

**THE IMPACT OF RTI PRESENTATION: IS  
PULLOUT OR IN-CLASS THE BETTER  
METHOD?**

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THE IMPACT OF RTI PRESENTATION: IS PULLOUT OR IN-CLASS THE  
BETTER METHOD?

A Field Study

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In Partial Fulfillment

Of

The Requirements for the Degree

Education Specialist

Synthia M. Strattman

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By

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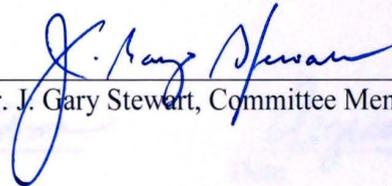
We are submitting a field study written by Synthia M. Stratman entitled "The Impact of RTI Presentation: Is Pullout or In-class the Better Method?" We have examined the final copy of this field study for form and content. We recommend that it be accepted in partial fulfillment of the requirements for the degree of Education Specialist.



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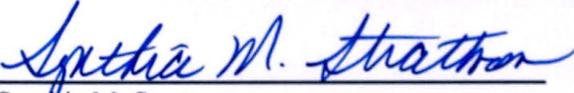
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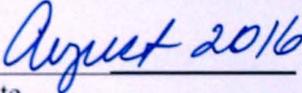


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## DEDICATION

To my children, Jacob, Sean, and Rachel, who have heard my constant refrain, “I need to work on my homework!” as they worked on their own college and high school classwork, goes a very big hug and thanks for understanding.

To my husband, Roddy, who took on so many responsibilities as I worked through this process and never complained, goes my love and appreciation for his undying support.

To my mom, Sue Moore, and to the memory of my late dad, Billy Moore, goes my lifelong appreciation for their belief that their children and grandchildren can achieve anything through faith and perseverance.

## ABSTRACT

SYNTHIA M. STRATTMAN. The Impact of RTI Presentation: Is Pullout or In-class the Better Method? (Under the direction of DR. GINA GROGAN.)

The purpose of this research was to show how the types of Response to Intervention (RTI) being presented in a large school district in Middle Tennessee affects student reading scores in oral reading fluency (ORF). The types of RTI presentation utilized by the studied school system are described, as well as the history behind RTI, and the development of an RTI framework in the state. The ORF growth scores of 144 Tier II RTI students who received intervention in a pullout setting, devoid of distractions by Tier I students were compared to 39 Tier II RTI students who received intervention in an in-class setting where their instruction was presented alongside that of Tier I students. This field study attempts to show the importance of considering student outcomes when scheduling RTI in an elementary school. The timeliness of this research is important given the emphasis placed on testing and reading development across the country. The small-group condition of pullout did not result in significantly higher growth scores than the small-group condition of in-class. Implications are discussed for further research and practice.

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## CHAPTER I

### INTRODUCTION

To state that the ability to read well is the basis for all student learning in this country is an understatement. Employers of factory workers, tradesmen, waiters, and unskilled laborers need employees who can not only read, but can also comprehend the written word. Kindergarten students begin this reading and comprehension process, which continues on through the primary grades. In the upper elementary grades, the emphasis is on comprehension skills. It is imperative students' reading difficulties be identified as early as possible, and intensive intervention based on that specifically identified problem be given. Response to Intervention (RTI) is an approach designed to provide this intensive instruction and to meet struggling students' needs.

#### **Statement of the Problem**

The topic for this study was Response to Intervention instructional presentation. The problem within this topic was whether or not the type of RTI presentation affected student growth in oral reading fluency (ORF). RTI small group instruction was presented in two ways in the subject schools. One type was pullout, where the teacher's class of students was distributed elsewhere and the teacher concentrated on the needs of the students in Tier II RTI instruction. The other type was in-class, in which the teacher's class of students was present during RTI instruction time, along with the small group of students in Tier II. The students received RTI intervention while many other students were in the room, which could create distractions as well as divide the teacher's attention

## **Purpose of the Study**

The purpose of this study was to identify whether the type of RTI presentation during instruction in first grade classrooms was related to the growth in spring testing scores. The independent variable was the type of classroom organization during RTI presentation. This categorical variable was Tier II RTI in a classroom while Tier I students were present, termed in-class in this study, or small group RTI in a classroom devoid of Tier I students, termed pullout in this study. The type of classroom organization was set by the schools' principal as a means of meeting scheduling needs. Assignment to the school was a function of school zoning and not manipulated by the researcher. The dependent variable was the growth in scores from the winter to spring universal screener in oral reading fluency (ORF) of RTI small group students with either type of presentation, based on the school system's use of Path Driver™ testing and scoring. This quantitative, continuous variable ranged from a score of 1 to a maximum of 172. The studied school system was a large district in Middle Tennessee.

## **Significance of the Study**

This study built on previous research into the strengths and weaknesses of RTI. Catts, Nielsen, Bridges, Liu, and Bontempo (2013) completed an investigation into the strengths of using RTI with students in kindergarten, and followed their progress through first grade. The findings of this study supported the use of RTI in preventing reading disabilities and suggested a combination of progress monitoring or screening tests to predict achievement in reading. The authors also studied whether it was students' Tier II intervention or their Tier I classroom instruction that affected those scores. They found that intensive instruction in letter naming and phonemic awareness in Tier I translated

into little progress in those areas during Tier II instruction. While this study supported the need for RTI, it did not delve further into the manner in which instruction is presented. No research was found on the particular subject of instruction being delivered through pullout or in-class, with or without a classroom full of students present. This study increases the amount of data known about education through its examination of growth of scores in ORF compared to the type of presentation of RTI. The secondary purpose of this study was to give administrators and teachers information to make decisions on the scheduling choices on struggling student's ability to attend and grow through RTI.

### **Research Question**

Upon the reviewing of the literature on RTI and the examination of the purpose for this study, the following question is to be addressed:

Will students' winter (middle of the year, MOY) to spring (end of the year, EOY) growth in ORF scores show a greater increase when RTI Tier II instruction is performed in a pullout setting or in an in-class setting?

### **Null Hypothesis**

First grade students who receive Tier II RTI instruction in a pullout setting will have a greater increase in ORF scores from winter (MOY) to spring (EOY) than those in an in-class setting.

### **Delimitations**

This field study examined and compared growth in ORF of students in first grade Tier II RTI between the 2015 winter and 2016 spring universal screening, according to how their intervention was delivered. In the studied school system, the methods chosen by administrators to schedule RTI were pullout and in-class. Some elementary schools in

the district were identified as Title I schools, with a high percentage of students receiving free or reduced lunch. These schools had Title I paraprofessionals and teachers who taught the intervention groups, freeing the classroom teacher to continue regular instruction for the rest of the students. Schools not identified as Title I had used both methods, pullout and in-class, by having classroom teachers instruct the intervention groups while the rest of the students visited special area teachers for instruction. Some Title I schools required the classroom teacher to instruct the intervention group while the rest of the students were in the classroom for regular instruction. Interest in this issue stemmed directly from experiences with both types of scheduling and instruction. In the first year of RTI in some schools, paraprofessionals were used to teach the intervention group in the classroom while the teacher taught the rest of the students. Tier II students exhibited issues with attentiveness, seen through teacher observation. In the next year, teachers taught the small group in the classroom while paraprofessionals monitored the rest of the students. Not only did attentiveness become an issue for both students in RTI and the classroom, but behavior issues again surfaced, as noted through teacher observation. In other schools, RTI was taught in small groups as pullout, in that the other students had left the classroom to participate in learning activities with special area teachers. Students were not given the opportunity to learn from higher achieving peers, but did receive individual attention from the instructor.

The boundaries set for this study began with the use of only data from first grade in the school system studied. A primary boundary set was to gather data on ORF. This test was given to first graders during the winter and spring screening but not the initial screening in the fall. Kindergarteners did not take this test. Second through fifth graders

took a similar ORF test but were not included due to the overwhelming data. There were a variety of other literacy and phonics tests given during the screener, but these were either not administered to every grade level or were not the areas in which students needed intervention throughout the school year.

### **Limitations**

The data gathered for this study was from the school year 2015/2016 and was only a snapshot of student growth in ORF during that time. This school year was chosen, as data was readily available from all elementary schools in the system that included first grade. One elementary school was not included since it housed only students in grades four and five. A longer span of time could possibly give the researcher more valid data for which to run an analysis but was not an option due to the year of state-wide implementation of RTI being the 2014/2015 school year.

As more rigorous Common Core Standards (CCS) and TNReady standards were taught in kindergarten, student background in reading skills could have affected growth results. ORF could have been affected by students' ability to decode the standard spelling of words as well as the non-standard spelling of sight words. This study did not examine if student growth was affected by Tier I research-based teaching. Teacher effectiveness and use of research based teaching strategies as well as small and whole group management could readily affect growth scores and rates, and was not measured by this study. Administrators assessed these items during evaluations and every five weeks on the students' fidelity record, but the data was not retained in a central location, which would require the researcher to have access to every RTI folder available in the studied

school system's elementary schools. This information should be further researched to look for a correlation between teacher effectiveness and reading growth.

The studied school system chose the universal screener given (Path Driver™), so the reliability and validity of this test is out of the researcher's hands. The test subjects were first-grade students in the studied school system, whose physical health, whims, and moods could have affected their reading performance, thus affecting growth data. The data analysis looked for a correlation between the type of RTI presentation (pullout or in-class) and growth in scores and not causation. An experimental study would not be ethical in this education environment since it would require that students eligible for RTI would not receive the standard of instruction that the method requires.

The population of this study was first graders in Tennessee receiving Tier II intervention in ORF with the sample being first graders in the studied school system receiving Tier II intervention in ORF. Limitations regarding the generalization of this study's results included students in other grade levels, students receiving intervention in a reading component other than ORF, or students outside of Tennessee. These factors would have to have been accounted for in order for a researcher to duplicate this study.

This study included an examination of elementary schools identified as Title I and thus have high percentages of students who receive free or reduced lunches. It did not identify individual students as receiving that service. This information was confidential and not released by the studied school system. Therefore, it was not possible to sort data from each school by the individuals in RTI who did or did not receive free or reduced lunch.

## Assumptions

RTI has been utilized in various elementary schools in the studied school system for four years and has been required by the state of Tennessee since the 2014/2015 school year for K-6. The goal was to identify students who were at risk of falling behind or failing in reading and math, and intervene before students fall so far behind as to need testing for and possibly qualifying for special education placement. It was assumed that Tennessee, and thus the studied school system, would continue using this model for the foreseeable future.

Data continued to drive various aspects of education. Meetings between classroom teachers, administrators, and academic coaches were conducted after universal screeners were given to identify students with remedial or enrichment needs. Test data was included in teacher evaluation scores and used to determine if a teacher was to be rehired for the following school year. Middle-school students were placed in leveled classes and using this same testing data set high-school students' diploma levels. Thus, it was assumed that data would continue to be used for student placement not only at the middle and high school levels, but within elementary classrooms as well. It was also assumed that the results of this study could be generalized to other schools in Tennessee who follow the RTI model as outlined by the state. Teachers across the state were required to administer the screener, determine which students will receive what specific intervention, use research-based strategies with fidelity, and manage their students' behavior. The question of whether the results can be generalized to schools outside of the state is dependent upon whether or not those states use a similar RTI framework in their schools.

## Definitions of Terms

*Common Core Standards (CCS)* – A standardized set of expectations for student learning from kindergarten through twelfth grade across content areas, published in 2009 (Preparing America’s students for success, n.d.).

*Growth Rate* – The rate at which a student’s scores improve over weeks of progress monitoring in an established deficit, also known as *rate of improvement* (“RTI<sup>2</sup>”, 2013).

*In-Class* – A type of RTI presentation in which Tier II or III students receive instruction in a small group setting that is held in a general educational classroom with Tier I students present.

*Oral Reading Fluency* – Also known as ORF, is a test requiring the reading of a passage for one minute in which the teacher scores the student’s accuracy of decoding and words per minute, or rate (“RTI<sup>2</sup>”, 2013).

*Path Driver<sup>TM</sup>* – The universal screener that the studied school system administers to students from grades kindergarten through 5<sup>th</sup> grade.

*Praxis<sup>®</sup>* - The norm-referenced test required by many states for teacher licensing (The Praxis Tests, n.d.).

*Progress Monitoring* – Weekly assessment in a skill for which students have received instruction (RTI<sup>2</sup>, 2013).

*Pullout* – An educational practice of taking students from their classroom for instruction with students with similar difficulties. For the purpose of this study, pullout is the practice of administering instruction to only Tier II students in a small group setting.

A teacher with no Tier I students delivers students present this instruction (Mercer, Mercer & Pullen, 2011, p. 214).

*Response to Intervention* – Also known as RTI, response to intervention is a method used to identify students who are behind their peers in learning or behavior needs. It begins in the general education classroom with research-based instruction and the same screener being given to all students. Students move between three tiers for more intensive instruction as needed (Overton, 2012, p. 206).

*Tennessee Educator Acceleration Model* – Also known as TEAM, is the evaluation system used by the state of Tennessee to evaluate the effectiveness of teachers. (TEAM-TN, n.d.)

*Tiered Instruction* – Regular classroom instruction is considered the Tier I of Response to Intervention framework. Students performing at set levels of the universal screener may be moved to Tier II for remedial or enrichment instruction. Students in Tier II who continue to score at the extremes of a secondary universal screener may be moved to Tier III for further instruction. Students in Tier II or III instruction groups continue to receive instruction in Tier I (Overton, 2012, p. 206).

*TNReady Standards* – A set of expectations specifically for Tennessee students in grades kindergarten through twelve based on Common Core Standards (RTI<sup>2</sup>, 2013).

*Universal Screener* – Assessment of all students in the general education classroom to determine if any are at risk or are below the level of expected performance for their grade (Overton, 2012, p. 206).

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

Teacher presentation of content includes several components. Teachers begin with a background building activity or question, move through the stated objective or target, and present the content. The rest of a lesson includes modeling, guided practice, independent practice, and an evaluation of students' learning. Teacher evaluation models examine a teacher's system of classroom organization and management in addition to the aforementioned components of a lesson. This is the closest that the rating system comes to judging the setting of lessons and how they affect student-learning outcomes.

Response to Intervention is a system of explicit, intensive instruction that is evaluated for fidelity of delivery, taught by highly trained personnel, and populated by students placed there through the ranking of their universal screener scores. This review of literature examines RTI and the history of special education law and court cases that have led to the use of RTI as an identifier of students at risk and students with specific learning disabilities. The implementation of RTI in Tennessee, an explanation of the process for teachers and students, and the importance of various elements of RTI are also examined.

#### Definition of RTI

The RTI process involves research-based instruction administered by highly-qualified staff in the general education classroom, frequent assessment of student progress or lack thereof, the use of a universal screener to test all students, decisions of placement based on data, and collaboration between teachers and administrators to

develop a plan for the instruction of all students (Barnes & Harlacher, 2008; Bradley, Danielson, Doolittle, 2007; Fuchs & Fuchs, 2006; Scholin & Burns, 2012; Toste, et al., 2014). The “I” portion of RTI refers to the targeted intervention that teachers offer but also to the instruction given. This problem-solving method first requires teachers and administrators to determine if Tier I instruction, also known as grade level instruction, meets the needs of students effectively. Through this discussion and the use of student percentile rankings from the universal screener, teachers and administrators can determine the level of instruction necessary to further meet student needs (Harlacher, Potter, & Weber, 2014). RTI is developed based on the assumption that students scoring at the 25<sup>th</sup> percentile and above can have their needs met through regular, differentiated classroom instruction. This is Tier I. Students scoring between the 10<sup>th</sup> and 25<sup>th</sup> percentile need more intensive instruction than that administered in the general education classroom and are placed in Tier II. Students in Tier II continue to receive Tier I instruction. Students scoring lower than the 10<sup>th</sup> percentile need even more intensive, lower teacher-student ratio instruction. These students are placed in Tier III. See Figure 1 for a pictorial representation of this section.

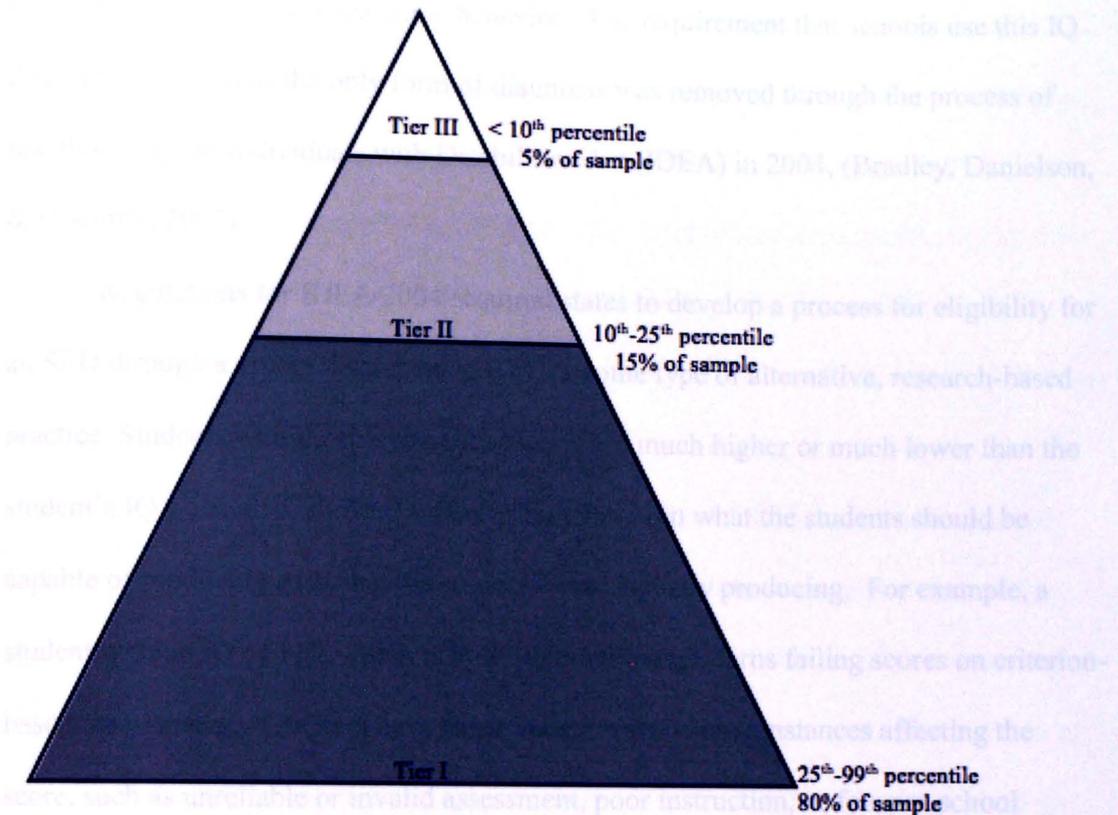


Figure 1. Levels of RTI.

### History of Special Education and Response to Intervention

In 1997, the U.S. Congress tasked the National Institute for Child Health and Human Development and the Secretary of Education to review the literature on methods used to teach children to read and to report on the effectiveness of these methods (Armbruster, Lehr, & Osborne, n.d.). This process raised concerns. Students with Specific Learning Disabilities (SLD) were not being identified early enough or accurately enough. Students spent several years of failing at learning before being identified with an SLD. The discrepancy model used at the time was a method of comparing student academic achievement with student IQ, or intellectual quotient. This IQ discrepancy model took into consideration a student's achievement, history, test scores, and teacher

observation of the child's academic behavior. The requirement that schools use this IQ discrepancy model as the only form of diagnosis was removed through the process of reauthorizing the Individuals with Disabilities Act (IDEA) in 2004, (Bradley, Danielson, & Doolittle, 2007).

Regulations for IDEA 2004 required states to develop a process for eligibility for an SLD through a severe discrepancy, RTI, or some type of alternative, research-based practice. Students whose achievement scores were much higher or much lower than the student's IQ warranted, showed a discrepancy between what the students should be capable of producing and what the students were actually producing. For example, a student with an IQ of 110, which is in the average range, earns failing scores on criterion-based assessments. Teachers have ruled out extraneous circumstances affecting the score, such as unreliable or invalid assessment, poor instruction, or few pre-school experiences (Vellutino, Scanlon, Small, & Fanuele, 2006). Appropriate administrators tested students using this discrepancy for a possible SLD diagnosis. Unfortunately, this method became and was labeled the "wait to fail" model. Teachers had to wait for students to demonstrate an inability to comprehend grade level material before the students could be referred for special education testing (Fuchs & Fuchs, 2006). Waiting and allowing students to fall behind far enough for approval of testing wasted valuable teaching and learning time. Also, students struggle academically for a variety of reasons, such as home environment, ineffective teaching, or academic deficiencies. The solving of one of these problems could pull a student out of an at-risk category, which would show that the discrepancy was not a learning disability. And finally, the high percentage of students identified as learning disabled calls to question how many are truly learning

disabled (Mesmer & Mesmer, 2008; Vellutino et al., 2006). A longitudinal study conducted by Partanen and Seigel published in 2013 followed students from kindergarten through seventh grade who had been identified as at-risk for developing reading difficulties. It was determined that 22% of the kindergarteners were at-risk, but by the time that same group of students had completed seventh grade, the number of at-risk students had dropped to 6% (p. 680). This lends credence to the effectiveness of the process of assessment, identification, and intensive instruction.

The No Child Left Behind Act (NCLB) of 2001 required that all students will learn and will be tested at grade level. Teachers are required to use research-based practices to teach and test students. Students are to be tested periodically to assess not only their learning, but also the effectiveness of teachers' lessons. The incorporation of these two federal laws has led to the development of RTI. Teachers administer research-based instruction in Tier I, or the general education classroom, and universal screening is used to identify students falling behind. Students' academic abilities are assessed through the RTI process often (weekly or bi-monthly) while teachers deliver lessons that develop skills in particular academic weaknesses (Bradley et al., 2007; Toste, et al., 2014).

### **Process of RTI**

According to IDEA 2004, states are allowed to choose not only the model for the determination of learning disabilities but also the model of RTI to be utilized. At three times during the school year, in fall, winter, and spring, a universal screener is administered to all students in grades kindergarten through six. A spreadsheet is created with the various reading and math assessments organized by grade level. This allows

teachers and administrators to view at a glance how each student scored based on national percentile rankings. During a meeting (called a Data Chat in the studied county) teachers and administrators examine the data to identify students for tiered instruction (Harlacher et al., 2014). Rankings are the basis for forming groups. The number of groups that could be formed is based on the number of staff members available to deliver instruction.

In the state of Tennessee, RTI instruction begins as soon as possible after the Data Chat. Students in Tier II receive thirty extra minutes of intensive instruction above any required reading-language arts instruction time. Students with deficits in math also receive thirty extra minutes of intensive instruction above any required math instruction time in the general education classroom. Tier III reading or math students receive an additional instruction above that in Tier II. Administrators and classroom teachers determine the schedule for when these interventions will be delivered (“RTI<sup>2</sup>”, 2013).

The teacher delivering instruction develops RTI lessons, which are to be research-based. The identified reading or math deficit is the basis for the lessons. For example, if a student’s deficit is in phoneme segmentation fluency (PSF) portion of the universal screener, then the intervention lessons are to be based on developing phonemic awareness and not another aspect of reading such as vocabulary or comprehension. Instruction is delivered at times scheduled by the teacher or a school administrator. Each week, students are tested, or progress monitored, in the prescribed skill, and the data is plotted on a graph. This graph provides growth data that is examined at the fifth week of intervention for determination of the continuation or cessation of that particular type of intervention. At the end of the intervention period, the next universal screener is administered, and new groups are formed.

Parents are kept informed during the entire process. Parents are sent documentation as the universal screener is given and a student is determined to be in need of intervention. As mentioned previously, during the fifth week of intervention, teachers and administrators met in a shortened Data Chat to determine if the students are making growth, and if the intervention should be changed. In the studied school system, parents are sent a graph of progress and an explanation of how the teacher is attempting to meet the student's needs. Through this process, parents are again contacted upon delivery of the next universal screener as to whether student growth has allowed that student to exit intervention back to Tier I instruction, whether the intervention will remain the same (Tier II), or whether the student's percentile ranking warrants being moved to Tier III (Mesmer & Mesmer, 2008; "RTI<sup>2</sup>", 2013).

### **RTI in Tennessee**

In 2004, when the federal government reauthorized IDEA, Tennessee allowed local school districts to continue to use the discrepancy model or RTI. RTI was not adopted across the state or uniformly implemented. Meetings and discussions on the issue were held from spring 2012 through June 2013. Advisors found that students did not demonstrate the discrepancy between achievement and IQ as earlier required until third grade, further employing the wait to fail model of assessment of an SLD. Schools were directed to provide instructional intervention as determined through a problem-solving method. Schools were to address the problem of waiting for students to fail and to provide early support for those whose progress falls between the categories of learning disabilities and failure. As of July 1, 2014, RTI became the only method through which students in the state could be identified as having an SLD. The state termed the process

RTI<sup>2</sup>, meaning Response to Instruction and Intervention, but for the purposes of this study, the term RTI will be used. The Guiding Principles for this program are:

- Leadership at the state, district, and building level is essential for ensuring the success of ALL students throughout the RTI<sup>2</sup> Framework.
  - A culture of collaboration that is focused on student achievement, for both struggling and advancing students, should include educators, families, and communities.
  - RTI<sup>2</sup> is a process focused on **prevention** and **early intervention** that uses assessment data for instruction, intervention, and transitions between Tiers.
- (“RTI<sup>2</sup>”, 2013, p. 8)

RTI is used to determine if a student had an SLD in reading fluency, reading comprehension or a basic reading skill, math computation or problem solving, or composition. The program was further delineated as having three tiers of high quality, research-based instruction and intervention, with possible percentages of the student population in those tiers that could occur (“RTI<sup>2</sup>”, 2013).

The Tennessee model was also defined by the choice of a universal screener. Individual school districts are allowed to choose the universal screener desired, but it is required to be based on national norms and to be derived from skills taught at that grade level. It is to be administered three times in a school year. Data from this screener is to be used to make all decisions about tiered instructional placement.

This model further specifies that records are to be kept by individual schools and readily sent to other schools within a district or districts within the state whenever a

student is transferred. This allows for the educators in the student's new school to immediately place the student in the necessary tier of instruction.

Parents are advised of any change in tiers for instruction. They can request testing for an SLD at any time, just as before RTI was implemented. If, after Tier III instruction, which is more intensive than Tier II instruction, the student is not showing growth, he/she can be recommended for testing for an SLD.

An important aspect of RTI is in the use of data to drive decisions on instruction. It is used to derive cut points for tiered instruction as well as enrichment instruction. Discussions are held between grade level teachers and the school-based RTI committee. Notes are taken to insure that all persons present have a full understanding of decisions made based on the data and what the teacher's next steps will be.

The Tennessee Framework for and instruction calls for the monitoring of fidelity of instruction. School administrators are to periodically observe tiered instruction for research-based teaching. They are also allowed to use observations during the TEAM evaluation process, a review of weekly lesson plans, or a review of a teacher's daily schedule. Instruction is also checked for alignment with TNReady and Tennessee Common Core State Standards as well as the school district's scope and sequence. During the fidelity checks in Tier II, the integrity level must be greater than 80 percent, and if not, the teacher will receive training on administering interventions. Another aspect of fidelity is the posting of weekly progress monitoring data. This data is used when making decisions about moving students through the tiers of instruction. It would also be used for determination of an SLD in students who do not respond to Tier III instruction ("RTI<sup>2</sup>", 2013).

## Assessment and Explicit Instruction

Two essential components to RTI are assessment and explicit instruction. Scores from a universal screener assessment determine which students are responding to research-based Tier I instruction. Students in Tier II are given more intensive Tier II instruction. Weekly one-minute assessments, or progress monitoring, determine the students' responsiveness to the instruction of the intervention or lack thereof. The data from progress monitoring give teachers the information necessary to determine how to change the instruction. Further progress monitoring or administration of the next phase of universal screening provides even more data on student progress and the effectiveness of teacher instruction. This constantly revolving cycle gives teachers the data necessary to prove how to change instruction and determine whether a student still needs the intensive instruction (Bradley et al., 2007; Deno, et al., 2009; Vanderheyden, Witt, & Gilbertson, 2007).

**Importance of explicit instruction.** The entire RTI process relies on explicitness through the testing, identification of need, and intensive instruction of skills. Explicit instruction in reading is moving from the parts to the whole. Implicit instruction in reading is moving from the whole to the parts. Explicit instruction is intense, systematic, and modeled (Mercer et al., 2011; Nelson-Walker, Fien, Kosty, Smolkowski, Smith, & Baker, 2013; Regan & Berkeley, 2011; Scammaca, Vaughn, & Roberts, 2007). Teachers directly instruct students as to *why* a strategy is used, *how* it is used, and *when* to choose *which* strategy (Mercer et al., 2011; Regan, 2011). Implicit reading instruction is inquiry based and allows for more independent student exploration than explicit instruction (Mercer et al., 2011). Proponents of implicit reading instruction immerse students in text.

Reading skills are thus acquired on a natural basis through exposure and not teacher-directed instruction. Proponents of explicit reading instruction place an emphasis on teacher-led skill instruction with modeled, guided practice in reading literature. The choice of literature is based on the foundational skill or comprehension skill being taught. It is considered that reading is a learned behavior that must be taught directly in order for the skills to be learned correctly. Explicit instruction is the optimum method for teaching the five components of reading; phonics, phonemic awareness, vocabulary, fluency, and comprehension (Armbruster, et al., n.d.).

**Choosing an assessment.** According to the National Reading Panel (Armbruster et al., n.d.), the five main components of reading are phonics, phonemic awareness, vocabulary, comprehension, and fluency. While researching this review of the literature, several studies were found that attempted to discern the best assessment to use to identify present and future reading difficulties. Test validity requires that the assessment actually tests what it is purported to assess. In other words, if the test administrator wants to assess a student's ability to quickly tell the sounds of letters, then letter naming fluency would not give the results the test administrator needs. If a test administrator wanted to assess a student's overall ability to read, then the test must fit those criteria. Curriculum-based measurement (CBM) is a type of test based on specific criteria taught and scored on the basis of the percentage of correct answers (Olinghouse, Lambert, & Compton, 2006).

This is opposed to norm-referenced measurements that distributed scores across a bell-shaped curve and compares students' performance to each other rather than to the criteria that was to be learned. Vaughn et al., (2006) argued that tests such as passage

comprehension, word attack, and ORF were positive indicators of potential student ability to respond well to RTI (as cited in Lam & McMaster, 2014, p. 140). ORF is a measurement of a student's accuracy and rate of words read correctly per minute. This required the student to incorporate several reading skills, such as letter-sound recognition, the ability to connect those sounds, and the automaticity of reading sight word and short decodable words. (Olinghouse et al., 2006; Schilling, Carlisle, Scott, & Zeng, 2007; Speece, Schatschneider, Silverman, Case, Cooper, & Jacobs, 2011). The Olinghouse study (2006) stated, "if the goals of the intervention are to generalize decoding and word reading gains to passage reading fluency, then the ORF measure would be an effective progress-monitoring instrument" (p. 100).

However, a study published in 2012 reports different results (Zumeta, Compton, & Fuchs, 2012). This study on a group of first graders used the word identification fluency (WIF) test, in which students have one minute to read as many sight words and decodable words as possible. Accuracy of reading and rate are scored. The assessment was designed to determine if students' WIF growth is linear and how valid it is as a preferred tool of assessing reading ability. It was determined that growth is quadratic and that a broad list of tested words was optimal. The authors had rejected the use of ORF (or passage reading fluency) through summarizing other studies on its use. They concluded that, since students begin with low scores, it does not show an improvement in student scores, and when it was used in the first half of first grade, students did not have the necessary background skills to earn a reliable starting score. In other words, students had not yet received enough instruction in decoding and sight word reading to warrant testing them on a passage consisting of sentences. Criterion-based measurement (CBM)

and similar testing batteries divide the tests into various components of decoding and comprehension. Students are placed in RTI groups based on scores in particular tests, and not on overall scores. This allows teachers to better meet the needs of their students.

According to the 2008 report from the National Reading Panel, reading fluency is one of the major components of effective teaching of reading techniques. Fluency is defined as “the ability to recognize words easily, read with greater speed, accuracy, and expression, and to better understand what is read” (Armbruster et al., n.d., Topic Areas section, para. 4). The process of reading involves decoding print and comprehending the meaning of words, phrases, and sentences. If a reader struggles with decoding, then the focus of cognitive abilities will be on recognizing the words and not on comprehending their meaning. Fluent readers have developed not only accuracy in decoding letters and words but also automaticity. Automaticity in decoding allows more cognitive resources to be spent on understanding not only the surface meaning of the text, but also the deeper comprehension of drawing conclusions, making inferences, or determining cause and effect. For first graders in the studied school system, the ORF component of Path Driver™ best tests this reading component. The other tests for first graders are letter naming, letter sound, phonemic awareness, and word identification. These are all fluency tests in that students have one minute to perform the required skill. A student’s ability to read fluently can be affected by any one or a combination of these. However, ORF requires competence in a combination of these skills.

## **Growth**

In Tennessee, RTI data examines student growth over the course of ten weeks of interventions and progress monitoring. Studies by Nese, Biancarosa, Cummings,

Kennedy, Alonzo, & Tindal (2013) as well as Schatschneider, Wagner, & Crawford (2008) refute the use of growth scores as an indicator of future learning or achievement. Schatschneider et al. (2008) found that for first graders tested in ORF, the end of the year data point was skewed. The authors note for a student to have a low ORF score at the end of the year, he/she had to show little to no growth. In other words, it would be easier for a student to show any growth at all rather than no growth. Nese et al. found in their study published in 2013 that growth rate in RTI was not linear. They found that across a school year, student growth was quadratic rather than linear, or more of a curved line with a maximum point. They also discovered that across grade levels 1-8, the rate of growth in ORF slowed. They concluded that students considered to be at risk for reading development might need even more intensive intervention instruction than was previously considered.

### **Models of Presentation**

**Teacher to student ratio.** In Tier I instruction, teachers differentiate their lessons through offering a variety of methods of representation, engagement, and expression of the learning by students. Teachers group students in reading and math in the primary grades in order to assess deficits and offer instruction based on those needs. According to Mercer et al. (2011), small group instruction is meant to have three to seven students per group, with the grouping based on a common student need (p. 41). RTI attempts to further meet the needs of students who were not progressing at a rate to be able to meet grade level expectations. Small groups for RTI are formed according to the identified deficit and the number of students who need that intervention. The number of students in a small group is not specified by IDEA 2004, the 2006 regulations, NCLB, or

the 2013 TnCore Response to Instruction and Intervention Framework. A study by Schwartz, Schmitt, & Lose (2012) compared the ratio of teacher to students involved in the Reading Recovery program. The authors found that a 1:1 ratio offered the optimum atmosphere for small group instruction, with students in a 1:3 ratio or a 1:10 ratio setting receiving less one on one attention and small gains in reading. A report from the Center on Instruction™ (2007) synthesized information on interventions for early readers who struggle. Scammaca et al. (2007) found that very small groups with ratios of 1:1, 1:2, or 1:3 were most effective for delivering instruction and increasing student engagement.

**Personnel for delivery of instruction.** Specific guidelines are presented for the amount of time students would spend in RTI instruction (“RTI<sup>2</sup>”, 2013). Guidelines for persons delivering the instruction are not specific. The TnCore Framework of 2013 suggests that highly qualified personnel should deliver instruction but does not specify if that personnel should be regular education classroom teachers, special education teachers, reading or math specialists, or even classroom paraprofessionals. A review of field studies published by Dexter, Hughes, & Farmer (2008) summarizes studies on RTI and their implications for implementation in rural school settings. The study opens with the statement “a shortage of qualified personnel to work with students with disabilities” is of concern to rural schools, but they did not further explain what qualified personnel should be (Gehrke & McCoy, 2007, p. 490). However, NCLB defines a highly qualified teacher as someone who has earned a bachelor’s degree, certification or licensure in the state in which he/she teaches, and has shown proof of content area knowledge, which in many states means passing the Praxis® test for that content area. Each state is to determine its own definition of elementary, middle, or high school levels and is to offer a variety of

ways for teachers to prove their competency to teach a subject area. Special education teachers are not required to meet highly qualified status when working on a consulting basis with the regular education classroom teacher (New No Child Left Behind, n.d.). While special education teachers are a valuable resource to students with Individualized Education Plans (IEP) and their teachers, RTI does not require that special education teachers deliver the intervention instruction. Otherwise, the decision as to who delivers RTI instruction is left to school administrators. Bean and Lillenstein (2012), in their study of schools that had successfully implemented RTI, discovered that principals were integral to creating an atmosphere that supported differentiation. This was accomplished through the scheduling of as many individuals as possible to administer small-group intervention through the support of collaborative teaching between classroom and special education teachers, and through provided time for instructors to discuss and examine best practices. In the majority of readings for this review of the literature on RTI, instruction was presented in the small groups for which RTI calls. Little distinction was made as to when or how the groups met for Tier II instruction.

**Relationship of RTI to special education.** RTI is not special education. Special education is not RTI. This section describes the general knowledge that educators and the public may have about how special instruction is delivered and how it is related to RTI.

As public schools developed in this country, students with obvious disabilities were kept at home, except for the occasional access to a school for the deaf or blind. By the mid-20<sup>th</sup> century, many states had built institutions specifically for children and adults with disabilities. Residents did not attend public schools, which added to the custodial

nature of the institutions. The quality of life experienced by the residents was not comparable to that of the general public that was not institutionalized. By 1962, President John F. Kennedy had commissioned the President's Panel on Mental Retardation. It addressed many issues that included overcrowding, funding, staff attitudes, programming, and system abuses.

The *Brown v. Board of Education* ruling of 1954 ended separate but equal for school children based on race. The ruling has been used by people advocating for persons with disabilities in an effort to stop separating children with physical or cognitive disabilities from the general education population of public schools. *Hobson v. Hansen* (1967) required school districts to provide equal education to students who had previously been denied a full education due to unfair assignment in segregated classes. *PARC v. Commonwealth of Pennsylvania* (1972) called for free education in public as well as due process when students are placed in special classes. The ruling also declared that placement in a regular education class was superior to placement in a special education class (Murdick, Gartin, & Fowler, 2014). Therefore, teaching students with academic difficulties alongside their peers (in-class) is preferable to delivering instruction in a pullout situation.

The Elementary and Secondary Education Act of 1965, the Education of the Handicapped Act of 1970, and the Education of the Handicapped Act Amendments of 1974 culminated in the passage of the Elementary and Secondary Education for All Handicapped Children Act of 1975 (EAHCA), better known as P.L. 94-142 (Murdick et al., 2014, p. 23). These acts set requirements for special services and required nondiscriminatory testing, free, appropriate public education (FAPE), Individual

Education Plans (IEP's), and least restrictive environment (LRE). FAPE is part of the Zero Reject principle of EAHCA. It is defined as a "concept that all children with disabilities, regardless of the severity of type of their disability, are entitled to receive a free appropriate public education" (Murdick et al., 2014, p. 23). LRE is the environment in which a student with a disability can be educated satisfactorily with students without disabilities. The student with a disability is to be educated in the school he/she would attend if a disability were not present. For example, a student who has been diagnosed with an SLD in reading comprehension would participate with his general education classmates for phonics instruction and reading comprehension instruction, but given reading comprehension instruction in a small group setting or alongside his peers that is catered to his specific needs. An example of a child not in his/her LRE is the student receiving all of his reading instruction outside of the general education classroom, away from his peers, even though he is able to easily participate in phonics instruction and make progress. These federal laws and court rulings emphasize the importance of students being educated with their peers and not blatantly singled out for special instruction. They attempt to stop the stigmatization of being differently abled, or being labeled as not being as good academically as classmates, or the embarrassment of having a student's private information made public to classmates. They do not address the need for educating students in an environment with few distractions.

**Pullout vs. in-class.** Of the literature discovered on RTI tiered instruction delivered in a pullout setting, four studies demonstrated the effect of setting on the tiers. An experiment on the effect of two types of RTI instruction described trained staff as interventionists who were able to meet with the students in a quiet area of the building.

In this experiment, Otaiba, et al. (2014), did not gather data that compared the results of how tiered instruction affected those students who had been met with in an in-class situation, in which instruction was delivered in a classroom full of students and distractions. A limitation of that study was the need to regroup students due to behavioral, personality, and group size concerns. A Tier III study was conducted to compare growth in reading in students who received research-based intervention and those who received differentiated small group instruction. The researchers chose to provide intervention in small groups *outside* of the regular classroom. No explanation was given for this choice. Students who received the research-based, dynamic intervention showed higher growth than the differentiated small group (Denton, Tolar, Fletcher, Barth, Vaughn, & Francis, 2013). While this field study examines the types of RTI instruction in Tier II, the Tier III study is included as an example of the impact of RTI instruction outside of Tier I classroom. A study of kindergartners who received reading intervention compared the type of instruction administered as well as the variables of group size and setting. As other studies had determined, this one also found that three to four students in a group is optimal but that “few studies have investigated whether features of the instructional setting moderate early literacy outcomes” (Hagan-Burke, et al., 2011, p. 262). The authors listed a limitation of the review of literature as research into the place where intervention instruction was given. Therefore, the study focused on group size and intervention delivered in or out of the classroom. Their findings were that decoding and phonemic awareness growth were not affected by the setting of the instruction, but students who received typical intervention in groups that were larger did not score as well on phonemic awareness tests at the end of kindergarten.

No statistical difference was found when comparing groups from a pullout or in-class setting for intervention.

**Zigmond and Baker's study.** Through searching databases, no studies were found whose primary purpose was to study and compare the results of RTI administered to small groups as pullout or in-class. All previously discussed studies published within the last ten years supported components of this study, or parts of the study defined the terminology used here. However, a study from 1996 came closest to examining the variables of pullout or in-class. Zigmond and Baker (1996) examined necessary components for the instruction of students with LD while moving from pullout instruction to full inclusion. While RTI was not a replacement or an ironclad method for identifying students with LD, the study and descriptions by the authors paralleled this study's examination of RTI presented as pullout or in-class.

The article began with a historical background on early advocates for inclusion. A study by Kephart in 1970 as quoted by Zigmond and Baker (1996) was a precursor to the resource room model in which students were offered instruction where an "intensive attack is made on (the) learning problems, not only curriculum matters, but upon the learning problem itself and the methods by which (the student) processes information" (p. 26). The resource room was meant to be a pullout time for students to work on study and learning skills that could help them remain for longer periods in the general education classroom. Zigmond and Baker (1996) stated:

It is reasonable to question whether, in full inclusion models...students with LD are, in fact, experiencing both compensation (adapted learning environments) and

remediation (direct or focused instruction in skills and strategies that would enable them to cope with the mainstream curriculum). (p. 28)

The question became, is the in-class model helping students to learn how to learn and relearn undeveloped skills? If students were only learning how to learn, then they were not developing necessary skills. If students were only working on remediation of skills, then they returned to the regular classroom even further behind their peers. Zigmond and Baker (1996) concluded that the students with LD in their study still needed intensive instruction based on individual needs in a pullout setting. This study attempts to correlate Zigmond and Baker's findings to RTI instruction, and show that the pullout model would give better growth results than the in-class model.

### **Misconceptions About RTI**

Misconceptions about the purpose of RTI abound amongst teachers and parents. RTI is not a replacement for testing for SLD. A parent can still make a formal request for a child to be tested for a SLD before, during, or after the child participates in RTI. If a student exhibits a lack of growth through Tiers II and III, special education testing could be recommended, for which parents may provide or deny permission. If a student exhibits growth as specified in the content area expectations, special education testing would not be recommended. Growth is measured by the rate of improvement, which is outlined in Tennessee in the 2013 Response to Instruction and Intervention Framework ("RTI<sup>2</sup>", 2013, p. 62)

Another misconception is RTI Tier II is a replacement for small group instruction in the regular classroom, also known as Tier I instruction. According to the 2013 Response to Instruction and Intervention Framework, teachers in the studied school

system were still required to present reading/language arts instruction in a ninety-minute, uninterrupted block of time, or math instruction in a sixty-minute, uninterrupted block of time. That time was to include differentiated instruction for the whole group as well as small groups in skill deficits such as comprehension skills, decoding long vowel sounds, and fluency. Tier II RTI instruction was to be thirty extra minutes above the ninety-minute reading/language arts or math block.

RTI Tier II instruction is also not an extension of the reading comprehension, reading foundations, or math skills that are taught over several weeks in the Tier I regular education classroom. Students who participate in Tier II instruction have demonstrated through scores on the universal screener a lack of progress in basic reading or math skills. Intervention instruction is meant to be daily, targeted, intensive practice on a specific skill deficit.

### **Gaps in the Literature**

Search terms for this review of the available literature included *RTI*, *inclusion*, *in-class*, *pullout*, *push-in*, *reading*, *tiered instruction*, and *oral reading fluency*. Hundreds of peer-reviewed articles were found and further culled to *primary grades* or *Tier II*. Many journal articles and studies described RTI and the different ways it could have been implemented. Few journal articles studied the specific RTI instruction presentations of pullout and in-class.

One gap in the literature on RTI is much of the information found on the delivery of instruction focused on how dynamic or explicit the instruction was rather than how the physical setting affected student growth in reading. Several studies compared student-testing results across one grade level or focused on Tier II and III. Nelson-Walker et al.

(2013) examined teacher behaviors in explicit instruction, but found a variability that they planned to account for in a future study involving twice the number of teachers. Denton et al. (2013), posited that students in Tier II or III who showed a lack of responsiveness to the direct, explicit instruction would remain unidentified, yet required to keep doing the same research-based work in small groups. While teachers may have been using best practices, those practices might not have been what unresponsive students needed. Studies on the delivery of instruction in RTI based on setting focused on group size and teacher effectiveness rather than the setting of the group instruction, again leaving a gap of studies completed on group size in RTI as a function of room placement (in class or out of class).

Another gap found in the literature is a consensus on the type of reading screener that best identified primary students' overall reading struggles. While Olinghouse et al., (2006) found that ORF garnered the most variance, Zumeta et al. (2012) found WIF to be a better predictor for reading difficulties in first graders. Each of the tests discussed earlier in this chapter had value and elicited data that should have guided instruction. However, more data was needed to determine which reading screener best described a student's reading difficulties.

A third gap in the literature is the dynamics of student behavior. Often, students with attentiveness issues acquire gaps in their learning, which shows through universal screening scores. Other behaviors or conflict with peers in the small group could have been exacerbated by the group's size. Teaching involved not only the planning of intense, explicit instruction but also the management of the behavior of several different personalities and the issues they brought with them to small group time. Ball, Finch,

Gettinger, & the K-3 Reading and Behavior Intervention Project (2014) attempted to compare student behavior to reading progress, but instead focused on the teachers' background knowledge of managing a group of students.

Additionally found was a gap in the literature on the use of gender, ethnicity, or socio-economic status and how they affect growth in reading scores. Much research has been completed on the effects of poverty and racial tension on preschool aged children. Their vocabulary, reading readiness, and motivation have been studied. However, these have not been studied in conjunction with the RTI method of identifying students at risk for failure. Gender roles of teachers and the effect of teacher favoritism toward males or females have been studied also. Again, however, these have not been studied in conjunction with RTI.

### **Pulling It All Together**

This review of the literature surrounding RTI is based on peer-reviewed articles and journals, as well as information from textbooks used in special education courses. Many studies were found that defined RTI. Many others were found that studied some aspect of choosing students for RTI, the progress monitoring testing administered, and the importance of explicit instruction. Very little research was found on the effect of the presentation of RTI instruction, pullout or in-class, and how it affects student growth scores. The last sixty years have seen court cases and federal laws passed that have outlined the importance of using RTI. This study seeks to determine, in the population of first graders in a Middle Tennessee school district, would students perform better during RTI instruction and achieve higher growth scores when taught in an in-class model versus a pullout model.

## CHAPTER III

### METHODOLOGY

#### Introduction

The purpose of this field study was to investigate the possible effects of the type of RTI presentation on student growth in ORF. This study measured the difference in growth data between students assigned to an RTI Tier II group taught as pullout and an RTI Tier II group taught as in-class. Pullout consisted of removing the small group of Tier II students to a different classroom for instruction. In-class consisted of teaching the small group of Tier II students in a classroom with the rest of the teacher's class present.

#### Setting of Study

The studied school system is in a growing metropolitan area less than an hour's drive from a major metropolitan area, less than a half-hour's drive from a major military post, with a four-year university, and has major industries in the process of building factories in the county. Because of these factors, the school system had built three new elementary schools in the previous four years alone, for a total of twenty-three. Some schools were operating at capacity while others were over capacity with portable classrooms being utilized. The overcrowding created scheduling issues for principals trying to meet state standards for physical education and time for all students to participate in subject areas outside the regular classroom at which they might excel. For this reason, and other possible factors not shared with this researcher, principals made decisions in their own buildings as to when and how RTI instruction would be delivered.

## Methods of RTI Instruction

In the studied school system, RTI is delivered in two types of settings, which were utilized based on various factors. One factor is based on the studied school system's participation in the federal free and reduced lunch program. Schools determined to be Title I by the percentage of students who participated in that lunch program had a reading intervention teacher who was responsible for teaching small group reading before RTI was mandated by the state of Tennessee. The school system on which this study is based favors reading specialists to have earned a graduate degree with an endorsement in reading, which would make that teacher uniquely, highly qualified to teach reading interventions. In these Title I schools, Tier II RTI instruction continues to be implemented by a reading specialist in a quiet setting away from the regular education students and their peers.

Not all schools in the studied school district were eligible for Title I designation. These schools did not have extra, certified staff to teach pullout small groups of students in reading. All certified staff had duties in their own general education classrooms or as special area teachers of music, art, physical education, counseling, or library. In these schools, RTI Tier II instruction was administered by the classroom teacher, who was responsible not only for the small RTI group but her own class of twenty or more students. Therefore, at a time outside of the ninety-minute reading/language arts block, teachers were to create a thirty-minute span of time for intensive RTI instruction. This time included plans that would allow the teacher to instruct Tier II students as well as be meaningful for the rest of his/her class. Thus the setting here was in-class with the teacher's Tier I students.

Some schools created space in the daily schedule for each grade level to have RTI time in a quiet setting. For example, every first grade student in an elementary school was placed into one of four groups. One group of students was assigned to RTI instruction due to their universal screener scores. The rest of the first graders were randomly assigned to one of three groups. The first grade teachers took their assigned RTI group back to their empty, quiet classrooms for intensive instruction. Special area teachers took the other three groups for instruction different from the standards they were expected to teach. In this manner, students in RTI did not miss out on music, art, or physical education learning. Students rotated through the special area teachers' groups every six weeks, so that interest levels would stay high, and the special area teachers could rotate the standards that they were teaching. For instance, the librarian could choose to teach a six-week unit on folk tales. The unit covered first grade standards and the rotation allowed all of the first grade students to receive that instruction, except for students in RTI. The counselor could teach units on student collaboration and character traits that the state standardized testing schedule did not allow time for her to teach. All students were still receiving valuable, high-quality, standards-based instruction during the thirty-minute RTI time. Thus the setting here was pullout outside of the regular education classroom.

## **Participants**

The participants in this study were first graders in Tier II RTI in the studied school system. The sample consisted of students who participated in Tier II RTI between the winter and spring universal screener in the school year 2015-2016. This school year was chosen due to RTI being mandated by the state of Tennessee to be utilized in all

school districts beginning with the 2014-2015 school year, and data was available for all school system elementary students. The studied school system was a large district in Middle Tennessee with 23 kindergarten through fifth grade elementary schools. Out of 2639 first graders in the district who took both the winter and spring universal screeners, 183 were involved in Tier II RTI instruction. Neither students nor their teachers were recruited to participate in this study. A further delineation of demographics for the participants is listed in Table 1.

Table 1

*Participant Demographics as a Percentage of the Sample*

Participant Demographics	Frequency	Percentage
RTI pullout		
Male	91.0	49.7
Female	53.0	29.0
RTI in-class		
Male	26.0	14.2
Female	13.0	7.1
Total	183.0	100.0

## Variables

The independent variable for this quantitative field study was the setting for RTI presentation. The settings were described as pullout and in-class. These categories did not overlap, in that students could not be part of both groups. This variable was nominal and discrete. Pullout RTI presentation consisted of Tier II students meeting with an interventionist outside of Tier I instruction. Pullout RTI instruction was administered with students physically separated from students receiving Tier I instruction. In-class RTI presentation consisted of Tier II students meeting with an intervention teacher at the

same time Tier I instruction was being presented. This intervention teacher was responsible for administering Tier I and Tier II instruction at the same time with all students in the same physical space.

The dependent variable for this study was the growth in ORF scores from the winter to the spring universal screener. The variables of gender, ethnicity, and socio-economic status were not used to disaggregate data. Ethnicity and socio-economic status data on each individual student were not made available to the researcher. In addition, of the 23 elementary schools in the school system, 18 were eligible for Title I designation. Of those eligible for Title I designation and a reading interventionist, four chose the in-class method of RTI presentation. Of the 183 students receiving Tier II intervention, 117 were males and 66 were females.

### **Instrumentation**

The Path Driver™ universal screener tests administered to first graders in the studied system were letter naming, letter sound, nonsense word, phonemic segmentation, word identification, and oral reading (ORF) fluency. ORF growth was chosen for comparison in this field study due to its use in both the winter and spring universal screening battery. Data were gathered on all first grade students in Tier II instruction in the studied school system receiving intervention in ORF. Students' data were placed in two groups depending upon which type of RTI presentation was administered.

In ORF, students had one minute to read as far into the passage as possible. The score was the number of words read correctly in one minute. Students were required to read three passages. During weekly progress monitoring, students were administered another ORF test, with only one passage to read. Words read correctly per minute were

graphed for each student. This data was used to calculate an actual rate of improvement compared to an expected rate of improvement. Spring ORF scores were compared to winter growth scores. The growth in scores of ORF was a parametric type of statistic with a continuous, ratio scale of measurement. These scores were sorted by the method of RTI presentation, pullout or in-class, and gender.

**Design of the study.** The research design for this field study was quantitative, using archival data to determine the growth scores of students in pullout or in-class RTI instruction. An ANCOVA was performed to determine if there was a statistically significant difference between the means of growth in scores in these two groups. This allowed for comparisons by gender in both groups. The winter, or Middle of the Year (MOY), ORF testing was considered a baseline, while the spring, or End of the Year (EOY), growth score was the gain or regression depending upon the effect of the independent variables of pullout or in-class instruction. Internal validity could have been affected by the variables of ethnicity or socio-economic status that were not conveyed by the studied school system, as well as student reading background and the effectiveness of the Tier I instruction each student in Tier II instruction was still receiving. Attendance for Tier II instruction was affected by factors outside of the researcher's authority. Until the data was analyzed, it was assumed that there would be no significant outliers that the dependent variable would be normally distributed amongst the two parts of the independent variable, and there would be homogeneity of variances.

**Assignment of participants.** Participants from the studied school system were assigned to Tier II instruction based upon universal screener reading scores at the winter testing. School principals chose the type of RTI presentation to be executed at their own

schools. Therefore, assignment to pullout or in-class RTI presentation was due to principal choice of scheduling. The number of students in Tier II was 183. The pullout condition included 152 students. Of these students, 91 were male, and 53 were female. The in-class condition included 39 students. Of these students, 26 were male, and 13 were female. The baseline data were established in November of the studied school years. The EOY and progress monitoring data were recorded in late February to early March of the same academic years.

**Method of analysis.** Data were collected on all Tier II first grade students from scores in ORF between the winter and spring universal screeners. Data were sorted into the two studied groups of Tier II administered as pullout or as in-class. These data were entered into the Statistical Package for the Social Sciences (SPSS) software program 23 Independent T-Test. An ANCOVA was performed to determine if there was a statistically significant difference between the means of the groups, pullout or in-class RTI presentation. Alpha level was set at  $p < 0.05$  to determine if the null hypotheses were to be accepted or rejected. Data were evaluated to determine if there was a statistically significant difference in growth rate in ORF of students in Tier II RTI pullout instruction as compared to Tier II RTI in-class instruction in the studied school system.

## CHAPTER IV

### RESULTS

A one-way analysis of covariance (ANCOVA) was conducted. The independent variable, RTI presentation, involved two levels; pullout and in-class. The dependent variable was the post-test of ORF (end of the year ORF) and the covariate was the pre-test of ORF (middle of the year ORF).

**Descriptive analysis of the covariate and dependent variable.** The means, standard deviations, and growth for both the MOY (covariate) and EOY ORF scores (dependent variable) for students in the pullout condition are listed in Table 2.

Table 2

#### *Descriptive Statistics for RTI Presentation*

	<u>MOY ORF (Covariate)</u>		<u>EOY ORF (Dependent Variable)</u>			
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>Growth</u>	<u>N</u>
RTI pullout						
Males	9.4	1.7	24.3	9.6	14.1	91.0
Females	9.6	1.7	22.2	7.5	12.6	53.0
Totals	9.5	1.7	23.5	8.9	14.0	144.0
<hr/>						
RTI in-class						
Males	9.1	2.0	22.4	10.6	14.0	26.0
Females	9.8	1.9	24.3	13.1	14.5	13.0
Totals	9.3	2.0	23.0	11.4	13.7	39.0

Both the covariate and the dependent variable were checked for normality and significant outliers, two more assumptions of an ANCOVA. The distributions of scores on these measures are shown in Figure 2. An assumption was made that the histogram would show normality. The furthest deviation from the mean occurred in the EOY ORF assessment where the data point was 53 from a female in-class RTI student which was 3.12 standard deviations above the mean for the group.

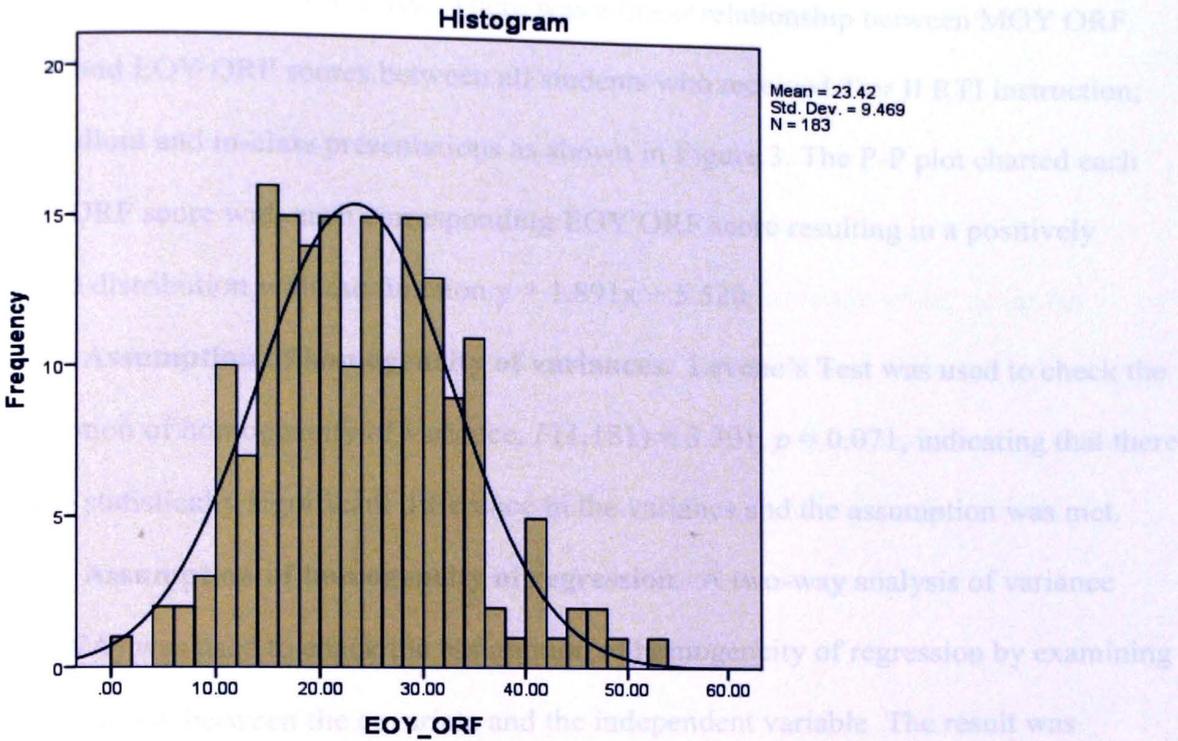


Figure 2. Distribution of scores on the EOY ORF assessment.

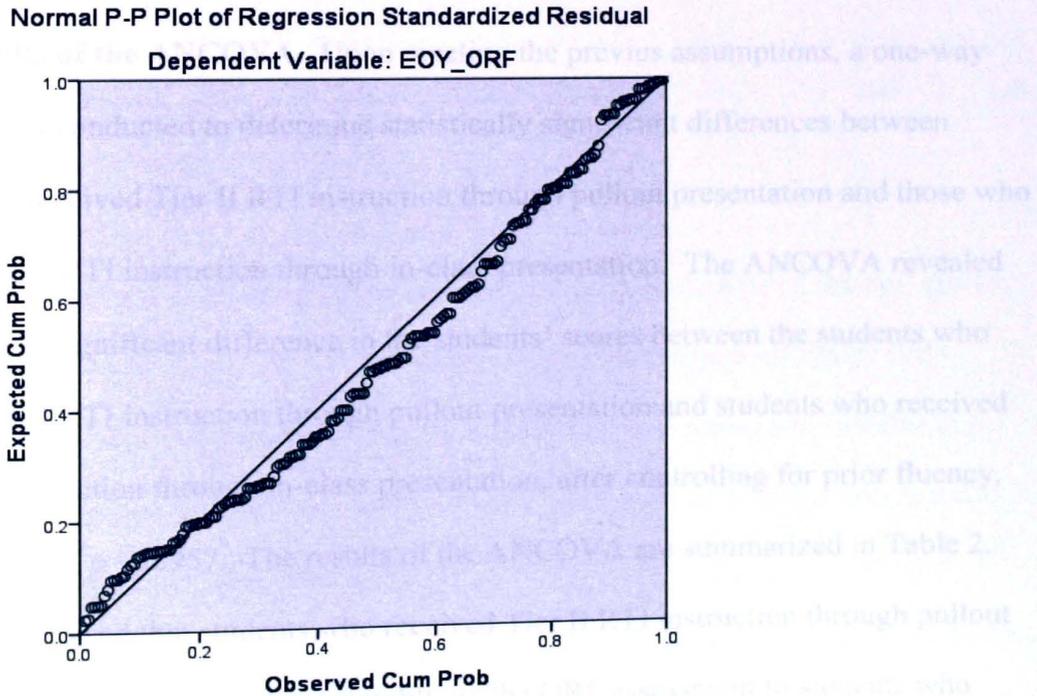


Figure 3. P-P Plot of Normally Distributed Residuals.

**Assumption of linearity.** There was a linear relationship between MOY ORF scores and EOY ORF scores between all students who received Tier II RTI instruction; both pullout and in-class presentations as shown in Figure 3. The P-P plot charted each MOY ORF score with each corresponding EOY ORF score resulting in a positively skewed distribution with the function  $y = 1.891x + 5.520$ .

**Assumption of homogeneity of variances.** Levene's Test was used to check the assumption of homogeneity of variance,  $F(1,181) = 3.301, p = 0.071$ , indicating that there was no statistically significant difference in the variances and the assumption was met.

**Assumption of homogeneity of regression.** A two-way analysis of variance (ANOVA) was used to check the assumption of homogeneity of regression by examining the interaction between the covariate and the independent variable. The result was  $F(10,55) = 0.637, p = 0.638$ . There was no statistically significant difference, thus meeting the assumption.

**Results of the ANCOVA.** Upon meeting the previous assumptions, a one-way ANCOVA was conducted to determine statistically significant differences between students who received Tier II RTI instruction through pullout presentation and those who received Tier II RTI instruction through in-class presentation. The ANCOVA revealed there was not a significant difference in the students' scores between the students who received Tier II RTI instruction through pullout presentation and students who received Tier II RTI instruction through in-class presentation, after controlling for prior fluency,  $F(1,180) = 0.003, p = 0.957$ . The results of the ANCOVA are summarized in Table 2. These results showed that students who received Tier II RTI instruction through pullout presentation ( $M = 23.43$ ) scored comparably on the ORF assessment to students who

received Tier II RTI instruction through in-class presentation ( $M = 23.348$ ), but both groups showed improvement in scores. Partial eta squared  $\eta_p^2$  was used to determine effect sizes and was calculated as:  $\eta_p^2 = \frac{df_{\text{effect}} \times F_{\text{effect}}}{(df_{\text{effect}} \times F_{\text{effect}}) + df_{\text{error}}}$

$$(\text{df}_{\text{effect}} \times F_{\text{effect}}) + \text{df}_{\text{error}}$$

Because the error terms for each comparison in this study were the same, using  $\eta_p^2$  estimates was deemed appropriate and defined as either small ( $\eta_p^2 \leq 0.03$ ), medium ( $0.03 < \eta_p^2 \leq 0.06$ ), or large ( $\eta_p^2 > 0.06$ ), in accordance with those suggested by Cohen (1988). Because the size of the effect of RTI method/presentation on the growth of scores was negligible, this corroborates the lack of statistical significance in the difference in growth between the two methods/presentations.

Table 3

*Analysis of Covariance Summary for Students' ORF scores*

Source	SS	df	MS	F	p
MOY ORF	2001.1	1.0	2001.1	25.2	0.0
RTI Presentation	0.2	1.0	0.2	0.0	1.0
Error	14310.8	180.0	79.5		
Total	116653.0	183.0			

However, when examining the means and standard deviations of the raw scores, slight differences were noted. As Table 2 demonstrates, the average of males and females in pullout RTI is 0.5 points higher than the average of males and females in in-class RTI. The average growth from MOY to EOY ORF scores for males and females in pullout RTI is 0.3 points higher than the average of males and females in in-class RTI. The standard deviation of scores for males and females in pullout RTI was 8.9 while the standard deviation of scores for males and females in pullout RTI was 11.4, which

indicates a wider range of scores. When scores are segregated by gender, the numbers widen. Males in pullout RTI scored an average of 2.9 points higher than their male peers in in-class RTI, with comparative growth being 0.1 points and the difference in standard deviation being 1.0. Males in pullout RTI made slightly better gains than their counterparts in in-class RTI.

Females' scores do not mirror males' scores. Females in pullout RTI scored on average 2.1 points lower than females in in-class RTI, with growth being 1.9 points less. However, with the standard deviation between scores for females in pullout RTI being 5.7 less than in-class RTI, females demonstrated a wider range of EOY ORF scores than males.

A comparison of the impact of pullout and in-class RTI on males versus females indicates the effect of each condition on different groups of students. As a whole, females in in-class RTI had the best growth scores of the four conditions, followed by males in pullout RTI, males in in-class RTI, and finally, females in pullout RTI. The difference in growth for females was 2.9 points while the difference in growth for males was 0.1 points. The difference in standard deviation for females in in-class RTI as compared to pullout RTI was 5.6 while the difference for males was 1.0. The wide difference in growth and standard deviation for females as compared to males indicates that females may be more sensitive to the different types of RTI presentation than males. Males' scores may have risen higher in pullout RTI rather than in-class RTI due to the low ratio of students per instructor. Males might be able to better focus on intervention tasks within the quiet confines of a classroom devoid of other students rather than in the noisier atmosphere of a small group meeting in a classroom of twenty extra students.

Females in in-class RTI may have scored higher due to an ability to ignore extraneous noise and activity.

## DISCUSSION

The present study was designed to determine the effect on students' MOY ORF scores when Tier II RTI was presented in a pullout setting. The results indicated that administering Tier II RTI instruction in a pullout setting resulted in a statistically significant difference in growth in scores than Tier II RTI instruction administered in an in-class setting. The null hypothesis that there would be no significant difference in scores between the two types of RTI presentation failed to be rejected. The analysis found no statistically significant difference.

As the study progressed, more limitations were encountered than originally anticipated. The type of data available from the school system was limited by several factors. Data was available only for the present school year and not for any previous years, which limited the sample size. Data could not be disaggregated by socio-economic status since the studied school system did not present the data in that format. Student attendance at RTI sessions or previous experience with RTI was not available. Additionally, some students with individualized education plans received intervention outside of Tier II instruction, but were not able to be included in the data. Teacher effectiveness scores were not available nor were data on the evidence-based activities utilized by instructors. Finally, language issues were not identified, which could skew the results for both the students in that group but also the other students in that group. For example, a

## CHAPTER V

### DISCUSSION

#### **Conclusions for RTI Presentation**

The research question attempted to determine the effect on students' MOY ORF to EOY ORF growth in scores when Tier II RTI was presented in a pullout setting. The research hypothesis was that administering Tier II RTI instruction in a pullout setting would result in a statistically significant difference in growth in scores than Tier II RTI instruction administered in an in-class setting. The null hypothesis that there would be no difference in growth in scores between the two types of RTI presentation failed to be rejected because the analysis found no statistically significant difference.

#### **Additional Limitations**

As this study progressed, more limitations were encountered than originally anticipated. The type of data available from the school system was limited by several factors. Data was available only for the present school year and not for any previous years, which limited the sample size. Data could not be disaggregated by socio-economic status of the individual since the studied school system did not present the data in that manner. Data on student attendance at RTI sessions or previous experience with RTI instruction was not made available. Additionally, some students with Individualized Education Plans receive intervention outside of Tier II instruction, but were not able to be removed as outliers from the data. Teacher effectiveness scores were not available nor were the particular research-based activities utilized by instructors.

Students with attention or language issues were not identified, which could skew scores of not only the individual but also the other students in that group. For example, a

male student in a group of three had difficulty attending to the task at hand and spent some of his time entertaining his classmates. When the other students made enough gains in progress monitoring scores to be moved to a different group for instruction, but he made no gains, he remained with his original interventionist. His interventionist was able to help him keep his attention on tasks for longer periods of time and was able to further pinpoint his reading needs. By the next testing period, he had made enough gains to exit Tier II RTI and return to Tier I instruction. His limitation was his inattentiveness. His teacher's instruction and his perception of his learning target became more effective with the one-on-one instruction.

### **Implications for RTI Presentation Implementation**

Reading is one of the toughest skills a student will learn in school. It is the basis for education in the physical, biological, and social sciences. It requires students to have eye control, the ability to track print from left to right and top to bottom, an understanding of the minute differences in symbols (letters), the ability to interpret those symbols and the ability to match them to sounds that change amongst words, since English has appropriated so many words from other languages. First grade teachers are teaching students how to learn to read as they are teaching them how to read to learn. A primary teacher takes this task seriously, with the majority of the instructional day being spent on reading tasks. Administrators in the studied school system also take the teaching of reading seriously enough to require that each teacher from kindergarten through 5<sup>th</sup> grade be given an 1½ hour block of uninterrupted time to teach reading every day.

The importance that the state of Tennessee has placed on identifying students with reading problems is commendable. However, in the RTI<sup>2</sup> Framework published by the state, various options for scheduling tiered instruction are offered, which includes the two types of RTI presentation studied in this research. While scheduling of any school day activity is affected by the number of teachers available, it would seem that teaching ALL students to read by identifying their reading deficiencies and designing teaching accordingly would be the paramount aspiration of educators at the school and state level.

Tier II of RTI is to be delivered to students outside of Tier I instruction. In other words, while Tier II students are receiving interventions, they are not to be missing Tier I instruction. This raises the question, what are the other students doing while Tier II students are in intervention whether in the pullout or in-class setting? Are Tier II students missing reading instruction? Are Tier II students missing special area instruction? Even though the state of Tennessee has outlined various options for delivering interventions, are all of the options mirroring the essence of true RTI?

The finding of this study, that there was no statistically significant difference between the two methods of RTI presentation, was surprising. According to the data, both methods were beneficial in helping students raise their ORF scores between the MOY and the EOY screenings. Students were developing skills in ORF whether they were receiving individualized attention in a small group setting (pullout) or in a small group setting within a large group setting (in-class). This finding has positive implications for students, teachers, and school administrators who schedule time for tiered instruction. Students are receiving the explicit instruction they need to be successful in reading. Teachers are being effective in their choice of intervention, choice

of research-based instructional activities, and method of classroom organization, whether pullout or in-class. School administrators who are scheduling time for Tier II instruction can easily prove its' value.

However, negative implications are also present. Students in Tier II RTI need intervention for a variety of reasons. If a Tier II student has issues with attentiveness, an in-class setting could exacerbate the inability to ignore extraneous noise and movement, thus keeping the student from spending the full Tier II intervention time on his or her instructional needs. A negative impact on teachers could be the stress of meeting the needs of Tier II students while simultaneously meeting the needs of 20 or more Tier I students in an in-class setting. Tier I students in an in-class Tier II RTI setting could also be negatively impacted. When a teacher is attending to Tier II students for the full 30 minutes of RTI time, Tier I students receive zero minutes of attention from their teacher. Tier I students would essentially be missing a half-hour of valuable instruction time every day. This instruction time could be for enrichment, concept development, practice, or skill development, but not as fully as when a teacher is able to circulate amongst students.

Negative implications for pullout Tier II RTI students include the effect on test scores of Tier I students who are missing 30 minutes of instruction time while with special area teachers. Conversely, Tier II RTI students missing time with special area teachers could potentially lose out on instruction in an area in which he or she might excel, such as art or music. Another negative implication for pullout Tier II RTI students is the potential for missing Tier I instruction in schools in which the reading interventionist is able to pull students out for instruction while the classroom teacher continues instructing the rest of the class.

Pullout Tier II RTI students could be positively affected by the individualized, uninterrupted time with an interventionist. Teachers could commit their full attention to a student's needs, rather than trying to divide it amongst a classroom full of students. While scheduling for pullout Tier II RTI might be complicated for the school administrator setting the timetable, that administrator would be assured that all students, whether Tier I or II, would be receiving necessary instruction.

Any of these negative or positive implications for either pullout or in-class Tier II RTI instruction could be possible explanations for the lack of difference in growth between the two methods. The unbalanced numbers of students in pullout (144) and in-class (39) could be another possible explanation. However, pullout Tier II RTI instruction had a slight edge on in-class Tier II RTI instruction. Male and female students in pullout RTI ( $n = 144$ ) scored an average of 23.5 with 14 points in growth while males and females in in-class RTI ( $n = 39$ ) scored an average of 23.0 with 13.7 points in growth. Studying a larger sample could alter these numbers.

### **Future Research**

Several ideas for potential studies arose as this study was conducted. Tier II ORF data from across the state should be analyzed for a variety of purposes. That analysis could offer similar results, or with a more diverse population, could offer diverse results. Analysis of statewide results could offer teachers the data needed to determine what instructional methods work best.

ORF was chosen as the subtest to be analyzed due to the fact that first grade students are given this test two times in the school year, at the middle and the end, and after the majority of phonics instruction has been administered. Other subtests such as

Letter Naming Fluency or Word Identification Fluency require different teaching methods. A study of how pullout or in-class RTI instruction affects these could offer analysis as to the best teaching strategy as well as the better presentation strategy.

An additional analysis should be conducted on teacher effectiveness within the two types of RTI presentation, as well as an analysis of the learning happening for Tier I students while their teacher is busy with a Tier II intervention group. The ability to multi-task is an important skill for teachers, but study is needed into its effectiveness on instruction.

First grade is not the only group that should be studied. The effect of RTI presentation for students struggling in ORF or other reading subtests in grades above first grade should be examined for similar or contrasting results. A longitudinal study of students' ORF scores from first through fifth or sixth grades could measure the impact of age and RTI presentation. Math is a subject tested by the universal screener in the studied school system, with students scoring below the 25<sup>th</sup> percentile placed in groups to receive RTI instruction. The effect of RTI presentation on student growth scores in math should be examined and compared to the effect on student growth scores in reading, especially if an individual school is offering RTI instruction in math and reading at the same time of day.

Tier II students' attitudes should be studied. Often, students who struggle in reading are well aware of their deficits and are often hesitant to demonstrate their inability to read in front of their classmates. Tier II students could be sabotaging themselves by focusing on what others think of their reading rather than focusing on practicing and honing the skill at hand. Researchers could study the effect of Tier II

students' opinions about their own reading, their opinions of reading in front of others, or even their opinions on their need or lack thereof for intensive reading instruction.

Student reading abilities change dramatically from kindergarten through fifth grade. A further analysis could include students' ORF scores in grades two through five. A researcher could examine the further parameters of age, time in RTI, and comprehension. All of these could be compared by method of RTI presentation, which could indicate a need for different methods for different age groups.

This study found there to be no statistically significant difference in growth scores in ORF for first graders between the MOY and EOY testing. However, students did show growth in ORF, not a decline. If RTI presentation is not a defining factor in improving scores, then what is? Is it teacher effectiveness? Is it simply the small group, individualized attention of differentiated instruction in Tier I? Or is it a deeper difference involving gender and learning styles?

In conclusion, the null hypotheses for this study failed to be rejected. However, teachers are educating individuals, whose attitudes and self-esteem about their reading abilities affects their learning. Further research into these types of RTI presentation is necessary in order to benefit the students who need it the most.

## REFERENCES

- Armbruster, B. R., Lehr, F., & Osborne, J., (n.d.). National Reading Panel. Retrieved April 02, 2016, from <https://www.nichd.nih.gov/research/supported/Pages/nrp.aspx>
- Ball, C. R., Finch, W. H., Gettinger, M., & K-3 Reading and Behavior Intervention Project (2014). Classroom-level effects on the reading and behavior of at-risk kindergartners. *Preventing School Failure, 58*(2), 80-89.
- Barnes, A. C., & Harlacher, J. E. (2008). Clearing the confusion: Response-to-intervention as a set of principles. *Education and Treatment of Children, 31*(1), 417-431.
- Bean, R., & Lillenstein, J. (2012). Response to intervention and the changing roles of school-wide personnel. *Read Teach The Reading Teacher, 65*(7), 491-501.
- Bradley, R., Danielson, L., & Doolittle, J. (2007). Responsiveness to intervention: 1997 to 2007. *TEACHING Exceptional Children, 39*(5), 8-12.
- Brown v. Board of Education of Topeka, 347 U.S.483 (1954).
- Catts, H. W., Nielsen, D. C., Bridges, M. S., Liu, Y. S., & Bontempo, D. E. (2013). Early identification of reading disabilities within an RTI framework. *Journal of Learning Disabilities, 48*(3), 281-297.
- Data Tools. (n.d.). Retrieved April 23, 2016, from <https://www.tn.gov/education/article/t doe3-rti-coaches-data-tools>
- Deno, S. L., Reschly, A. L., Lembke, E. S., Magnusson, D., Callender, S. A., Windram, H., & Stachel, N. (2009). Developing a school-wide progress-monitoring system. *Psychology in the Schools, 46*(1), 44-55.

- Denton, C. A., Tolar, T. D., Fletcher, J. M., Barth, A. E., Vaughn, S., & Francis, D. J. (2013). Effects of tier 3 intervention for students with persistent reading difficulties and characteristics of inadequate responders. *Journal of Educational Psychology, 105*(3), 633-648. doi: 10.1037/50032581
- Dexter, D. D., Hughes, C. A., & Farmer, T. W. (2008). Responsiveness to intervention: A review of field studies and implications for rural special education. *Rural Special Education Quarterly, 27*(4), 3-9.
- Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*(1), 93-99. doi: 10/1598/RRQ.41.1.4
- Gehrke, R. S. & McCoy, K. (2007). Sustaining and retaining beginning special educators: It takes a village. *Teaching & Teacher Education, 23*(4), 490-500.
- Hagan-Burke, S., Coyne, M. D., Kwok, O., Simmons, D. C., Kim, M., Simmons, L. E., Ruby, M. M. (2011). The effects and interactions of student, teacher, and setting variables on reading outcomes for kindergarteners receiving supplemental reading intervention. *Journal of Learning Disabilities, 46*(3), 260-277. doi 10.1177/0022219411420571
- Harlacher, J. E., Potter, J. B., & Weber, J. M. (2014). A team-based approach to improving core instructional reading practices within response to intervention. *Intervention in School and Clinic, 50*(4), 210-220.
- Hobson v. Hansen, 269 F. Supp. 491 (D.D.C. 1967), aff'd sub nom. Smuck v. Hobson, 408 F.2d 175 (D.C. Cir. 1969)

- Lam, E. A., & McMaster, K. L., (2014). Predictors of responsiveness to early literacy intervention: A 10-year update. *Learning Disability Quarterly*, 37(3), 134-147. doi: 10.1177/0731948714529772
- Mercer, C. D., Mercer, A. R., & Pullen, P. C. (2011). *Teaching students with learning problems*. Upper Saddle River, NJ: Pearson.
- Mesmer, E. M., & Mesmer, H. A. (2008). Response to intervention (RTI): What teachers of reading need to know. *The Reading Teacher*, 62(4), 280-290. doi: 10.1598/RT.62.4.1
- Murdick, N. L., Gartin, B. C., & Fowler, G. (2014). *Special Education Law*. Upper Saddle River, NJ: Pearson Education, p. 21-25.
- Nelson-Walker, N. J., Fien, H., Kosty, D. B., Smolkowski, K., Smith, J. L., & Baker, S. K. (2013). Evaluating the effects of a systemic intervention on first-grade teachers' explicit reading instruction. *Learning Disability Quarterly*, 36(4), 215-230. doi: 10.1177/0731948712472186
- Nese, J. F., Biancarosa, G., Cummings, K., Kennedy, P., Alonzo, J., & Tindal, G. (2013). In search of average growth: Describing within-year oral reading fluency growth across Grades 1–8. *Journal of School Psychology*, 51(5), 625-642.
- New No Child Left Behind flexibility: Highly qualified teachers (n.d.). Retrieved April 02, 2016, from <http://www2.ed.gov/nclb/methods/teachers/hqtflexibility.html> [U. S. Department of Education]
- No Child Left Behind Act of 2001, P.L. 107-110, 20 U.S.C. § 6319 (2002).

- Olinghouse, N. G., Lambert, W., & Compton, D. L. (2006). Monitoring children with reading disabilities' response to phonics intervention: Are there differences between intervention aligned and general skill progress monitoring assessments? *Exceptional Children, 73*(1), 90-106.
- Otaiba, S. A., Connor, C. M., Folsom, J. S., Wanzek, J., Greulich, L., Schatschneider, C., & Wagner, R. K. (2014). To wait in tier 1 or intervene immediately: A randomized experiment examining first-grade response to intervention in reading. *Exceptional Children, 81*(1), 11-27. doi: 10.1177/0014402914532234
- Overton, T. (2012). *Assessing learners with special needs: An applied approach*. Upper Saddle River, NJ: Pearson Education. Reading curriculum based measurement.
- PARC v. Commonwealth of Pennsylvania. 343 F. Supp. 279; 1972, U.S. Dist. LEXIS 13874.
- Partanen, M., & Siegel, L. S. (2013). Long-term outcome of the early identification and intervention of reading disabilities. *Read Writ Reading and Writing, 27*(4), 665-684. doi: 10/1007/s11145-013-9472-1
- Path Driver™ (n.d.). Retrieved July 30, 2016, from [eps.schoolspecialty.com/products/online-programs/path-driver-for-reading](http://eps.schoolspecialty.com/products/online-programs/path-driver-for-reading).
- Preparing America's students for success. (n.d.). Retrieved June 21, 2016, from <http://www.corestandards.org/>
- Regan, K., & Berkeley, S. (2011). Effective reading and writing instruction: A focus on modeling. *Intervention in School and Clinic, 47*(5), 276-282. doi: 10.1177/1053451211430117

- RTP (2013). TnCore The Common Core State Standards RTI2 2013: Response to Instruction and Intervention Framework. [Retrieved April 02, 2016, from <http://www.tncore.org/rti.aspx>],
- Scammaca, N., Vaughn, S., & Roberts, G. (2007). Extensive Reading Interventions in Grades K-3: From Research to Practice. Retrieved April 02, 2016, from <http://www.centeroninstruction.org/extensive-reading-interventions-in-grades-k-3-from-research-to-practice>
- Schatschneider, C., Wagner, R. K., & Crawford, E. C. (2008). The importance of measuring growth in response to intervention models: Testing a core assumption. *Learning and Individual Differences, 18*(3), 308-315.
- Schilling, S., Carlisle, J., Scott, S., & Zeng, J. (2007). Are fluency measures accurate predictors of reading achievement? *The Elementary School Journal, 107*(5), 429-448.
- Scholin, S. E., & Burns, M. K. (2012). Relationship between pre-intervention data and post-intervention reading fluency and growth: A meta-analysis of assessment data for individual students. *Psychology in the Schools, 49*(4), 385-398. doi: 10.1002/pits.21499
- Schwartz, R. M., Schmitt, M. C., & Lose, M. K. (2012). Effects of teacher-student ratio in response to intervention approaches. *The Elementary School Journal, 112*(4), 547-567. doi:10.1086/664490
- Speece, D., Schatschneider, C., Silverman, R., Case, L., Cooper, D., & Jacobs, D. (2011). Identification of reading problems in first grade within a response-to-intervention framework. *The Elementary School Journal, 111*(4), 585-607.

TEAM-TN | A Tennessee Department of Education Website (n.d.). Retrieved July 08, 2016, from <http://team-tn.org/>

The Praxis® Tests. (n.d.). Retrieved July 28, 2016, from <http://www.ets.org/praxis>

Toste, J. R., Compton, D. L., Fuchs, D., Fuchs, L. S., Gilbert, J. K., Cho, E., Bouton, B.D., (2014). Understanding unresponsiveness to Tier 2 reading intervention: exploring the classification and profiles of adequate and inadequate responders in first grade. *Learning Disability Quarterly*, 37(4), 192-203.  
doi: 10.1177/0731948713518336

Vanderheyden, A. M., Witt, J. C., & Gilbertson, D. (2007). A multi-year evaluation of the effects of a response to intervention (RTI) model on identification of children for special education. *Journal of School Psychology*, 45(2), 225-256.

Vellutino, F. R., Scanlon, D. M., Small, S., & Fanuele, D. P. (2006). Response to intervention as a vehicle for distinguishing between children with and without reading disabilities: Evidence for the role of kindergarten and first-grade interventions. *Journal of Learning Disabilities*, 39(2), 157-169.

Zigmond, N., & Baker, J. M. (1996). Full inclusion for students with learning disabilities: Too much of a good thing? *Theory Into Practice*, 35(1), 26-34.

Zumeta, R., Compton, D. L., & Fuchs, L. S. (2012, January 1). Using word identification fluency to monitor first-grade reading development. *Exceptional Children*, 78(2), 201-220.

## APPENDICES

Appendix A: Penn State University

Appendix B: IRB Letter of Approval

AUSTIN PEAY STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD

Approval of Protocols of R.T.T Instruction in Pullout or Inclusion

Dear Professor,

Thank you for your submission to the human research review process. This letter is to inform you that your protocol has been approved on an expedient basis and it is my pleasure to inform you of the approval.

The approval is subject to the policies and procedures governing human subject research. The approval is contingent upon the approval of any non-academic issues that are raised during the review process. If any such issues arise, the approved protocol must be submitted in writing to the Board of approval before continuing.

Thank you for your submission and a second study report or request for continuing review should be submitted to the IRB. If you have any questions or require further assistance, please contact the IRB at (951-223-7500) or email [irb@ap.edu](mailto:irb@ap.edu).

Appendix A

Austin Peay State University

Institutional Review Board (IRB) Letter of Approval

Dr. [Name]



**AUSTIN PEAY STATE UNIVERSITY  
INSTITUTIONAL REVIEW BOARD**

Date: 5/2/2016

RE: 16-016: The Impact of Choice in Presentation of RTI Instruction: Is Pullout or Inclusion the Better Method?

Dear Dr. Grogan and Synthia Strattman,

We appreciate your cooperation with the human research review process. This letter is to inform you that study 16-016 has been reviewed on an expedited basis and it is my pleasure to inform you that your study has been approved.

This approval is subject to APSU Policies and Procedures governing human subject research. The IRB reserves the right to withdraw approval if unresolved issues are raised during the review period. Any changes or deviations from the approved protocol must be submitted in writing to the IRB for further review and approval before continuing.

This approval is for one calendar year and a closed study report or request for continuing review is required on or before the expiration date, 5/2/2017. If you have any questions or require further information, you can contact me by phone (931-221-7506) or email [butterfieldj@apsu.edu](mailto:butterfieldj@apsu.edu).

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Butterfield', written over a faint circular stamp.

Jonniann Butterfield, Ph. D. Chair, APIRB

Appendix B  
Letter of Approval to Conduct Research  
Clarksville-Montgomery County School System



From: Dr. Kimi Sucharski 3.7.2016  
CMCSS Accountability  
612 Gracey Ave  
Clarksville, TN 37040

To: Synthia Stratman

Subject: Request to Conduct a Project in CMCSS

The Clarksville Montgomery County School System Research/Project Committee has met and approved your request to complete your RTI2 and TIER II/III intervention research project focused on first graders.

Sincerely,

A handwritten signature in black ink that reads "Dr. Kimi Sucharski".

Dr. Kimi Sucharski  
CMCSS Accountability and Assessment  
[Kimi.sucharski@cmcss.net](mailto:Kimi.sucharski@cmcss.net)  
(931) 920-7813 office