test indicated that residuals were normally distributed for both the control and treatment groups, $p = .01$ and $p = .003$ respectively.

Table 5

Levene's Test of Equality of Error Variances for Reading Achievement Scores (N = 62)

F	df1	df2	Sig.

.894	1	60	0.348

Table 6

Shapiro-Wilk Test for Normality on Standardized Residuals for Reading Achievement Scores

Item	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Standardized Residual for Maze_post	Control	0.907	31	0.011
	Treatment	0.886	31	0.003

The adjusted mean of the control group (*M* = 16.28, *SE* = .48) was lower than the treatment group (*M* = 18.53, *SE* = .48). Table 7 shows the descriptive statistics for the adjusted means of the study variables. After adjusting for the pre-test scores on reading achievement, the researcher found that there was a statistically significant difference in the control and treatment groups after intervention, $F(1,59) = 10.65$, $p = .002$, $\eta^2 = .153$. Therefore, the researcher rejected the null hypothesis. Table 8 presents the summary of the *ANCOVA* results for reading achievement

Table 7

Descriptive Statistics for the Adjusted Means for the Study Variables for Reading Achievement

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control	16.281[a]	0.483	15.315	17.247
Treatment	18.526[a]	0.483	17.056	19.492

Table 8

Summary of the ANCOVA Results on the Study Variables for Reading Achievement

Source	Type III Sum of Squares	df	Mean Square	*F*	Sig.	Partial Eta Squared
Corrected Model	1497.175a	2	748.588	105.223	0	0.781

Intercept	19.181	1	19.181	2.696	0.106	0.044
Maze_pre	1268.772	1	1268.772	178.341	0	0.751
Group	75.747	1	75.747	10.647	0.002	0.153
Error	419.744	59	7.114			
Total	20695	62				
Corrected Total	1916.919	61				

Research Question 2

The second null hypothesis was that "There is no significant difference in oral reading fluency, as measured by the STEEP model, between the fourth grade students who received Tier III interventions and students who did not receive the treatment."

To analyze the effect of Tier III interventions on oral reading fluency scores while controlling for the effect of pre-test scores, the researcher carried out an ANCOVA on the study variables. The results of the analyses were considered significant if $p < .05$. Prior to conducting the *ANCOVA*, for equality of error variances (Levene's Test) and normality of distribution of the standardized residuals (Shapiro-Wilk) were performed to determine if the assumption of the ANCOVA were met. The results for Levene's Test for equality of variances indicated that the assumption for homogeneity of variances was violated, $p < .05$. The Shapiro-Wilk test indicated that residuals were not normally distributed for both the control and treatment groups, $p = .054$ and $p = .251$ respectively. It was decided to continue with the *ANCOVA* since the sample sizes were equal and the *ANCOVA* is fairly robust to violations of normality. Table 9 presents the

results of the test for equality of variances, while Table 10 shows the normality test for standardized residuals for oral reading fluency scores.

Table 9

Levene's Test for Equality of Variances on the Study Variables for Oral Reading Fluency

F	df1	df2	Sig.
4.769	1	60	0.033

Table 10

Shapiro-Wilk Test for Normality on Standardized Residuals for Oral Reading Fluency Scores

Item	Group	Shapiro-Wilk Statistic	df	Sig.
Standardized Residual for OR_post	Control	0.933	31	0.054
	Treatment	0.958	31	0.251

The adjusted mean of the control group (M = 86.06, SE = 1.86) was lower than the adjusted mean of the treatment group (M = 94.33, SE = 1.86). Table 11 shows the descriptive statistics for the adjusted means of the study variables. After adjusting for the pre-test scores on reading achievement, it was found that there was a statistically significant difference in the control and treatment groups after intervention, $F(1,59) = 9.84$, $p = .003$, $\eta^2 = .143$. Therefore, the null hypothesis was rejected. Table 12 presents the summary of the *ANCOVA* results for reading achievement.

Table 11

Descriptive Statistics for the Adjusted Means of Oral Fluency Scores

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control	86.061[a]	1.857	82.345	89.777
Treatment	94.326[a]	1.857	90.061	98.042

Table 2

Summary Results of the ANCOVA for Oral Reading Fluency Scores

Source	Type III Sum of Squares	df	Mean Square	*F*	Sig.	Partial Eta Squared
Contrast	1044.743	1	1044.743	9.836	0.003	0.143
Error	6266.521	59	106.212			

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The population in the United States has grown rapidly, and reports have indicated that there are more than 20,000 students enrolled in K-12 schools. Lonigan et al. (2013) reported that United States schools enroll over five million children. According to the Nation's Report Card (2011), there exists a nationwide concern about children who cannot read fluently. Students are struggling with reading properly and fluently, which affects their overall learning. In the hope of addressing this issue, this study aimed to examine the effect of providing RTI reading interventions in fourth grade children with reading difficulties while controlling for the effect of pre-test scores. Fourth grade learners who were having reading difficulties were placed in Tier III intervention groups to determine if the intervention had an effect on the student's reading comprehension and oral reading fluency scores.

Using Vygotsky's social development theory, this study provided a model wherein students who had reading difficulties received interventions that were appropriate for their levels. This intervention, coupled with instructors who provided students with the proper feedback and support, proved that Tier III interventions are effective in improving reading ability while controlling for the effects of prior knowledge through the pre-test scores.

In this section, summary of this study's findings are presented, followed by a discussion of the results. The conclusions are then explained, followed by the implications and limitations of the study. Finally, recommendations for future research are detailed and this chapter is concluded by a summary of this dissertation.

Summary of Findings

In response to the research questions that guided this study, this section presents the hypotheses and the results of each statistical analysis used to test each hypothesis:

$H_0$1: There is no significant difference in reading achievement scores, as measured by the STEEP model, between the fourth grade students receiving Tier III interventions and students who did not receive the treatment.

The results in Chapter Four indicate that there was a significant difference in reading achievement scores between the fourth grade students receiving Tier III interventions versus students who did not receive the intervention after controlling for pre-test scores. Statistical analysis determines that students who underwent the Tier III reading interventions had higher reading achievement scores than students who did not receive the intervention, regardless of their prior reading achievement abilities.

$H_0$2: There is no significant difference in oral reading fluency, as measured by the STEEP model, between the fourth grade students who received Tier III interventions and students who did not receive the treatment.

The results from the ANCOVA indicated that was a significant difference in the students' oral reading fluency scores in the group that received Tier III interventions for oral reading fluency after controlling for the oral reading fluency pre-test scores. This means that students who underwent the Tier III reading interventions had higher oral reading fluency scores than students who did not receive the Tier III intervention, regardless of their prior oral reading abilities.

Discussion

The results in this study were in the direction that the researcher expected as the researcher noted that teachers identified a high number of students receiving RTI Tier III reading intervention and indicated that their students had made adequate to exceptional reading progress.

The results also support previous studies such as that of Vygotsky (1978) which found that learning is most effective when the learner interacts with a competent person who can provide proper feedback and guidance to the learner until he or she has sufficiently learned the skill or task. In this study, the researcher stressed the importance of training participant-teachers/instructors in the proper methodology of providing proper feedback to the students in accordance to Voyager procedures. Additionally, this emphasis on proper teacher/instructor training laid the groundwork for effective learning in students with reading difficulties. In line with Congruent to the Vygotskian concept of learning, students in the treatment group were able to increase their reading comprehension and fluency levels when they were taught by a teacher who provided feedback and proper guidance.

Through the application of reading interventions that were appropriate to the students' reading abilities, the results of this study support the statements of Kamil et al.(2014) and Calhoun et al. (2013) that early childhood students would learn what they needed to learn through interaction, and at the child's own pace. These authors also believed that children should interact with other children of the same age and by adapting this model, the researcher grouped students according to their reading ability instead of their ages. The researcher believed that through this method, children's literacy skills would improve, and they would have a better opportunity of developing physically, mentally, socially, and emotionally.

The findings of this study showed that Tier III reading interventions are effective in increasing student scores for both reading achievement and oral reading fluency support Vygotsky's (1978) argument that students are more academically successful when they can first utilize instruction at a lower comfort level, proceed to a higher "scaffolding" level, and gradually leave this level during independent work. The student participants in this study had reading difficulty, and thus received placement in an intervention program that addressed their specific reading abilities. By responding to the students' needs according to their developmental level, the researcher proved that Type III interventions are effective in increasing reading comprehensions and oral reading fluency.

The study found that Tier III reading interventions are effective in increasing student scores for both reading achievement and oral reading fluency. This supports the study conducted by Roberts et al. (2013) that found that among students with decreased reading scores in the third grade, evidence-based reading interventions mitigated the effect of low ratings on early achievement factors. The results of this study also support the study of Hagan-Burke et al. (2013). These researchers found that by the end of third grade, 95% of students were out of risk for word attack, 93% were out of risk in word identification and passage comprehension, and 49% were out of risk for oral reading fluency and the researchers directly attributed the improvements to reading abilities on the application of of multi-tiered interventions to the participants. This study confirms and extends the findings of Hagan-Burke et al. by showing empirical proof that student scores increased for reading comprehension and oral reading fluency after the students received Tier III interventions

The research design was based on Vellutino and Scanlon's (1987) study on students' ability to store and retrieve phonological representation corresponding to words wherein an ANCOVA was performed on the study variables while controlling for IQ. This study contradicts the findings of Channell et al. (2013), wherein two schools that implemented the multi-tiered intervention program

did not show significant gains. Channell et al. found that the intervention improved both fluency and comprehension support, but due to the small sample size and participant selection process, further study was necessary to generalize the effects to the greater population. Since this study had a sufficiently large sample size, the findings present a method to generalize the effects to the greater population. Additionally, this study also proves that based on STEEP's online scoring and assessment norms, overall student scores improved from "below average" to "average" for both reading comprehension and oral reading fluency after the subjects received Tier III interventions.

Conclusions

This study was designed as quasi-experimental quantitative study by utilizing a random sampling method to measure the effect of Tier III interventions on fourth grade students with reading difficulties. It was conceptualized patterned after Vygotsky's social development theory, wherein learning takes place in a zone of proximal development and that children learn through associating with someone who is in authority. Using Bandura's social learning theory as the basis for the theoretical framework of this study, it was decided to use the RTI model wherein students receive appropriate levels of support based on their responses to instruction and intervention. Within the context of Vygotsky's social development theory and Bandura's social learning theory, it was hypothesized that effective learning would be facilitated through the application of Tier III interventions by specially-trained teachers/instructors. The findings of this study support studies conducted by Vygotsky, wherein students in the treatment group were able to increase their reading comprehension and fluency levels when they had a teacher who provided feedback and proper guidance.

Moreover, the findings in this study are congruent with the findings of Robert et al. (2013) and Hagan-Burke et al. (2013) that reading interventions improved both reading comprehension and oral reading fluency. These findings provide empirical evidence that there is a statistically significant difference in the treatment and control groups after the performance of the Tier III interventions.

Furthermore, these findings will extend knowledge in the field of study by identifying an empirically-proven intervention method for increasing reading comprehension and oral reading fluency. Additionally, the researcher proved that based on STEEP's online scoring and assessment norms, overall students' scores improved from "below average" to "average" for both reading comprehension and oral reading fluency after the subjects received Tier III interventions.

Implications

Burns and Gibbons (2013) found that fluent reading is especially essential for children in the fourth grade, as this is the level when most schools introduce children to multiple subjects where their understanding depends heavily on their ability to ready and comprehend what is required of them. Thus, the fourth grade is one of the most decisive times when the students' path to success or failure is determined. This means that reading ability is at its most crucial time in the fourth grade, and that teachers should immediately address any reading difficulties at this level. This study contributes to the field of education by providing empirical evidence that Tier III interventions have a positive impact on reading comprehension and oral reading fluency scores on fourth grade students who have difficulty in reading.

Under Vygotsky's (1978) suggestion that learning is largely affected by the learner's social environment, the students' scores increased after the application of Tier III interventions given by teachers trained under the Voyager program. The researcher applied the interventions at the level

according to the students' reading abilities and not according to their grade levels. This was in line with Vygotsky's suggestion that learning is most effective if it is within the learner's "zone of proximal development;" that is, learning may be more effective if lessons were based on the learners' abilities instead of their grade or age levels. Teachers can customize learning based on the needs and the speed of the learner, instead of following the pace set in the traditional classroom setting. Nevertheless, a customized study curriculum according to the learner's requirements needs to be developed and established. Customized learning may also be impeded by the availability and financial viability of one-on-one teaching and this hurdle may be addressed through automation with the use of technology.

In this study, the researcher trained teachers based on the Voyager program, and applied its guidelines on screening, intervention, and progress monitoring to students who experienced reading difficulties. Previous researchers have reported that 80% of school-based interventions do not succeed due to the failure to select the appropriate intervention program and failure to apply the intervention consistently. The results of this study support previous findings that the Voyager program is an effective intervention program in addressing reading difficulties. Based on the statistically significant increase in students' reading achievement and oral reading fluency scores, this study found that the Voyager intervention program through an RTI framework was an effective program to address reading difficulty in fourth grade students. Thus, the Voyager based intervention using the RTI framework can address students' reading difficulties.

These results may prove to be useful to individuals, policy parents, educators, policymakers, and society who struggle with reading comprehension and oral reading fluency. These findings address the need to provide an effective method to improve reading ability and provide a quantitative analysis on the effectivity of Voyager based reading interventions under an RTI framework on

improving reading ability. According to Cornoldi and Oakhill (2013), the lack of proper education and job skills can lead to poor health, poverty, higher unemployment, criminal activity, and the use of public assistance at the taxpayer's expense. Thus, reading ability has the potential to affect not only students' academic achievements, but also their overall success later on in life. The developers of this intervention hoped that with the application of Voyager based interventions under an RTI structure and the training of educators and para-educators, children who struggle with reading achievement and oral reading fluency can improve their overall reading ability. It is with this ideology that this study presents the stakeholders that the findings of this study will affect.

Individual

The results of the study indicate that the students who underwent the Voyager based reading interventions had increased reading achievement and oral reading fluency scores. This implies that students who experience reading difficulty may benefit the most from the results of this study as the application of the Voyager based techniques within the RTI framework proved to be effective on improving reading achievement and oral reading fluency scores. This supports the requirements of the Reading First program (NRC, 2011) such as differentiated instruction. This enables students to learn based on their abilities and according to professional development.

Students who struggle with overall reading comprehension may seek assistance from reading interventions given by trained teachers or instructors who can provide them with proper feedback and assessment so they can improve their reading abilities. Learning can be more effective if the curriculum is suited specifically to the students' aptitude and subsequent learning can take place at the student's own pace. By participating in Voyager based reading interventions, students with reading difficulties can improve their reading abilities; these improved reading abilities may

positively affect their lives in the short term as well as the long term.

Parents

Parents who are at a loss on how to help their children cope with low reading ability may receive insights on how to improve low reading ability. While numerous studies have confirmed that reading interventions significantly improve reading abilities (Hagan-Burke e al, 2013, Etzioni and Gulati, 2013), the results of this study may support parents in selecting the type of learning intervention to enroll their children. Voyager designed their program to address reports that indicated that 80% of school-based interventions do not succeed due to the failure to select the appropriate intervention program and failure to receive the intervention consistently. Parents would benefit from this study by selecting Voyager based intervention program since this study contributes to the existing body of knowledge by providing empirical proof that this type of intervention has a significant effect on reading achievement and oral reading fluency. Although further studies may be needed to confirm the results of this study, this study lays the groundwork for future research.

Educators

Educators may find that the results of this study help them identify and select the appropriate reading interventions as well as the correct procedures to improve their students' reading abilities. Molfese et al. (2013) stated that teachers may use intervention support when students' progress-monitoring data indicate that the student is not progressing toward grade-level benchmarks.

Teachers can identify at-risk students, deliver the appropriate intervention and monitor progress based on the protocol provided by the STEEP assessment program. Educators can confidently address low reading ability in students through the application of Tier III interventions in fourth grade

students, as the results provide empirical evidence of the effectiveness of the techniques used in this study. This supports Vygotsky's (1978) declaration that children have a "zone of proximal development" during learning and that teachers must be aware of this zone to provide the proper guidance as students learn. Moreover, Vygotsky added that teachers should bridge the gap between the learner's knowledge and what they can learn. Furthermore, teachers must ensure that the content is engaging and appealing to the students' interest to the point of achieving mastery.

The results of this study also indicate that teachers need to receive training in the proper implementation of the STEEP procedures as well as the Voyager Universal Literacy system to replicate the results of this study. This means that schools should prioritize further education and training for educators, so that educators can then apply or impart their learnings to their students.

Policy makers

Policymakers should be aware that there is a need for students to learn according to their aptitude levels, and that qualified teachers who give proper feedback and guidance facilitate learning. Vygotsky observed that children develop when learning is at their learning level with the aid of an adult. It is essential that lessons be differentiated to meet the academic needs of every student in the classroom and teach them in their zone of proximal development (Vygotsky, 1978).

This study provides policy makers with empirical evidence to convince them regarding the effectiveness of Voyager based reading interventions in an RTI framework in fourth grade students who experience reading difficulties. The researcher hopes that policy makers would implement the use of Voyager based intervention programs through RTI framework across all schools in the United States to address the need to improve reading ability, especially at the fourth grade level where the

development of reading ability is at its most crucial.

Society

The results that reading interventions significantly increase reading abilities confirm findings by other researchers that attribute the improvement of reading status directly to reading interventions (Hagan-Burke et al, 2013; Etzioni & Gulati, 2013). The results could contribute not only to students in the United States, but also to students worldwide. Teachers can apply and even adapt Voyager based reading interventions under an RTI structurein to different locations to help students who experience reading difficulties. Improved reading ability may contribute to better health, improve financial status and employment, and reduced criminal activity and use of public assistance (Cornoldi & Oakhill, 2013).

Limitations

This study was limited by the samples from the two groups in the study; the researcher used one school as the control group, and used other as the treatment group. Although the results of this study indicate that Voyager-based Tier III interventions are effective, the researcher could only confirm this effect in one of the schools. Thus, future research utilizing at least two schools as both treatment and control groups may improve generalizability and confirm that the findings of this dissertation are also true in other schools.

The samples recruited from this study were also based on the teachers' personal observations and general opinion on the students' general academic performance. While the researcher evaluated the participants later on if they were fit to participate in the program, participant recruitment could be based on a quantitative measure such as scores on reading comprehension or oral reading fluency.

Researchers could also recruit students classified into the "below average" category based on STEEP's online scoring and paper/pencil assessment norms.

Despite the positive improvement in the students' scores after receipt of the Voyager-based Tier III intervention, further researchers could analyze if there were students who did not improve or even had a negative change in scores after receiving intervention. These variances may be a result of the limited training on the implementation of Tier III intervention that the teacher-participants of this study received. The researcher also selected some of the teacher-participants in this study from psychologists and persons employed under the Pupil Appraisal Services program; thus, the researcher could not assure the uniformity of knowledge and experience of the teacher-participants. Other factors that the researcher could not control, such as increased tutoring by parents or guardians, significant life events, or other circumstances in the home may have also affected the participants' scores.

Recommendations for Future Research

The researcher designed this nonequivalent control group study to examine the effectiveness of an intervention program in improving the oral reading fluency rates of fourth graders using Voyager procedures in a Response to Intervention structure. The quasi-experimental model based on STEEP assessment protocol provided a quantifiable measure of reading achievement and oral reading fluency over two sets of student samples where one group was the control group while the other one underwent Voyager based reading interventions. An effective model should not only be able to assess if there was an increase in student scores, but should also be able to determine the incremental improvements in the student scores. To increase scientific knowledge on how Voyager based reading interventions under an RTI framework affects student reading abilities, further studies need to be conducted.

A method to increase knowledge on how Voyager based reading interventions affect reading achievement scores would be to carry out a different statistical test than the ANCOVA used in this study. The results of this study indicate that the group mean scores for reading achievement and oral reading fluency improved for the treatment participants. However, future researchers could examine whether there were participants who showed no improvement or even had a negative change in scores after receiving intervention. This individual examination could assist educators in providing additional guidance to at-risk students who responded poorly to the interventions. Future researchers could use a paired samples *t*-test to analyze the student scores to determine the students' individual performance.

This study controlled for the effects of prior knowledge on reading achievement and oral reading scores but other confounding variables may have also affected the post-test reading scores. One such may factor may be the teacher or instructors' experience in administering Voyager based reading interventions. Some of the teacher-participants in this study were psychologists and persons employed under the Pupil Appraisal Services program. Although the mean score for the treatment group indicates that the reading interventions were effective, the teacher-participants' knowledge and experience may have also affected the students' reading scores. Researchers could measure this factor by the length of the training that the instructor has received and by the length of the teacher's experience in administering Voyager based interventions.

Another confounding variable may have been the use of one school for the control group and another school for the treatment group. The increase in scores for the treatment group could have resulted from factors particular to the treatment school such as better facilities, more educated staff, or higher morale. Researchers may control for these variables in a future study by using a research design where the samples for both the control and treatment groups would come from the same

school. This study design would improve generalizability, since the study participants for Voyager based reading interventions under the RTI model are under similar environmental and sociological factors that may affect the students' learning.

A third confounding factor that may have also affected the results of the post-test scores was the within subject factor of student IQ. Researchers could base future study designs upon Vellutino and Scanlon's (1987) study on students' ability to store and retrieve phonological representation corresponding to words. In that study, the researchers performed an ANCOVA on the study variables while controlling for IQ. Thus, researchers could evaluate the effect of IQ on student learning after undergoing Voyager based reading interventions under the RTI structure among students with reading difficulties. Researchers could carry out an ANCOVA using student IQ as the covariate, pre-test scores as the independent variable, and post-test scores as the dependent variable.

Finally, future researchers could conduct studies to determine if Voyager based reading interventions under the RTI framework could improve reading ability in students who received different educational approaches. The NCLB's Reading First mandate stated that all kindergarten through third grade reading programs should contain explicit and systematic instruction, while critics have argued that reading programs should not be implemented at the kindergarten level and it would be a mistake to expose children to academic instruction too soon that is not age appropriate (Kamil et al., 2014). Future studies could observe the reading abilities of students who received explicit and systematic instruction in kindergarten and students who did not receive such instruction. If there are differences between the reading abilities of the two groups, researchers could evaluate the effectivity of STEEP based reading interventions under the RTI framework, regarding whether it could mitigate or even resolve the effect of low ratings on early reading abilities.

Summary

The researcher designed this quasi-experimental quantitative study by utilizing a random sampling method to measure the effect of Tier III interventions on fourth grade students with reading difficulties. Based on teacher feedback on the results of students receiving reading interventions, the researcher expected that students who received Tier III interventions would have improved reading ability scores and the study's findings confirm the researcher's hypothesis. A review of the related literature in Chapter Two also led the researcher to believe that upon application of the Tier III interventions, there would be a significant difference in the means of the control and treatment groups. It was with these expectations that the researcher formulated the hypotheses that Tier III interventions would have an effect on the treatment groups of fourth grade students with reading difficulty. Based on statistical analysis performed in Chapter Four of this study, the researcher found that there were statistically significant differences in the means of students in the control and treatment groups for reading comprehension and oral reading fluency scores, indicating that the Tier III interventions were effective in improving reading ability.

Students with reading difficulties not only in the fourth grade but also from all grade levels will benefit the most from the findings in this study as this provides empirical evidence of the effectiveness of Tier III interventions on improving reading comprehension and oral reading fluency. Based on this study, parents of students with low reading ability may identify effective solutions to help their child achieve the developmental milestones that are appropriate for their age levels. This study gives credence to Vygotsky's social development model wherein students learn when they are taught according to their developmental level by a skilled person who provides proper feedback and guidance until the learner has sufficiently learned the task. Conceptualized based on the social

development theory, this study's model, where teacher-participants received training on the implementation of Tier III interventions while controlling for the students' prior knowledge, was able to provide empirical proof of the effectiveness of Voyager Tier III interventions based under the RTI framework on reading achievement and oral reading fluency. Chapter 5 concludes this study and it is hoped that this study will contribute to the field of education by laying the groundwork for the basis of future studies that could impact not only the individual but could also contribute to the nation as a whole.

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APPENDIX A

LIBERTY UNIVERSITY
INSTITUTIONAL REVIEW BOARD

March 11, 2016

Lisa Harris
IRB Exemption 2442.031116: The Effects of Intervention Program (Steep) through Response-To-Intervention Framework on 4th Grade Reading Achievement

Dear Lisa,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(1), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

1971 UNIVERSITY BLVD. LYNCHBURG, VA. 24515 IRB@LIBERTY.EDU FAX (434) 522-0506 WWW.LIBERTY.EDU

APPENDIX B

Email Communication to 4th Grade Teachers

Dear 4th Grade Teachers,

Good Afternoon,

I am currently working on my doctoral degree at Liberty University. As part of my dissertation study, I am conducting a research project to investigate the effect of Voyager Passport reading intervention program on the reading fluency of 4th grade students. I will be conducting this study in to separate 4th grade reading class. The goal is to learn effective intervention tools to help with struggling students in reading.

During this time, I will conduct a one hour professional development training sessions to review and learn the Voyager reading intervention program. Students will be identified based on academic needs through the RTI process. The study will require about 25 hours of your time. Intervention will be broken into 20-25 minutes segments for a total of 50 sessions. The intervention will span over a period of 8 weeks, during which your students will be receiving direct literacy intervention instruction.

You may find participation in this study enjoyable, as it is a chance to learn some strategies they can benefit your students. There are no anticipated risk related to this research.

I will be contact with each of you within the next week. I look forward to working with each of you. If you have any questions, please email me at harris.lisa@lee.k12.al.us.

Thank you,

Lisa Harris

APPENDIX C

[redacted]

Dear [redacted]

As a graduate student in the education department at Liberty University, I am conducting research as part of the requirements for Ed.D degree. The title of my research project is *The Effects of Intervention Program, (STEEP) Through Response to Intervention Framework on 4th Grade Reading Achievement* and the purpose of my research is to investigate the effect of Voyager Passport reading intervention program on the reading fluency of 4th grade students.

I am writing to request your permission to conduct my research at [redacted] School by allowing me access and utilize 4th grade students/staff . Your school will be part of a control group and we will be testing your students as a way to compare their results with other children. I hope to recruit a minimum of 30 students to participant in this study.

Students will be given a pre-test to access their oral reading fluency and reading achievement. The test take approximately ten minutes which will take place during a time which is negotiated with the teacher to make sure students don't miss any really important class work. We will then re-test the students after eight weeks after they receive their normal reading instruction.

The data we collect will be used as part of the research study. The data will be used to determine the benefits of a particular intervention program on 4th grade RTI students. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Dr. McCoy has granted me permission to conduct the study in Lee County School System. Thank you for considering my request to use your school as part of the research. I would be more than willing to provide any further information you may require in order to make a decision.

Sincerely,

Mrs. Lisa Harris

[redacted]

APPENDIX D

Dr. James E. McCoy
Superintendent
[redacted]
[redacted]

Dear Dr. McCoy:

As a graduate student in the education department at Liberty University, I am conducting research as part of the requirements for Ed.D degree. The title of my research project is *The Effects of Intervention Program, (STEEP) Through Response to Intervention Framework on 4th Grade Reading Achievement* and the purpose of my research is to investigate the effect of a Voyager Passport reading intervention program on the reading fluency of 4th grade students.

I am writing to request your permission to conduct my research in [redacted] Two schools will serve as the research site for the study. [redacted] will serve as the research site for the treatment group. [redacted] will serve as the control group site. I hope to recruit a minimum of 30 students to participant at each site. Prior to the intervention, students will be given a pre-test to access their oral reading fluency and reading achievement

Participants will be asked to participant 25 hours of reading intervention by a certified reading teacher. Intervention will be broken into 20-25 minute segment for a total of 50 sessions. After completion of the intervention, students will be given a post-test to analyze the effectiveness of the program. The data will be used to determine the benefits of a particular intervention program *on 4th* grade RTI students. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on approved letterhead indicating your approval. For education research, district permission will need to be on approved letterhead with the appropriate signature.

Sincerely,

Lisa Harris

APPENDIX E

The Liberty University Institutional Review Board has approved this document for use from 3/11/16 to --
Protocol # 2442.031116

PARENT/GUARDIAN CONSENT FORM
The Effects of Intervention Program (STEEP) Through Response to Intervention Framework on 4th Grade Reading Achievement

Lisa Harris
Liberty University

Your child is invited to be in a research study to investigate the impact of a Tier III reading intervention program on fourth grade students. Your child was selected as a possible participant because he or she is enrolled in 4th grade at East Smiths Station Elementary School. I ask that you read this form and ask any questions you may have before agreeing to allow him or her to be in the study.

This study is being conducted by Lisa Harris, a doctoral student in the School of Education at Liberty University.

Background Information:

The purpose of this study is to determine the effectiveness of the Voyager Passport reading intervention program with students struggling academically that could support them in being successful in school.

Procedures:

If you agree to allow your child to be in this study, I would ask him or her to do the following things:
1.) Your child will be given the STEEP pre-test to assess their oral reading fluency by their current reading teacher. The pre-test will take approximately 3-5 minutes to administer to each student. The STEEP is a data management system used to track and screen students' academics.
2.) Participate in 25 hours of reading instruction through the Voyager Reading Program. The program is a supplemental reading intervention system used in a small group setting. Intervention will be broken into 20-25 minutes segments for a total of 50 sessions. The intervention will span over a period of 8 weeks, during which your students will be receiving direct literacy intervention instruction.
3.) After participating in 25 hours of reading instruction, the STEEP post-test will be administered in each student. The post-test will take approximately 3-5 minutes to administer to each student.

Risks and Benefits of being in the Study:

There are no risks to your child participating in this study, and all data as to their performance and progress will be kept confidential. Parents may have access to their child's information upon request. The study is investigating benefits of extra small group instruction to help improve students' reading fluency. The information could provide information to educators who can design more effective interventions for others.

Compensation:

Your child will not be compensated.

The Liberty University Institutional
Review Board has approved
this document for use from
3/11/16 to --
Protocol # 2442.031116

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. The school administration will have a master list of the students' names, which will each have a code. The researcher will not know the names of participants. Upon completion, the researcher will store the results in a locked filing cabinet. After three years, all data related to the current study will be shredded and thrown away by the researcher.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect his or her current or future relations with Liberty University or East Smiths Station Elementary School. If you decide to allow your child/student to participate, he or she is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Lisa Harris You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at lharris66@liberty.edu . You may also contact my faculty supervisor, Dr. Deanne Keith at *dlkeith@liberty.edu*.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child/student to participate in the study.

(NOTE: DO NOT AGREE TO ALLOW YOUR CHILD/STUDENT TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

Signature of parent or guardian: _____ Date: _____

Signature of Investigator: _____ Date: _____

The Liberty University Institutional
Review Board has approved
this document for use from
3/11/16 to --
Protocol # 2442.031116

PARENT/GUARDIAN CONSENT FORM
The Effects of Intervention Program (STEEP) Through Response to Intervention Framework on 4th Grade Reading Achievement

Lisa Harris
Liberty University

Your child is invited to be in a research study to investigate the impact of a Tier III reading intervention program on fourth grade students. Your child was selected as a possible participant because he or she is enrolled in 4th grade at Wacoochee Elementary School. I ask that you read this form and ask any questions you may have before agreeing to allow him or her to be in the study.

This study is being conducted by Lisa Harris, a student in the Department of Education at Liberty University.

Background Information:

The purpose of this study is to determine the effectiveness of the Voyager Passport reading intervention program with students struggling academically that could support them in being successful in school.

Procedures:

If you agree to allow your child to be in this study, I would ask him or her to do the following things:
1.) Your child will be given the STEEP pre-test to assess their oral reading fluency by their current reading teacher. The STEEP is a data management system used to track and screen students academics.
2.) The test take approximately 3-5 minutes which will take place during a time which is negotiated with the teacher to make sure students don't miss any really important class work.
3) We will then administer a post-test to the students after they receive their normal reading instruction for 8 weeks.
4) The student data will be used to compare students from another school that participated in Voyager Passport reading intervention program.

Risks and Benefits of being in the Study:

There are no risks to your child participating in this study, and all data as to their performance and progress will be kept confidential. Parents may have access to their child's information upon request. The study is investigating benefits of extra small group instruction to help improve students' reading fluency. The information could provide information to educators who can design more effective interventions for others.

Compensation:

Your child will not be compensated.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. The school administration will have a master list of the students' names, which will each have a code. The researcher will not know the names of participants.

Upon completion, the researcher will store the results in a locked filing cabinet. After three years, all data related to the current study will be shredded and thrown away by the researcher.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to allow your child to participate will not affect his or her current or future relations with Liberty University or East Smiths Station Elementary School. If you decide to allow your child/student to participate, he or she is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Lisa Harris You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at lharris66@liberty.edu . You may also contact my faculty supervisor, Dr. Deanne Keith at *dlkeith@liberty.edu.*

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to allow my child/student to participate in the study.

(NOTE: DO NOT AGREE TO ALLOW YOUR CHILD/STUDENT TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

Signature of parent or guardian: _____ Date: _____

Signature of Investigator: _____ Date: _____